# Reusable explosive device offers help to law enforcement

***Wrongdoers find it stunning, illuminating — and LOUD***

INTERGALACTIC VISITOR? NOT EXACTLY — Sandia security personnel Peter Tapia (with weapon aimed) and Matt Torres observe the visual and concussive effects of the new Sandia explosive device designed to stun kidnappers or terrorists. (Photo by Randy Montoya)

By Neal Singer

Before a crowd of business-suited observers, the slender man in running shoes hurls a cannister about the size of a small soda can into the concrete-walled room — a test cell in the rear of Sandia's Explosive Components building.

The explosion's extreme brightness and sharp report — like a flashbulb going off a foot from the eye, a firecracker a foot from the ear — momentarily daze a reporter who has arrived too late to don ear plugs and sunglasses.

*The device is seen as a cheaper, safer way to stun kidnappers or terrorists in a room where hostages are kept at gunpoint.*

A pungent cloud of white dust drifts toward the observers, most from Washington.

"The smell of victory," says one, sniffing.

The nonlethal, newly patented device, developed by Mark Grubelich (2552), is of interest to law enforcement officials as a cheaper, safer way

*(Continued on page 4)*

Sandia LabNews

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Sandia National Laboratories

# Former Defense chief Perry offers views in latest Truman lecture

Former Defense Secretary William Perry told a Sandia/California audience Monday that while the United States must lead in the war on terrorism, international cooperation is essential to the success of the effort. "We cannot and should not go it alone," he said. "We should make constructive cooperation with other nations not just a political objective but a top national security objective."

The occasion was the first Harry S Truman Distinguished Lecture at Sandia/California. This new Sandia lecture series (*Lab News*, Feb. 8) began at Sandia Feb. 14 with a talk in Albuquerque by Nobel laureate chemist Alan Heeger.

Perry, secretary of defense from 1994-97 in the Clinton Administration, is now a professor at Stanford University with a joint appointment in engineering and international studies and also a

*(Continued on page 2)*

# It's April 15: How would you like a $50 million tax bill?

***Sandia taxman Bart Brooks pays taxes all year long***

By Chris Burroughs

So you didn't like the size of your tax bill this year? How about $50 million?

That's what Sandia paid in a variety of taxes for FY01, with FY02 figures estimated to be even higher.

"There's a big misconception out there that we're a nontaxable entity," says Bart Brooks (10501), Corporate Tax Program Manager. "Sandia Corporation is fully taxable."

***In 1982, DOE paid $275 million to the state of New Mexico for the prior 10 years in gross receipts taxes and penalties. The payment came after the US Supreme Court ruled that Sandia is not a government agency.***

So taxable that it pays federal income taxes as well as applicable state taxes in all locations where Sandia has operations, including New Mexico, California, Nevada, Delaware, Hawaii, District of Columbia, Maryland, and Texas and in states where the Labs does business.

It wasn't always that way. Between 1949 — when Western Electric (part of AT&T) was tapped by President Truman to run Sandia — and the 1980s, Sandia filed income tax returns but paid no income taxes and never paid gross receipt taxes. The reason was that the federal government believed Sandia was so closely aligned with it that Sandia was exempt from taxes.

"In the mid 1970s the State of New Mexico challenged why Sandia wasn't paying a gross receipts tax like other businesses," Bart says. "The case went all the way to the US Supreme Court, which held that Sandia is not an agency of the US government and is a taxable entity."

In 1982 DOE was ordered to pay $275 million for the prior 10 years in gross receipts tax, including $70 million in interest. It was believed to be

*(Continued on page 4)*



# What's what

One of my all-time favorite movies is *Breakfast at Tiffany's*, based on the novel by Truman Capote. I watched it again recently and realized during the signature scene that as ageless as the story and movie are, some things inevitably do age.

In that scene, Holly Golightly and Fred Baby are in Tiffany's celebrating Fred Baby's sale of a short story to a magazine by looking for a $10 something for Holly. After some clever back-and-forth banter about trying to buy anything for that amount in Tifanny's, the clerk (played by the very droll John McGiver) suggests something for someone who has everything — a sterling silver telephone dialer. Think about that: How long since you've seen a dial phone? — or even more to the point — used one?

Oh, and something else: The price was also on the shady side of reality — $6.75. Today a box to put something silver in would cost that much.

* * *

The story I recalled about a friend's comment on a not-quite-full moon a few years ago drew a refutation from a Sandia techie: Couldn't be a "29/30ths moon," he said, and explained the astronomical reasons.

A colleague then expanded on that with an explanation from his well-worn copy of the 1998 *World Almanac and Book of Facts*, which I passed along here the last time, and then — yep, the techie fired right back, noting that my "little story about the visible (lit) fraction of the moon is off more than you think."

He then explained patiently that my friend was "assuming linear behavior," which was a fallacious assumption, and that instead it was, "of course . . . a trigonometric function." He then sprinkled in some numbers and signed off with a flourishing: "You can work out the rest, or perhaps some person with more time on his hands than myself will give the formula. Of course I would guess that it is a simple sinusoid."

Sinusoid? Is that, like, something like a sinus?

And, by the way, seems to me my correspondent has a fair amount of time on his hands, himself, and never heard the admonition: Never try to teach a pig to sing; it will only frustrate you and annoy the pig.

* * *

Another revisitation: A reader amused at the definition of a pdf file writes: "Actually, I always thought pdf meant pretty darn funny (that you could actually make the thing work)."

* * *

And a recent typically sparkling Paul Harvey report announced a remarkable breakthrough in British technology. It's a wristwatch-like GPS receiver that tells you your exact location and . . . and . . . and . . . . . . directions to the nearest four pubs.

And now you know . . . the meaning of meaningful.

*— Howard Kercheval (844-7842, MS 0165, hckerch@sandia.gov)*


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LOCKHEED MARTIN


# Perry lecture

*(Continued from page 1)*

Hoover Institution senior fellow.

He was introduced by VP Mim John, who at the conclusion of the hour-long event in the Bldg. 904 auditorium (videolinked to Albuquerque) told Perry that his career embodied the words "exceptional service in the national interest" that President Truman used in reference to Sandia in 1949. She presented him with the Truman Lecture plaque and medallion.

The attacks of Sept. 11 stunned Americans and are a transformative event in American history, but what is new, Perry said, is not our vulnerability but our understanding of our vulnerability. In a recent book he co-authored, *Preventive Defense*, and in an article in the November/December *Foreign Affairs*, Perry has studied the possibility of new types of threats to our nation. "The bad news is that 9/11 is not the worst in store for us," he warned, noting that terrorist groups are actively seeking chemical, biological, and nuclear weapons and that if they get them "no one should doubt that they would use them."

The rest of his talk was devoted to what the US can do to prevent such catastrophic attacks and or at least to mitigate their consequences. The nation must increase nonproliferation efforts, including spending more capital/resources and especially more political capital, he said. The latter includes more cooperation with Russia and China, as difficult as that may be. Coercive action against Iraq, which is actively seeking nuclear weapons, is probably justifiable, he said.

Other actions include dismembering terrorist bases and operations, breaking up terrorist cells, detecting terrorist cells and plans, and hardening likely targets (with better internal processes as well as physical protection). He said the consequences of a biological attack "can be as serious as a nuclear attack," but at least in this area good consequence management — early detection, increased stockpiles of antibiotics and vaccines, more effective treatments, improved medical responses, training of first responders, and the like — can have a 10:1 effect in reducing casualties.

"All the actions I talked about will be expensive," Perry said, "but all of them put together are not as expensive as one 9/11." He said all require leadership, which he has been pleased to see, and increased cooperation with other nations, including Russia and China. *— Ken Frazier*

## *Annual emergency exercise this month to take on a new look — it will be visible*

There'll be something very different about Sandia's upcoming annual DOE-audited emergency management program exercise in Albuquerque. The event is scheduled for mid-April.

