LANL
LOS ALAMOS NEWS LETTER
A publication of Los Alamos National Laboratory
Vol. 2, No. 17 • Aug. 23, 2001

# One Laboratory, one look

*by Jacqueline Paris-Chitanvis*

Put away your bridges, pine cones, mountain scenes, spinning atoms, lasers, equations and other images used to represent Los Alamos National Laboratory. The Laboratory has a new and official look.

"A stylized blue and gold atom with the Los Alamos National Laboratory words is now the official Laboratory logo and will be used on all new Laboratory materials," said Director John Browne. "The new logo contains several distinct identifiers: our Los Alamos name, which is easily recognized; the blue and gold University of California colors, which signify our connection to the university; and the atom, which denotes our beginning as a nuclear laboratory and our continuous strength in conducting science at a fundamental level."

Los Alamos
NATIONAL LABORATORY

Why create a logo? Since 1981, when the Laboratory's name changed from Los Alamos Scientific Laboratory to Los Alamos National Laboratory, there has been no single look or graphic element associated with the

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***Dan Everett, left, of Space and Atmospheric Sciences (NIS-1), the lead concentrator technician, and Rick Paynter, right, of Quality Assurance at Jet Propulsion Laboratory perform a final check on one of the solar wind concentrator grids during the final assembly of the instrument. The solar wind concentrator is designed to collect a high concentration of oxygen and return the sample back to Earth for analysis. Everett and Paynter are working in a class-100 clean room built for instrument assembly. Class-100 means a maximum of 100 dust particles per cubic meter of air are allowed.*** *Photo by LeRoy N. Sanchez*

## *Los Alamos instruments on Genesis mission*

*by Shelley Thompson*

Three of the instruments aboard Genesis, a remote-controlled NASA space mission designed to capture particles from the sun and return them to Earth, were designed and built by the Laboratory. Genesis was launched Aug. 8 from Florida's Cape Canaveral Air Force Station.

The Los Alamos-built instruments aboard Genesis are the solar wind concentrator, designed to collect a high concentration of oxygen, and the solar wind ion and electron monitors, designed to provide information about the solar wind to the concentrator and the solar wind collector arrays.

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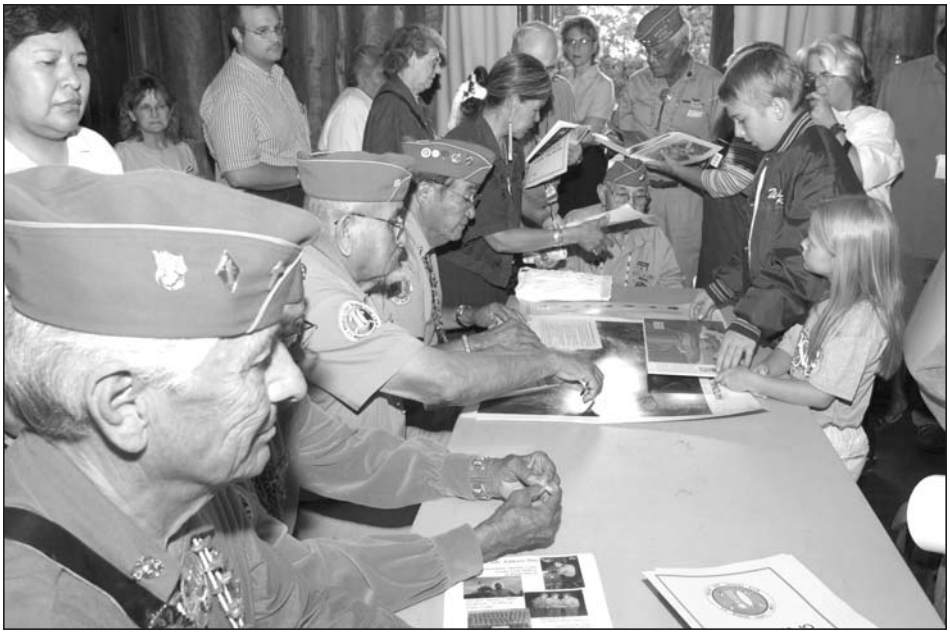