For one thing, the fact that it's going on will be visible to a fair number of people located in one of the site's technical areas. Usually these exercises occur in fairly confined or remote locations — out in Coyote Canyon, for instance. Second, it will interrupt the workday patterns of a segment of the Labs' population. This will most likely be in the form of security cordons, emergency response vehicles, and some actual building evacuations.

But it'll all be, although very serious, just practice and part of Sandia's continuing readiness effort for real emergency events.

"When the exercise takes place, it will be clearly identified as such," says Bruce Berry of Emergency Management Dept. 3115 and exercise director. "So, please follow established procedures for protective actions if directed to do so.

"This could involve sheltering-in-place or evacuation," Bruce adds. "Follow the instructions of emergency responders and perform as if it were a real event. There will be clearly identified controllers to monitor the safety of all participants and to ensure that the exercise is realistic and contained."

Each year Sandia's Emergency Management Department plans and stages a thorough testing of the Labs' first responders' abilities to react and perform if something terribly out of the ordinary were to occur. Past exercise scenarios have involved chemical releases, terrorist events, radiological releases, and personnel injuries.

The first-responder cadre consists of folks from a wide range of organizations. Among them: Emergency Management; Security; Environment, Safety, and Health; Medical; Kirtland Fire Department; Public Relations and Communications; and support from many other centers.

Also, the Emergency Operations Center, a secure nerve center where emergency managers and support staff gather, will be activated. It operated, as the *Lab News* and *Sandia Daily News* have reported, continuously for a number of weeks following the World Trade Center and Pentagon attacks of last September.

Michael Knazovich, Dept. 3115 manager, says this year's exercise will be different for a number of reasons. "First, since the attacks of Sept. 11 we've said Sandia is operating in a state of heightened security and that mode will continue. Making this exercise a little more public and visible simply will remind our people of that reality.

"And in order to test some of the things we need to test we've got to be a little disruptive," he adds.

Although this upcoming event is equivalent to a semester final test, complete with external evaluators, the Labs' first responders do take quizzes — called drills — throughout the year. Several have occurred over the past couple of months, in fact.

A similar exercise is tentatively set for Sandia/California in mid-August. *— Rod Geer*

# Sandians make cluster computing portable

By Nancy Garcia

Even cluster computers may become smaller and more portable under the inspiration of a demonstration system put together by folks in Sandia's Embedded Reasoning Institute.

A cluster computer normally combines several desktop-sized personal computers to work together on large problems in a fast, affordable way, operating on such software systems as the widely used Linux.

**Sandia CaliforniaNews**

"A lot of people thought it was really cool," says Rob Armstrong (8915), who showed their Linux cluster of four CPUs, just 13 inches in its largest dimension, at Supercomputing 2001 in November. (Overall measurements are 5.3" x 5.3" x 13".) Rob just stowed the commodity cluster in the overhead airplane bin on his flight to the meeting in Denver and back.

CLUSTER COMPUTER

The next month, Mitch Williams (8945), who oversaw its creation, won a "Work in Progress" presentation at the annual Large Installation System Administration conference.

"It's being touted as a small Linux cluster with portability for tutorials, demonstrations, and road shows," he says. "The alternative for folks who want to go to an exhibition with a cluster computer is to spend months coordinating the shipping of a rack of perhaps eight full-size personal computers.

"It's no fun," says Rob, who has done this. "It's very cool that you can get it into that small space." Both Oak Ridge and Los Alamos national laboratories are now building their own versions, inspired by this early example.

The cluster uses the PC104 "embedded system" hardware standard, with units stacked like a club sandwich. All of the components, except the see-through Lexan case, were purchased off-the-shelf from embedded system vendors. Although the four CPUs don't offer the power and speed of a larger cluster, they will still run software created for cluster computing, so specialists can demonstrate their code at a remote location much like other presenters use laptop computers on the road to present their wares.

PORTABLE CLUSTER COMPUTER — Rob Armstrong (8915, left) and Mitch Williams (8945) have demonstrated a small and portable cluster computer.

Besides the portability advantage, Rob says, the approach is also attractive to vendors seeking a more compact way to offer commodity clusters. "It's certainly far more dense than hooking PCs with a hub," he says.

The system was integrated for Sandia by Parvus Corp. in Salt Lake City in October, which Mitch visited so he could test the unit on-site. The CPUs were provided by Advanced Digital Logic.

Mitch created a web site for those interested in creating their own "cluster in a breadbox": http://eri.ca.sandia.gov.

Next to larger research clusters like Sandia's CPlant, he says, "it's just a toy — but it's a very interesting toy to the people who are programming CPlant."

# One-way network link keeps systems secure

By Nancy Garcia

Necessity became the mother of invention when Instrumentation Systems Engineering Dept. 8232 Manager Curt Nilsen created a new device that is subject to a recent exclusive license.

Curt had been working on material monitoring techniques for arms control when he wanted to remotely make unclassified information available to computer users who were on either classified or unclassified systems. (Both were desirable, due to the need for varying levels of access to carry out either physical monitoring or treaty verification.) His solution was to use optical isolation. Data can be sent by a light-emitting diode and received by a photodetector. This simple one-way optical implementation assures that information can flow in only one direction. Special protocols were also created to assure extreme data reliability in this one-way environment.

"Optical isolation is great. Unless your photodetector turns itself into a light bulb," Curt explains, "you're ensured the data won't go the other way. It is literally 100 percent one-way."

The device grew into a high-speed link using asynchronous transfer mode (ATM) cards (at 155 megabits per second) when a summer student was using a serial port version and needed more speed. A co-worker suggested using ATM, Curt says, and through the ATM card vendor, the licensee heard about the technology and met Curt.

Now Curt's data diode (as it is called) is the core technology of the licensee's privately held company, Owl Computing Technologies Inc. (www.datadiode.com). Company founder Ron Mraz had representatives negotiate an exclusive license with Sandia this winter after initially obtaining licensing rights in 1998.


SECURE — Curt Nilsen demonstrates the one-way nature of the data diode.

*"Optical isolation is great. Unless your photodetector turns itself into a light bulb, you're ensured the data won't go the other way. It is literally 100 percent one-way."*

"The underlying technology can be applied in many places," Mraz says, "to harden the security of any existing infrastructure, and we're moving forward to more generalized use of the application. Sandia has helped tremendously."

"The time is right for him to introduce the technology into the marketplace," adds Craig Smith, who handled the license re-negotiation for Sandia's Business Development Support Dept. 8529.

Owl's implementation of the data diode and its one-way protocols using ATM technology created a "very attractive product," Curt says. The data diode's one-way link keeps information within a private network inaccessible, while allowing an inflow of information from the Internet or another outside network — similar to the way a one-way mirror permits viewers to see outside even while outsiders cannot see in. Information from the outside source is copied in a one-way stream onto the destination computer.

Owl Computing, meanwhile, is offering its data security products based on this technology to aerospace and defense companies, government agencies, national laboratories, heavy industry, health care, and information technology sectors.

# Tax man

(Continued from page 1)

the largest state tax payment ever made in the US.

Today Sandia Corporation is believed to be the largest payer of gross receipts taxes in New Mexico. Actual payments for FY01 were $48,176,000, representing around four percent of the state's total "non-gaming" gross receipts taxes.

During the time that AT&T operated Sandia, the company never paid income tax because it managed the Labs without a fee. That changed on Oct. 1, 1993, when Martin Marietta (now Lockheed Martin) took over Sandia operations for a fee and Sandia Corporation began paying income taxes on the fee. Martin Marietta acquired Sandia Corporation, the actual legal entity that DOE contracts with for the Labs management and operations contract, for $1,000.

"Now we are constantly paying taxes — weekly, monthly, and yearly," Bart says. "And we have to be conscientious about paying them on time."

Until 1993, penalty and interest were always reimbursable expenses under the DOE prime contract. They are now considered potentially unallowable expenses. Since 1993 no taxing authority has successfully asserted any proposed penalty or interest against Sandia arising from income or sales taxes.

Many have tried, Bart says. Proposed penalties and interest that Sandia protested and successfully abated since 1993 are in excess of $2 million. In one instance, Bart traveled to Sparks, Nev., to provide sworn testimony to the Nevada State Board of Equalization and succeeded in getting $1.1 million in proposed taxes abated. This amount is before penalty and interest.

The tax activities involve many organizations around the Labs — payroll, benefits, pension, legal, education and training, procurement, and accounts payable, along with Oracle programmers.

Among the busiest is payroll. Sandia's payroll department issues 26 payrolls a year, and appropriate taxes have to be taken out of all the checks. In FY01 calendar year gross wages were $540 million. Employees' federal taxes — the amount withheld from paychecks — was $134 million. Sandia paid income taxes in 29 states and filed some 440 tax reports.

Sandia's retirement plans also are required to withhold and remit income taxes from retiree pay, which is done by Prudential.

Barton says he and his staff are constantly monitoring taxes, making sure Sandia is paying exactly what it owes. Through a series of rulings obtained by the Labs' legal department and efforts at "mining" previous "unrecovered deductions," Accounting Services Dept. 10501 has filed for and received more than $32 million in tax refunds since 1993 by tracking transactions made outside of New Mexico and determining what refunds are due, pursuant to some rulings secured by Sandia's legal division.

BY THE BOOKS — Bart Brooks (10501), holds documents that summarize Sandia's gross receipts tax payments for one tax year. The full documentation is much more voluminous.

Also, in FY01 Dept. 10501 was able to abate $257,400 in proposed taxes, interest, and penalties assessed by the New Mexico Taxation and Revenue Department.

One of the business changes that made "mining" for unrecovered deductions and tracking transactions possible was the implementation of the new Oracle system.

"Last year, through Oracle, we tracked and verified 2.7 million transactions," Barton says. "We team with procurement personnel and the Oracle programmers to find and correct errors in real time. We could not have done this without Oracle."

Bart, a certified public accountant who has been Sandia's lead "tax man" since 1995, calls taxation a "very dynamic area."

"When most people receive IRS notices they're scared," Bart says. "We like them. It's a challenge."

## *Tax activities involve many organizations*

Tax activities involve many organizations around the Labs. Following are some of the people and departments that deal with taxes.

• Account Services Dept. 10501, Neal McEwen, manager; Heather Christ, senior tax analyst; Rita Padilla, state sales and use tax preparer; and Doris Desimone (now 10500), helping in the retirement plan area.

• Sandia Legal, Larry Greher (11200), senior attorney and tax/retirement plan tax counsel; Ellen Gallegos (11100), senior attorney, human resources; and Charlie Pechewlys, (11200), attorney, procurement.

• Payroll Services, Dept. 10502, Rita Shortman, prepares state and federal payroll tax returns; Betty Glover, oversees W-2s; Donna Foster, international assignees and taxes; and Carey Holmes, international tax advisor; and Nancy Clise, payroll and payroll tax consulting.

• Accounts Payable Dept. 10503, Hazel Rodriguez and Ramona Nelson issue more than a thousand IRS forms 1099-MISC each year documenting non-employee compensation and royalty payments.

• Pension Fund and Savings Plan Dept. 10310, Evan Ashcraft, helps with retirement plan tax return reporting; Mark Biggs, benefit plans; and Dave Medina, 401(k) plans.

• Oracle Application Development Dept. 9501, Corey Reitz and Marie Gendreau, both Oracle programmers.

# Stun grenade

(Continued from page 1)

than those currently used to stun kidnappers or terrorists in a room where hostages are kept at gunpoint.

### Violence contained

The observers — "mostly from organizations with 'I' as one initial," says one — know that the idea is to break down a door or window, quickly toss in a diversionary device (also called a stun grenade or flash-bang), and take advantage of the baddies' resultant disorientation to capture, disable or, if unavoidable, kill them while freeing their victims.

However, most devices currently in widespread use — mostly based on technology developed at Sandia — contain a metal powder that violently combines with a salt containing oxygen. When this mixture — aluminum and potassium perchlorate — is ignited by a grenade-style fuse, an explosion takes place within the body of the device. This creates a zone of extreme pressure nearby — dangerous if the device lands near a hostage's neck or head. The explosion also destroys the shell of the device containing the explosive, making such apparatuses expensive to use as training tools.

The new device lobbed by Mark is made of plastic and contains only metal powder and no oxidizer. Instead of ignition within the cannister, the particles are forced like a burst of talcum powder out through 16 quarter-inch-diameter holes in the bottom of the structure. The ejected particles hang momentarily in air, "flared like a peacock's tail," says Mark. They form a sheet of metal dust about five feet in diameter before igniting by combining with oxygen present in the air. The distributed powder means that the pressure in the immediate vicinity of the exploded device is lowered to a safer level. It also means that the cannister is undamaged and can be reloaded for a few dollars, making it easy to use as a training device.

A DANGEROUS JOB MADE SAFER — Mark Grubelich explains operation of his flash-bang device to Sandia security team members. (Photo by Randy Montoya)

The new configuration is also simple to adapt for a variety of law enforcement needs. Prison officials require a grenade that, if remaining whole after use, is too soft and flexible to be used as a blackjack by rioting convicts. Soldiers require a lightweight cannister that can be carried over long distances. Police can carry the cannister in their cars, so weight is not a factor, but they want no explosive material within the cannister so any that fall into the wrong hands can't be restructured into a bomb.

# Tri-lab Technical Women's Forum supports detailed approach to improve work environment

## *Symposium looks at how to meet needs of women at the Labs, from mentoring to changed work structures*

By Neal Singer

US Representative Heather Wilson, speaking at Sandia's CNSAC building (Bldg. 810) on March 26, recalled being dropped off as a teenager to begin her studies at the US Air Force Academy in Colorado.

The bus drove away, leaving her standing, suitcase in hand, at the bottom of a huge ramp. At its top, written in bright aluminum lettering, were these inspiring words:

BRING ME MEN

Wilson, R-N.M., speaking to the Tri-Lab Technical Women's Spring Forum, made light of her reception. She joked that she felt like climbing up and writing her name and dorm room address on the sign. She also pointed out that the words were taken from the beginning of a patriotic poem, "Bring me men to match my mountains…"

Still, she commented, "The sign is still there."

The difference in effect of that sign on those with the possibility of becoming "men" in the most honorable sense of the word, and those of the sex who can never be so, could be said to be part of the driving force of the forum. Participants discussed in concrete as well as sociological terms how to best meet the needs of women in order to expand the talent pool for the national labs, and, with the labs as role models, the entire nation.

Approximately 100 women from Sandia, Los Alamos, Lawrence Livermore, and Lawrence Berkeley national labs, and from the National Nuclear Security Administration, attended the one-day symposium in New Mexico and, through videoconferencing tools, Sandia/California.

The session was hosted by Lynn Jones, Sandia VP for Integrated Enabling Services and Chief Security Officer, who quoted Executive VP Joan Woodard's goal of creating "a level playing field based on merit, not gender."

The challenge for the day, said Lynn, was "to focus on working together to come up with creative approaches that make it easier and more attractive for top-class women to bring their science and engineering know-how and skills into our labs."

Interest was high in mitigating the economic and professional ramifications of spending nine months carrying new life, potentially doing that more than once, and the resulting need for more time to raise the children. Vacation buy-plans, variable work schedules, paid maternity leave, shared jobs, daycare, and the problems inherent in being considered a "part-time" employee by managers, co-workers, and the review process were discussed intently by the attendees, rather than as wistful longings or minor problems as sometimes treated by the Labs as a whole.