## Navajo Code Talkers

***Children and adults gather around several Navajo Code Talkers who were signing copies of a book about the code talkers on Tuesday in Fuller Lodge. Seated left to right are Roy Hawthorne, vice president of the Navajo Code Talkers Association; Merle Sandoval, partially obscured; Samuel Smith; Samuel Billison, president of the association; and Paul Blatchford. In background standing is Navajo Code talker Wilfred Biley. The event was sponsored by the Community Relations (CRO) Office with support from the Office of Equal Opportunity (OEO). The code talkers came to Los Alamos to talk about their role in the U.S. war efforts during World War II. The Los Alamos County Council declared Tuesday as Navajo Code Talkers Day. For more information, see the Aug. 2 Daily Newsbulletin or go to http://www.lapahie.com/NavajoCodeTalker.cfm online.*** *Photo by LeRoy N. Sanchez*

# *One Laboratory …*

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institution, no look that defines the Laboratory, unites it and sparks instant recognition.

The lack of an official identifier has resulted in a proliferation of assorted images appearing on slides, business cards, publications and other Lab-related materials. "This hodgepodge of looks has done little to convey the idea that Los Alamos is one Laboratory with one central mission," said Browne. "Nor have the many looks enhanced the Laboratory's image as a unified institution with our customers and stakeholders."

Until now, the only consistently used element on Laboratory products has been the name "Los Alamos National Laboratory." This identifier is usually situated prominently on the material and printed in a Helvetica type font, but it is not uncommon for the Laboratory's name to appear in a variety of type fonts and be difficult to readily locate.

The new logo works graphically with a variety of fonts, but is to be used exclusively with the Frutiger font. Frutiger is very similar to Helvetica, but many designers feel it has a leaner, more modern appearance. Communication Arts and Services (IM-1) has set up a site online at *www.lanl.gov/im1/logo.shtml* that contains templates and guidelines for using the logo, as well as contact information for assistance regarding needs not covered online. Having templates that can be downloaded will make it easy for employees to use the new logo and will avoid the need to reproduce or amend the logo in any way. Employees also can order business cards with the new logo online at *http://pages-sv.lanl.gov/buscard_101.html*. While employees eventually will be expected only to use business cards that feature the official Laboratory logo, they are not required to discard their current supply of business cards.

The new logo was designed by Jim Cruz of IM-1, selected by the director and approved by the Senior Executive Team. Feedback also was solicited from a small cross-section of employees.

"I am counting on each employee to do his or her part to ensure that the new logo is the only graphic element used to represent our laboratory," said Browne. "I especially ask the administrative staff for their assistance in assuring that the new logo is appropriately used on Laboratory materials generated by their organizations."

One Laboratory, one look. It's a symbolic but significant step on the path to being a unified and customer-focused Laboratory.

**LANL**

**LANL, the Laboratory bi-weekly publication for employees and retirees, is published by the Public Affairs Office in the Communications and External Relations (CER) Division. The staff is located at TA-3, Building 100, and can be reached by e-mail at *newsbulletin@lanl.gov,* by fax at 5-5552, by regular Lab mail at Mail Stop C177 or by calling the individual telephone numbers listed below.**

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NNSA National Nuclear Security Administration

# Lab to unify business processes

*by James E. Rickman*

Director John Browne has initiated steps toward vastly improving the way the Lab handles administrative processes, from time-and-effort reporting to project management.

For the past several months, a dedicated team of Lab employees from a variety of backgrounds and organizations has been evaluating how best to standardize Lab operations through an Enterprise Resource Planning system — a computer-based system that will improve Laboratory business and administrative operations. An ERP system will require re-engineering of Laboratory business processes to take full advantage of the system's features.

"In many ways, we have not given our managers the guidance and tools they need to manage effectively," said Director John Browne. "This initiative moves us toward best business practices that support our goal of integrated management and productivity enhancement."

The major goal of the initiative is to provide managers with necessary, accurate and timely information that will help them make the best possible decisions. This, in turn, will help the Laboratory become more efficient, cost effective and modern in its approach to business.