*The challenge for the day: "Focus on working together to come up with creative approaches that make it easier and more attractive for top-class women to bring their science and engineering know-how and skills into our labs."*

Said panelist Judith Snow, who decided to go back to graduate school in chemistry only to learn she was expected to be at school all day, "Wait a minute! What about [my] three kids?" Snow is now Deputy Associate Director of Strategic Research at LANL.

Don Blanton, Sandia VP for Human Resources and Protection Services, and the only male panelist, said that Sandia is considering alternatives for additional funding for the Sandia daycare facility slated to open this summer. These include "looking to Lockheed Martin, or proposing flexible benefits" to mitigate the high costs of first-class daycare. Unsubsidized, this might result in monthly charges of $950 per infant.

Other panel members were Pat Smith, Director of Site Operations at Sandia/California, and Jan Tulk, Administrative Associate Director and Laboratory Counsel for LLNL.

Mentoring was considered of prime importance by several speakers. Said Wilson, "I don't believe cream rises to the top. It's pulled there. It's guided there." Women need to share what they know with younger women "to make sure the ladder you climbed is still there," she said.

### Speaker Meyerson debunks usual solutions

Featured speaker Debra Meyerson, Visiting Professor of Organizational Behavior at Stanford University's Graduate School of Business, listed and debunked four out of five proposals to bring women more fully into the workplace at multilevels of management.

These were:

• The numerical approach — "there's not enough women in the pipeline, so put more women in the pipeline." But for various reasons, she said, "the pipeline's leaking" — women are not rising and are leaving — so seeking more women is only a partial solution.

• Better equip women through more education. Meyerson gently derided this as the "fix-them" solution. Improving women's skills and knowledge is good, but "it puts the onus of the problem on women, doesn't change the culture at all," and ignores studies that show women are often as skilled as men, yet do not rise.

• Create new polices to level the playing field. Meyerson described equal opportunity programs, mentoring, and recruiting as important, "but when implemented as an accommodation, they don't change the culture. It's like giving women stilts to play on a field."

• Valuing the feminine. Diversity training and the celebration of differences attempt to recognize those things at which women are good, but the rhetoric is not recognized by companies in practice or in promotions.

*"Problems facing women rest on the fact that business structures of today were created, for historical reasons, by men."*

• Looking at the culture and transforming it "so that a plethora of embedded micro-inequities don't stop women from rising."

Meyerson asserted that problems facing women rest on the fact that business structures of today were created, for historical reasons, by men. These structures no longer fit the current work population but survive unless a kind of tempered radicalism changes them, bit by bit. Such changes would benefit not only women but men and the organizations they comprise, she asserted.

### Unlimited time commitments not necessarily good

For example, she said, work structures that value unbounded time commitments as a sign of serious interest not only devalue women scientists who show extreme competence but nevertheless have obligations to pick up children, but are also harmful to men's mental health and may not even be the most effective way to run an organization.

Similarly, organizations that value "heroes" who, under extreme stress, make decisions that save the day may be ignoring workers of a different ethic who work quietly, daily, to make sure those explosive moments never happen, or at least are minimized. It may be, she said, that those who work to avoid problems are more effective and important to the organization than the heroes who step up in emergencies, but often the former are not even noticed by a structure

*(Continued on next page)*

## *Letter to forum participants from Joan Woodard*

Good morning. Welcome to Sandia, and welcome to New Mexico!

I regret that I cannot attend your proceedings today. I was pleased and eager to participate when this tri-lab forum was arranged. Unfortunately, an unavoidable conflict in Washington keeps me from joining you there.

Let me extend a special welcome to our distinguished guests. We hope to learn from you and be inspired by you today. Thank you for your time and dedication.

And to the women of the three Laboratories who are here: thank you. Your efforts to create work environments where women of science and technology are eager to work and build sustainable, meaningful careers is important . . . . to me, personally, to Sandia, to NNSA, and to the nation.

I recently spent some time in Singapore, where I was fortunate to address a group of professional women. In preparing for that meeting, I reviewed the status of women in Singapore. I came away impressed with the rapid rise in women's education and participation in the labor force in Singapore, particularly in the 1990s. And I could see the energy with which they're organizing themselves for active mentoring, which is one area of focus for today's deliberations. I could also hear the concerns about maintaining a viable career AND having a life outside of work. As the old saw goes, "Life is NOT a dress rehearsal."

Women around the world are making extraordinary strides, and especially those in free-market economies (albeit some with very different cultural expectations of women). But I believe it's almost always with the leadership — or at least the very powerful example — of women in the United States, who over the last century focused their energies on a vision of a level playing field based on merit, not gender, and then systematically seized opportunities within the educational, political, and economic systems to work toward that goal.

My hopes for today's session are that we will all be able to gain some insights on ways to create and sustain a work environment that is not only important for women in science and engineering but for all employees.

• As representatives of the national laboratories, we will realize that we have yet another opportunity — and, may I say, obligation — to lead, not follow, other institutions in doing the right thing and doing it very well.

• That we recognize and begin to develop ways to exploit our "strength in numbers." We must share our complementary strengths to accomplish far more than as individuals.

I believe we have an ambitious and energizing agenda. Thank you again for your support and enthusiasm.

*— Joan Woodard, Executive Vice President*

# Mileposts

*New Mexico photos by Iris Aboytes & Bill Doty*


Bernie Blackwell
35 9133


Paul Lemke
35 14100


James Opalka
35 5713


John Bentz
25 6423


Timothy Malone
25 5849


Daniel Padilla
25 10263


Charles Atencio
20 9325


Lorri Castillo
20 10263


Kenneth Chen
20 12332


Betty Lord
20 10263


Donald Malbrough
20 14404


Janice Montoya
20 3020

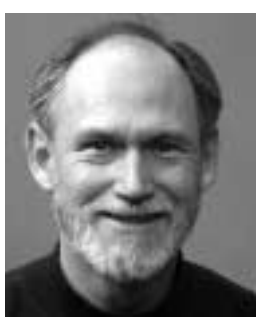

Karen Pound
20 10206


Steven Rivera
20 3114


Victor Romanelli
20 5902

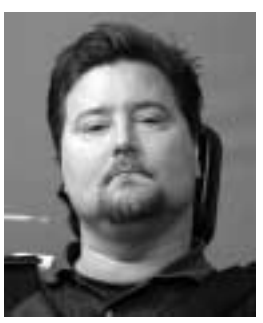

John Yip
20 3132


Wendy Amai
15 15252


Donald Bridgers
15 3127


Renita Elder
15 3021


Terry Garino
15 1843


Blase Gaude
15 5933


Tommy Goolsby
15 5832


Theresa Griego
15 12336


Vincent Hindman
15 2346


Gene Kallenbach
15 5922


Ted Parson
15 15341


Lewis Reif
15 5734


Vincent Salazar
15 2660


James Tegnelia
15 15000


Paul Vianco
15 1835


Melissa Wilson
15 2121

## Recent Retirees


Ted Montoya
34 14192


Marge Thompson
23 2995

# Women's Forum

*(Continued from preceding page)*

that values tension and heroics.

When leaders in one company reduced office hours and "face time" — two shibboleths of business organizations that favor unlimited commitment of time — the company improved its productivity, she said.

One way to create change is in little ways, she suggested. These include not losing one's individuality. She offered as an example a neurological surgeon she met who wore "asexual hospital green scrubs but who quite visibly wore ankle socks of white lace."

The women present at the Tri-Labs meeting seemed far from disappearing into a male-dominated laboratory. They formed a subculture separate in many ways from male behavior patterns at the Labs.

While talks were listened to intently, at breaks the entire New Mexico auditorium erupted into conversation as 80 women spoke familiarly in spontaneous ways that few groups of men would attempt. There seemed a widespread effort among speakers and participants to smile pleasantly and speak noncombatively. There was in general a subtlety in dress that indicated a different social consciousness from many men. Attention to dress may be thought trivial, but as Meyerson pointed out, maybe it is not.