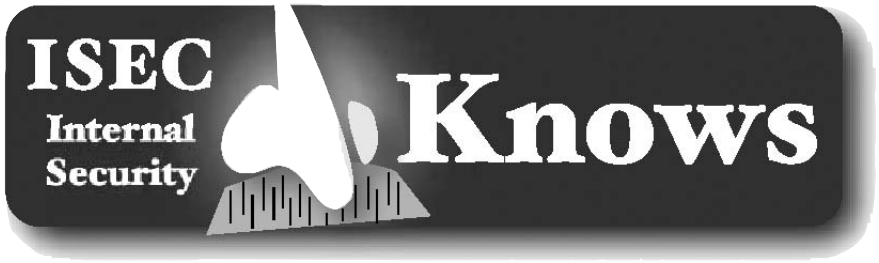
"This is the biggest business initiative that the Lab has ever undertaken," said Charles Slocomb of Computing, Communications and Networking, who is leading the ERP system project team. "Because managers have not had adequate data available, we've developed a culture of managing by dead reckoning. We plan to move our administrative processes to be on par with the best business practices of the best in industry, and, perhaps even more important, those processes will give managers information they need to do their jobs in accordance with best business practices."

Finance and accounting operations will be the first tasks to be performed with the new system, and employees could be using it in about 18 months. A project-management module will be added about a year after that. Finally, operations related to facilities and human resources management will go on line.

Slocomb said he realizes that some people may look upon a new ERP system with fear and skepticism. However, the team has suggested using an integration group to help re-engineer Lab business functions in accordance with best business practices.

"These ERP systems are used all over the country," Slocomb said. "Sometimes people have an early resistance to ERP systems, but once they find out how powerful these systems are and how easy they can make their lives, they become converts."

Lab employees are encouraged to check future issues of this newsletter as well as the electronic Newsbulletin for updates and progress reports from Slocomb or members of his team.




## *Adversaries can collect information in many ways*

*by Kevin Roark*

Foreign intelligence adversaries seldom use a single method to collect information according to the National Counterintelligence Center in its annual report to Congress on foreign economic collection and industrial espionage.

Adversaries will combine collection techniques into a concerted effort that includes both legal and illegal methods, and they are becoming more and more innovative, according to the NCC report.

Specialized training and instruction courses in business intelligence collection methodology are becoming increasingly available. Such courses provide instruction on how to conduct Human Intelligence (HUMINT) operations, including how to develop, create and maintain dossiers and psychological profiles on potential sources; exploitation and elicitation techniques; debriefing methodologies; competitor targeting, including how to exploit industrial conventions, seminars and meetings; and real-world practical exercises.

In addition to traditional HUMINT recruiting strategies, the NCC report identified two primary techniques as the methods used to acquire economic intelligence, open-source collection and illegal collection. Open-source collection includes requesting information through e-mail or letters; exploiting Internet discussion groups; exploiting multinational conferences, business information exchanges or joint ventures; and misleading open-source collection. Illegal collection techniques include acquisition of export-controlled technologies; theft of trade secrets, critical technologies and critical information in the host country; and the recruitment of agents, co-opted individuals and volunteers.

For more information on adversary information collection techniques, contact ISEC at 5-6090

# Regional teachers LASSO the stars

*by Shelley Thompson*

Nearly two dozen teachers will blast off the new school year this fall using a curriculum they developed with the help of space scientists from Los Alamos National Laboratory.

Twenty teachers came to Los Alamos from around the state of New Mexico and from El Paso, Texas, as part of the Los Alamos Space Science Outreach (LASSO) program. The program is designed to educate teachers about space science and provide them with educational materials, projects and curriculum to take back to the classroom.


"The philosophy of the program is to teach the teachers," said Phil Barker, program manager for NASA Space and Science Instrumentation programs at Los Alamos and chairman of LASSO. "We know our science but are not trained and have little experience in how to tell a teacher to motivate a fourth grader to learn. We teach the teachers and get them fired up so they go back to school with enthusiasm. My experience is, if the teachers are excited — it is contagious."

"The main reason or purpose for this outreach program is to get more kids interested in math and science, and in this case, space science," said Richard Alexander of Science and Technology Base (STB-EPO) Programs.