Logistics for the day of the Albuquerque-based conference were carried out by Adele Caldwell (16001) and Ellen Cook (16000). Georgianne Smith (3000), Judy Moore (16000), and Adele represented Sandia on the Tri-Lab planning committee.

# Sandia Classified Ads

## MISCELLANEOUS

NEED A VACATION?, Hawaii timeshare for one week, $750. Varoz, 831-6093.

MOVING SALE: sofa sleeper, white day bed, white dresser w/mirror, table w/6 chairs, recliner, girls clothes. Lewis, 294-0766.

TIGER OAK DRESSER, antique, w/beveled mirror, $300. Ewen, 836-3563.

GAS LAWNMOWER, Sears Craftsman, 2 yrs. old, like new, $125; 8-in. Sears electric grass trimmer, $15. Sedillo, 255-0669, leave message.

APPLE STUDIO LCD DISPLAY, 17-in., new in box, $600. Jones, 281-9145.

BACKPACKS: JanSport, $60; Camp Trails, $40; Hillary, $15 & $10; Sigg-Tourist cook kit w/gas stove & accessories, $25; ceramic pocket water filter, $30. Claasen, 823-1735.

ANTIQUES: Boston rocker, $175; school desk, $160; side chair, $25; 3-tier saddle rack, $75; orig. B. Ortega St. Francis, $150. Siegrist, 293-4148.

DINETTE SET, white w/peach accents, fits breakfast nook, very cute, table w/chairs, $175; bookcases, floor lamps, desk lamps, TV stand, file cabinet, $20-$50. Ruby, 821-0982.

"LEFT BEHIND" SERIES, paperback, first 7 books, sold as set only, $40. Luther, 822-1187.

BENEFIT CRAFT SHOW & SILENT AUCTION, Eisenhower Middle School, 11001 Camero NE, Sat. April 13, 9 a.m.-4 p.m., for student w/leukemia. Edgar, 884-8567.

EARTHENWARE, '74 Franciscan "Garden Party", spring colors/design, serves 8, includes service pieces, unused, $300 OBO. Martin, 296-6727.

WHEELED WEEDTRIMMER, Craftsman, 6.0-hp, 22-in. cut, used once, $250. Garcia, 247-9437.

SONY TRINITRON MONITOR, 21-in., 1600x1200/85Hz max resolution, GDM400, $500; Hoover upright vacuum & attachments, new, $50. Sturtevant, 275-0170.

COMPUTER MONITOR, Gateway Vivitron, excellent condition, $100 OBO. Hamilton, 848-1371.

CHILDREN'S PLAY SET: slide, swing, & rings; moving boxes, mostly small, some medium; used built-in dishwasher. Wolfenbarger, 401-1865.

SOUTHWEST AIRLINE TICKET, one roundtrip, expires 5/18/02, $225. Bendure, 281-7441.

KIRBY VACUUM, reconditioned, $30. Lauben, 275-7466.

SOUTHWEST AIRLINE TICKET, expires July 2002, $300. Mayberry, 293-4205.

EVAPORATIVE AIR CONDITIONER, large pad, Aero Cool, 6,800CFM, side discharge, w/metal cover & thermostat, 2 yrs. old, new condition, $350. Gluvna, 884-5251.

SOUTHWEST ROUNDTRIP VOUCHER, w/drink coupon, expires, 10/11/02, $300. Duroseau, 856-1569.

QUEEN SOFA SLEEPER & LOVESEAT, $450; Olympic weight bench, multi-position weight machine, 400 lbs. of weights. Witkowski, 271-1691.

WASHER & DRYER, 5-1/2 yrs. old, excellent condition, stored past 7 mos., a must see, paid $700, asking, $300 OBO. Evans, 463-6877, ask for Kervin.

JACUZZI/SPA COVER, light blue, 72" x 68", 250-gal., $50. Bear, 881-7128.

HP SIGNAL GEN, mod 2001; HP VTVM, mod 400; Dumont oscilloscope, mod 303-A, circa 1960, free. Goekler, 294-7565.

BUILT-IN COOKTOP, w/solid disk burners, 30-in., very good condition, $75. Thomson, 857-9174.

DOGLOO DOGHOUSE, for large dog, very good condition, $40. Campbell, 281-0744.

SPECIALIZED SPD CLIPLESS PEDALS, used once, $200 new, asking $50. Dwyer, 271-1328.

HP 32S II CALCULATOR, brand new, w/manual, $40. Vigil, 271-1328.

QUEEN-SIZE PILLOWTOP BED, w/mattress, boxspring, frame, $300 OBO; 4 tires, P205/70R15, used 500 miles of 60K, $200. Hampton, 896-3218.

CANON BJC-8500, professional 6-color printer, 1200x1200 dpi, paper size to 13x9, paid $1,600, sacrificing at $800. Rider, 450-2018.

KITCHEN DINETTE SET, nice, synthetic surface table, w/4 comfortable, upholstered chairs, $160. Dietz, 797-7650.

ARABIAN MARE, 11 bay, Arabian yearling colt, sorrel; 2 QTRs, 8/16 palominos; nice personable, gentle, easy to catch, sound, trailer. Arana, 873-9064.

SOLID PINE DESK, dark stained, 2-drawer, tiled shelf overhang; filing cabinet, 2-drawer, light stained. Cook, 256-5196.

SOUTHWEST AIRLINES GIFT CERTIFICATES, expires 7/31/02, worth $350, asking $300. Chavez, 323-9343.

TIRE RIMS, 15-in., 6-hole, 5 rims, white, 5.5" dia. bolt pattern, $50. Arning, 256-9229.

WEEDBURNER, Sears, portable, 4-gal., kerosene pressure tank, carrying strap, new condition, $75. Jones, 292-1581.

PHOTO INKJET, USB printer, built-in memory card reader, $130. Hale, 298-1545.

SOFA, beige w/pink/blue pastel colors, excellent condition, $125; standard exterior door, practically new, $100. Rutten, 869-6381.

PANASONIC KX-P4420 LASER PRINTER, spare toner cartridge ($54), Windows 98 or older for flawless graphics, $100. Perry, 856-7008.

*JEUNE & JOLIE* FRENCH MAGAZINE, March 2002 issue, printed in France, in unopened wrapper w/gift, $8.75. Wagner, 823-9323.

AQUARIUM, 55-gal., plexiglass, w/new pump & many accessories, $135; wood base also available. Samlin, 877-5771.

PIANO, good condition, needs to be tuned, good for beginner, $250 OBO. Southward, 286-6279.

BRASS BED FRAME, king-size, $100 OBO. Fleming, 352-6754, ask for Dee Dee.

ESTATE/MOVING SALE: furniture, electronics, linens/towels, household items, Christmas stuff, yard tools, Ford van, travel trailer, & more. Burstein, 821-6688.

FRIGIDAIRE UPRIGHT FREEZER, 14.1-cu.-ft., white, 1 yr. old, excellent condition, $175; Play-N-Go portable crib/playpen, $25. Graham, 896-2231.

MOTOROLA PAGER, LS350, numeric pager, w/3 mos. local service, instruction manual, $50. Ganter, 265-5007.

LOWERY CONSOLE PIANO, $700; Lowry organ w/Leslie speaker, $600; 12-ft. farm gates, $40; cement mixer, $175. McCarty, 823-2926.

STRATFORD COUCH & matching love seat; Fuji Supreme, 12-spd. road bike. Leach, 821-9124.

KITCHEN APPLIANCES: 36-in cooktop, w/5 burners; 30-in. double oven; GE/Profile, white; all like new, $200 ea. Guyton, 898-4541.

JENN AIR COOKTOP PARTS, from Expressions series, new grilling insert, drop-in unit w/o heating elements, free. Key, 856-1588.

DINING TABLE, Southwest-style, whitewash, 6 upholstered chairs, rectangular, best offer. Madrid-Ritchey, 323-5734, ask for Art.

MATERNITY BELT, $5; BeBe Sounds prenatal heart listener, $15. Maestas, 883-7617.

FIREWOOD, mostly juniper, some piñon, 4 to 8 ft. long, you haul, $50 a truck-load. Ashcraft, 281-9676.

SOFA SLEEPER/HIDE-A-BED, full-size, brown, beige, blue colors, very little use, $270. Vigil, 296-3590.

TIVO, Phillips 2001, model HDR212, $150 OBO; bra, fits Subaru Outback, '96-'99, $75 OBO. Plummer, 828-3028.

CORGI/AUSSIE MIX, young male, cute, needs new single-dog home or female dog. Cutler, 254-9484.

COMPOUND POWER MITER SAW, Sears, 8-1/4-in., $60; Minkota Turbo trolling motor, 30-lb. thrust, $40. Patrick, 265-4569.

KENMORE GAS DRYER, great condition, $150; 27-in. console TV, $100; electric stove, $50; all OBO. Beltz, 294-9838.

TWO-DOOR REFRIGERATOR, Magic Chef, w/ice & water in door, almond, good condition, $275. Zamora, 899-1326.

GOLF CLUBS, women's RH, 1,3,5 woods, 3-P irons, bag; fax machine. Spray, 821-5877.

NORTON GHOST 2001, new (almost) in box, professional edition, version 6.5, Win 9x/Me/NT/2000, $30 OBO. Levan, 293-0079.

WARDROBE, antique, currently outfitted as gun cabinet, photos available by e-mail, $325. Gruebel, 323-2414.

STEREO AUDIO AMPLIFIER, Parasound CA215, $25; 3 24-in. bar stools, dark rataan, swiveling, $50 ea. Kepler, 296-0402.

TWIN BEDS, 2, like new, w/ frames, boxspring, mattress, used in guest room, $150/both OBO. Malcomb, 294-6975.

PC MONITOR, 17-in., excellent condition, $50. Celina, 232-8023.

### How to submit classified ads

**DEADLINE: Friday noon before week of publication unless changed by holiday. Submit by one of these methods:**

- **E-MAIL: Michelle Fleming (classads@sandia. gov)**
- **FAX: 844-0645**
- **MAIL: MS 0165 (Dept. 12640)**
- **DELIVER: Bldg. 811 Lobby**
- **INTERNAL WEB: On Internal Web homepage, click on News Center, then on Lab News frame, and then on the very top of Lab News homepage "Submit a Classified Ad." If you have questions, call Michelle at 844-4902. Because of space constraints, ads will be printed on a first-come basis.**

**Ad rules**

1. Limit 18 words, including last name and home phone (We will edit longer ads).
2. Include organization and full name with the ad submission.
3. Submit the ad in writing. No phone-ins.
4. Type or print ad legibly; use accepted abbreviations.
5. **One ad per issue.**
6. We will not run the same ad more than twice.
7. No "for rent" ads except for employees on temporary assignment.
8. No commercial ads.
9. For active and retired Sandians and DOE employees.
10. Housing listed for sale is available without regard to race, creed, color, or national origin.
11. Work Wanted ads limited to student-aged children of employees.
12. **We reserve the right not to publish an ad.**

CONCRETE LAUNDRY TUB, industrial grade, w/dual basins & small stand, free. Subia, 265-0536.

SNOWBLOWER, model #600E, great condition, 4 yrs. old, $500. Cline, 286-1108.

AUTO PARTS, oil filters, 2/PZ-21, 1/PH-30, air filters, 2/PZA-106, 1/PZA-123, $2 ea. OBO. Cocain, 281-2282.

CORNER DESK, Ethan Allen, nutmeg color, single center drawer, 34" along each wall, matching chair, $150. Hudson, 821-3968.

## TRANSPORTATION

'77 FORD BRONCO, parting out, engine, drive train, front axle, top, roll bar, gas tanks, etc. Reif, 888-299-4243.

'66 T-BIRD, trade for jet-ski watercraft or sell for $3,500. Gonzales, 898-8543.

'95 MERCURY COUGAR XR7, V-8, AT, all power, sunroof, 69K miles, perfect condition, garage-kept, must see, $6,950. Rogers, 263-9459.

'79 TRIUMPH SPITFIRE, hardtop, soft top, tonneau, 56K original miles, fully renovated & smog tested, $5,500 OBO. Larsen, 292-7896.

'98 OLDS DELTA 88, white, very clean, new tires, 56K miles, excellent shape, runs very well. Sullivan, 298-4880.

'84 CHEVY 3/4-TON, 4x4, w/hydraulic lift gate, 205K miles, mechanically sound, needs some work, $3,000. Harmon, 292-4304.

'96 CHEVY C1500, 5-spd., extended cab, PS, PB, ABS, bed liner, split rear window, 51K miles, $11,500 OBO. MacAlpine, 266-1794.

'93 FORD ESCORT WAGON, new clutch & timing belt, 12-disc CD changer, good condition, $3,000. Brown, 265-0406.

'94 VOLVO 940 TURBO SEDAN, AT, all power, heated leather seats, 82K miles, must see, $8,500. Sukla, 980-0604.

'92 OLDS CUTLASS CIERA, white, 4-dr., fully loaded, great shape throughout, 127K miles, $1,950. Saiz, 792-8098.

'79 OLDSMOBILE 98, 4-dr., AT, PS, PB, AC, cassette, trans cooler, heavy-duty trans/rear, class 3 hitch, many new parts, great condition, low miles, $1,500 OBO. Smith, 828-3904.

'00 FORD F-250 XLT, 3/4-ton, 4x4, AT, loaded, towing package, outstanding condition, 30K miles, NADA book $21,000, asking $19,500. Watkins, 884-7015.

'00 JEEP CHEROKEE SPORT 2WD, V6, AC, PS, PW, PL, PM, tint, keyless, runs & looks new, 24.7K miles, $14,000. Rivera, 292-4703, ask for Jonathan.

'98 CHEVY C2500 SILVERADO, ext.-cab, long bed, 454/AT, toolbox, headache-rack, bed rails, 1 owner, 2WD, excellent condition, $13,500. Kazensky, 362-2624.

'94 NISSAN PATHFINDER SE, V-6, 4x4, AT, AC, newer Michelins & belts, fog lights, sunroof, CD, excellent condition, 77K miles, $12,000. Oblin, 275-2681.

'02 MAZDA PROTÉGÉ 5, white, 5-spd., tinted windows, polished alloy rims, 3.5K miles, warranty, $15,800 OBO. Thomas, 294-2960.

'99 CHEVROLET GEO TRACKER, red, black convertible top, PS, AC, fancy wheels, clean, economical, about-town car. Pryor, 255-7972, ask for Larry.

'89 HONDA ACCORD, 4-dr., AC, PS, 5-spd., AM/FM/cassette, very good condition, 74K miles, $3,800 OBO. Gallagher, 265-0299.

'98 DODGE DURANGO, white, 4WD, rear AC, cruise, tilt, privacy glass, CD/cassette, 3rd rear seat, new BFG, excellent condition, $17,000 OBO. Lipke, 271-0645.

'83 AUDI 4000, bronze, 4-dr., 5-spd., FWD, sunroof, AM/FM, good condition, 119K miles, $1,000 OBO. Morgan, 256-0294.

'00 FORD RANGER, extended cab, 4WD, XT, AC, standard, low miles, new Michelin tires. French, 890-4308.

'83 CHEVY S10, V6, 2.8L engine, one owner, good condition, 98K miles, $1,250. Skinner, 828-0331.

'72 VW BUG, red, excellent mechanical condition, new brakes, clutch, generator, rebuilt engine, more, $2,400 OBO. Thornberg, 869-0421.

'84 FORD F150 PICKUP, 4WD, 6-cyl., 4-spd., "project" truck, bent frame, no bed, runs, $800 OBO. Golden, 823-9656.

'90 FORD BRONCO II, 4WD, V-6, AC, lots of extras, $2,700. Franks, 298-0481.

'01 PONTIAC MONTANA EXTENDED VAN, loaded, plush, electric sliding doors, aluminum wheels, rear AC, OnStar, like new, 7K miles, save thousands, $21,500 OBO. Tibbetts, 293-2856.

'91 FORD TEMPO, clean, inside & out, needs muffler, heater hose, $1,250. Hey, 898-6699.

'51 FORD 1/2-TON, panel truck, flat-head V8, not running, unrestored, have some new parts, $1,800. Jones, 294-5195.

## RECREATIONAL

CANOE, 18-ft., Grumman, aluminum, $250. Chorley, 296-1454.

'73 HONDA 450, has windshield & radio, like new, 17.4K miles. Hole, 255-1444.

GLASTRON FISH & SKI, 16-ft., 115-hp Mariner electric troll motor, extra windshields, stainless props & seats, $4,700. Sullivan, 298-4880.

BOY'S BICYCLE, 20-in., 5-spd. Huffy, good condition, $25. Kelly, 293-2475.

'98 TETON 5TH WHEEL, 39-ft., 3 slides, 2 awnings, great full-timers unit, ideal for retirees, $59,900. Bos, 341-3441.

'00 HARLEY ELECTRA GLIDE, nice extras, excellent condition, 6K miles, $20,500. Tarango, 232-9543, ask for David.

'99 BAYLINER CAPRI, 24-ft., 32 hours, much better than new, may trade for good 19/21-ft. plus. Krein, 899-8312.

COLEMAN POP-UP TRAILER, sleeps 6, stove, heater, sink, cooler, awning, port-a-potti, original owner, hardly used, $2,500 OBO. Ledwith, 821-9154.

'88 HONDA SHADOW, 1100cc, windshield, extras, nice cruiser, $2,200 OBO. Kolb, 299-3403.

'86 PACE ARROW RV, 30-ft., fully loaded, low miles, $15,000 OBO. Moya, 864-4582.

'71 SAILBOAT, 17-ft., Venture, cuddy cabin, excellent mainsail/roller furler jib, solid boat, & trailer, accessories, $1,800 OBO. Rowley, 294-4849.

'86 PACE ARROW ELEGANZA, 31-ft., 454 Chevy, 45.4K miles, island bed, 2AC, 6.5 Onan, Steer Safe, loaded. Stixrud, 298-0478

MEN'S TOURING/ROAD BIKE, 23.5-in. Reynolds–531 frame, Shimano Ultregra derauleurs & hubs, Weinmann brakes, Mavic SUP Reflex rims, Look pedals, Cateye computer, $400. Kercheval, 266-5833.

SUNRADER RV, 21-ft., on '85 Toyota truck chassis, 41,700 miles, excellent condition, $5,000. Thomas, 1-505-471-1036

## REAL ESTATE

2-1/2 ACRES, East Mountains, 2 adjoining lots, for development/investment, nice homes in area, $35,000 ea. Denney, 299-8595.

3-BDR. BRICK HOME, 1-3/4 baths, updated kitchen, bathroom, & furnace, near Sandia High, $157,900. Jones, 293-7947, ask for Robert.

3-BDR. HOME, 2 baths, 2-car garage, separate workshop, 13 yrs. old, passive solar, Ridgecrest (between base & UNM), lots of storage, $284,000. Breeding, 260-0820.

3-BDR. CUSTOM HOME, 2 baths, 2-car garage, 1,800 sq. ft., quiet, gated, North Valley, near Rio Grande & I-40, $199,500. Ortiz, 765-1111.

3-BDR. HOME, 2 baths, 1,800 sq. ft., on 1/2 acre (fenced), completely renovated w/new carpet, paint, roof, Bosque Farms, $134,900. Chavez, 298-0674.

4-5-BDR. HOME, 2,550 sq. ft., large lot, patio w/shade cover & hot tub, Academy Estates subdivision, $245,000. Bundy, 821-1846.

TOWNHOME, Ladera Heights, great room w/front porch, 1,300 sq. ft., 3/2/2, near park, elementary school, 10-ft. ceiling, sky-lights, alarm system. Magnuson, 839-4608 or 259-2862.

2-BDR. TOWNHOUSE, near Intel, 2 baths, garage, dining room, El kitchen, great room, new evaporative cooler, 2 courtyards, FSBO, $92,900. Losi, 271-1015.

## WANTED

ROOMMATE, to share 1/2 of 4,000-sq.-ft. home in 4 Hills, pets allowed. Maddox, 298-3815.

FEMALE HOUSEMATE, condo, quiet location, garage included, $430/mo. Hayes, 299-1200.

TEMPORARY HOUSING, 2 male Sandia co-op students, August through mid December 2002, furnished please. Williams, 844-3352.

BIKE TRAILER, easily convertible to double stroller; outdoor playhouse. Rezac, 281-1816.

ONE SOUTHWEST AIRLINES TICKET for use through the end of July. Washburn, 294-5921.

FLATBED TRAILER, to haul lumber, under $500. Keene, 293-0416.

LOG SPLITTER, hydraulic, prefer 20-ton capacity & vertical stroke. Lagasse, 298-0977.

SNL MOVING BOXES, for Orgs. 1302, 1320, 1321 & 1323, as many as you can spare, need before July 1. Borrowdale, 843-4224, ask for Judy, jaborro@sandia.gov.

DIRT BIKES, older style, for transportation at the lake and camping; oxygen/acetylene welding torch setup. Zender, 294-8210.

BOWFLEX, exercise equipment in good condition. Vigil, 880-0026.

LACROSSE PLAYERS, New Mexico Club Lacrosse, all skill levels, Saturdays, 11-1, games scheduled as commitment arises. Riser, 828-9604.

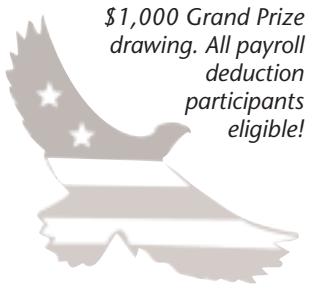
VENDORS, "Cherished Creations" arts/crafts show, Cottonwood Mall, May 10, 11; Future shows: Balloon Fiesta, Santa Fe, Thanksgiving. Self, 296-4137.

## LOST & FOUND

FOUND: Franklin/Covey notepad/pen set, tan leather, "water tower" parking lot on March 21. Homicz, 844-9065, ask for Greg.

### US Savings Bond Campaign

*$1,000 Grand Prize drawing. All payroll deduction participants eligible!*



**May 20-June 7**

# National Atomic Museum historian Sam Bono publishes short pictorial history of the Atomic Age

By Janet Carpenter

*"The Atomic Age began at exactly 5:29:45 a.m. Mountain War Time on July 16, 1945, with the Trinity Test. The National Atomic Museum presents the story of this test, once described as the single most important event of the twentieth century, along with other history and science of this Age that affects the future of the world."* — excerpt from *The National Atomic Museum: America's Museum Resource for Nuclear Science & History* by Sam Bono

* * *

The exhibits discussed in the newly published book, *The National Atomic Museum: America's Museum Resource for Nuclear Science & History*, by NAM Historian Sam Bono (12660), won't be in the same place but they'll be the same exhibits with the same history after the National Atomic Museum moves to its new quarters.

The book covers the Museum's 32-year history and includes pictures and history of the Atomic Age. "My idea behind the book was an inexpensive short pictorial history of the Atomic Age, including a brief history of the Museum itself and a short tour of our current facility," says Sam. "It was not intended to be a detailed guide, more of a general one of what is in the Museum, something visitors could inexpensively take home with them with a lot of neat photos."

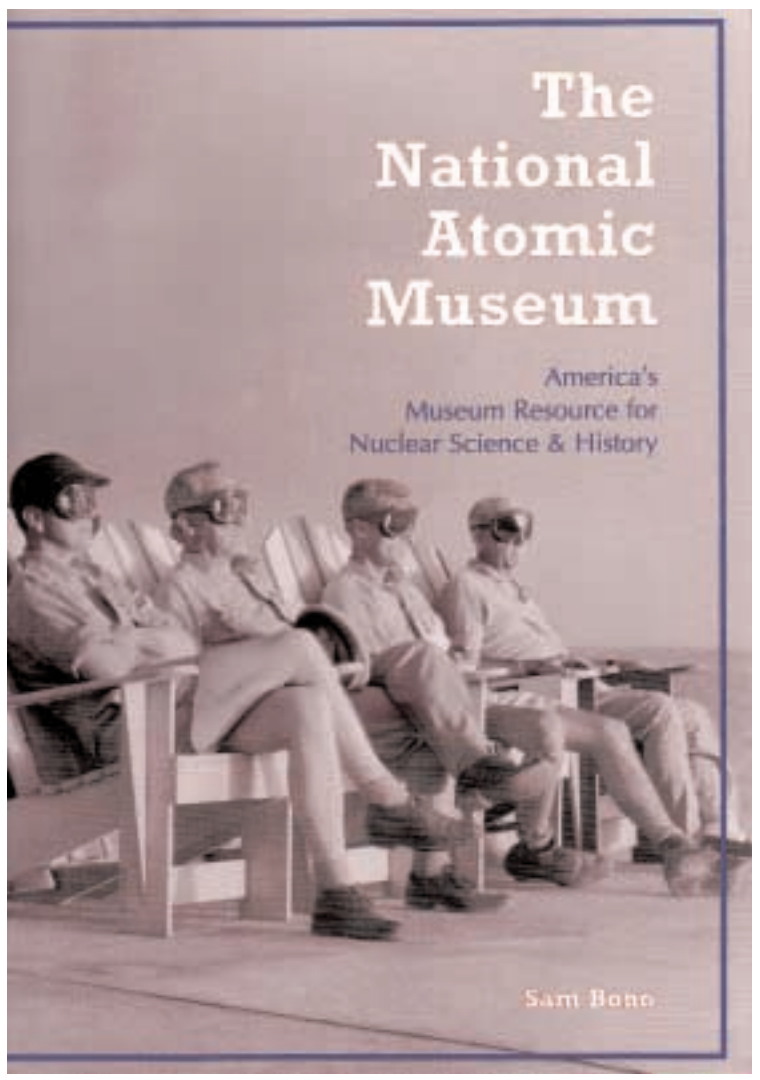
All the profits from the book go to the National Atomic Museum Foundation. A limited number of books was published in a deal with The Donning Company Publishers, Virginia Beach, Va. "Although the contract with the publisher was signed on Sept. 1, 2000, it took a lot longer then we originally thought it would, especially finding and getting rights to the 60-plus photos we used," says Sam. "Of course, I did not work on it full time. I'm almost finished with another on the history of the Manhattan Project that I actually wrote before this first book; just need a signed contract and to find photos."

Sam was working part time at the Museum when its daily operation was taken over by Sandia National Laboratories in 1995. He started working at the Museum in 1991 as a lobby desk volunteer, which turned into a part-time tour guide position the next year. In late 1998 he became the Museum's historian.

Sam has a BA in history from the UNM. This is his first book. "I love history," says Sam. "I have a lot of ideas, including one for a full-length book on some area of the Atomic Age for the Museum. I did learn a lot since I researched a number of different areas for the book that we do not currently cover in the Museum."

The Museum recently closed its doors on KAFB and has a signed lease for the old REI building at 1905 Mountain Road, just west of the New Mexico Museum of Natural History and across the street from the Albuquerque Art & History Museum. The temporary location is expected to open the second week in May.

Copies of the book are available at Up 'n' Atom (the NAM store at Winrock Shopping Center). Cost is $10.95. For online information about the National Atomic Museum, visit the Museum's Web site at www.atomicmuseum.com.




BOOK COVER of Sam Bono's new book about the Atomic Age shows civilian and military VIPs gathered to watch the Greenhouse Dog atmospheric nuclear test in 1951 at Enewetak Atoll in the Pacific.

# *New Mexico Academy of Science celebrates 100 years*

By Marshall Berman, President (and ret. Sandian)

This year, the New Mexico Academy of Science celebrates its centennial. The idea of forming a statewide scientific organization was first conceived in 1899 by a group of New Mexico scientists. The first official meeting of the Academy was held in Las Vegas, N.M., Dec. 22, 1902. Although this experiment failed after one year, the Academy was reborn in 1913 when members of the Science and Mathematics Section of the New Mexico Education Association formed the New Mexico Association for Science. The Academy has been in continuous existence since 1915.

## How the world has changed

How has the world changed since 1902 and what has science contributed? In 1902, the average life expectancy was about 49. The leading causes of death were pneumonia, influenza, and tuberculosis. Penicillin (1928) had not been discovered. There were no treatments for syphilis, diabetes, leprosy, scarlet fever, scurvy, jaundice, or anemia. There were no vaccines for typhoid, polio, or measles. The mentally ill languished in "snake pits."

The first radio was patented in 1902, although scientists had observed radio waves in 1887. Heavier-than-air flight (1903) was still considered impossible by most people. There were no plastics, microwaves, talking movies, televisions, tape recorders, transistors, lasers, radar, VCRs, cell phones, computers, Internet, e-mail, planes, satellites, nuclear energy, or air conditioning. In 1902, the automobile was a toy for the rich. Henry Ford had yet to sell his first production car (1903). The Model T didn't appear until 1908.

Einstein had not yet produced his 1905 publication blitz on special relativity, the photoelectric effect, quantum concepts, and the equivalence of mass and energy. Quantum mechanics had just been conceived but no one claimed paternity. No one had any conception of vitamins, DNA, insulin, cosmic rays, or neutrons; or that Earth-bound continents were moving about an inch or two a year, while the most distant stars were moving away faster than 160,000 miles per second!

THE VERY LARGE ARRAY, near Socorro, N.M., is one of the most widely recognized science facilities in the world.

A "Big Bang" was only a loud noise. The only galaxy known was the Milky Way. The word "genetics" had not yet been coined. Information theory did not exist.

No one imagined that the coming century would bring two world wars that would kill more than 58 million soldiers and civilians! Or that Navajo "code talkers" would stymie the Japanese in World War II; or that the war would end sooner because of scientists and engineers working in Los Alamos. It would be decades before Robert Goddard came to New Mexico to launch his new-fangled rockets.

And in 1902, New Mexico was still not a state and would not become one for a decade. Today, New Mexico is home to many world-class scientists and engineers, with two national laboratories and many outstanding universities and schools. New Mexico is first in the nation in spending on research and development as a percent of gross state product.

## Visiting scientists, Junior Academy, and more

The New Mexico Academy of Science provides visiting scientists to enrich classrooms; maintains a Junior Academy to promote student research for secondary school students, and to encourage participation in science fairs; annually recognizes outstanding science teachers; publishes the *New Mexico Journal of Science*; administers the National Youth Science Camp for New Mexico; and supports the Explora Science Center and Children's Museum and other science exhibits. But we can do more, and do it better.

Progress in science and technology are essential to our health, standard of living, and our very lives. Science literacy is needed in our families, neighborhoods, communities, the state, and the nation. It is the Academy's mission to support science education from kindergarten to graduate school, from the halls in our homes to city hall, and from the people to the legislature and the governor.

To learn more about the Academy and to join, please visit http://www.nmas.org.