In the summer workshop series, the teachers participate in 120 hours of intense learning activities. They learn about basic physics concepts, the sun, moon and planets, Earth's magnetosphere, NASA missions and instruments aboard the spacecraft and data processing and analysis, according to Barker.

LASSO provides a stipend to the teachers to help cover their expenses during their three weeks in Los Alamos. They also get a follow-up stipend to implement the lessons and activities they develop while at Los Alamos, and for preparing and

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## Genesis …

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Genesis' main goal is to determine isotopic ratios of different elements in solar matter, with a focus on oxygen — an element making up two thirds of everything found on Earth, according to Roger Wiens of Space and Atmospheric Sciences (NIS-1), who led the payload instrument development at the Lab.

Scientists believe the solar system possibly began with a dense cloud of gas and dust that collapsed in on itself. Most of this "solar nebula" condensed to form the sun, while outlying particles coalesced into the diverse planets, moons and comets that make up our solar system.

Although scientists have a general understanding of the formation of the solar system, the composition of the initial nebula remains relatively unknown. Fortunately, nature provides a fossil record of the solar nebula. The pristine composition is preserved for the most part in the outer layers of the sun. The solar wind provides a continuous flow of this material into space.

This is the rationale of the Genesis mission — to collect samples of the solar wind to reveal the makeup of the cloud that formed the solar system nearly five billion years ago. "To understand how the planets were formed with their different compositions, we need to know the starting materials," explained Wiens.

The solar wind concentrator is designed to collect a high concentration of oxygen and return the sample to Earth for analysis. The concentrator takes the solar wind and passes it through a series of electrically charged grids into a bowl-shaped mirror, which reflects the filtered stream of elements heavier than hydrogen upward into a collector tile, poised in the center of the solar wind concentrator, where the oxygen and other elements embed themselves.

"The concentrator is the first solar instrument sent into space that we will ever see again. All other instruments aboard spacecrafts remain in space indefinitely, or like Lunar Prospector are intentionally crashed after their mission ends," said Beth Nordholt of Neutron Science and Technology (P-23). "This is the first mission in three decades, since the Apollo missions in the [1970s], that will bring extraterrestrial samples back to Earth for analysis," she said.

Genesis will collect just 10 to 20 micrograms of solar wind — or the equivalent of a few grains of salt — and return it to Earth for analysis.

The instruments were built in clean rooms to guarantee their materials are extremely pure so that the atoms analyzed are of pristine solar origin and not due to terrestrial contamination. They were designed and constructed by a team of scientists and engineers from NIS-1 and Space Instrumentation and System Engineering (NIS-4) headed by Wiens, Barraclough, Eric Dors and Daniel Reisenfeld of NIS-1, Nordholt of P-23 and Donald Mietz of NIS-4.

The software to control the payload was developed jointly by Los Alamos and the spacecraft builder, Lockheed Martin Astronautics in Denver.

During flight, the entire payload will be under the control of Los Alamos. Scientists will monitor the health of the payload instruments and will keep a history of all solar wind conditions and array exposure times.

For more information, see the news release at *http://www.lanl.gov/worldview/news/releases/archive/01-077.shtml*

# MDA-P: *Not the first but the biggest*

*by John Bass*

A $25-million dollar project — to some, that may sound like a lot to cleanup a disposal area. However, when dangerous unanticipated things turn up at the site, work plans keep changing and a forest fire causes more problems — well, then maybe it's not so much.

Material disposal area P is being called the most challenging and complex environmental remediation project ever undertaken by the Laboratory says Ken Bostick of Environmental Restoration (ER) Project team leader for the cleanup. In the MDA was rubble from demolished World War II-era buildings and other debris left over from burning high explosives.

Overall, the clean up involved the excavation of 51,000 cubic yards of debris and soil from the southern edge of Canyon de Valle.

Plans to remove MDA-P began in the mid 1990s. Originally, the project staff estimated the size of the disposal area at about 30,000 cubic yards of material. While digging test pits to identify the types of waste in the site, crews discovered high-explosive materials. These ranged in size from smaller than a fingernail to as large as a softball.

Presence of the explosive pieces changed everything about the waste excavation and removal plans. ER developed a comprehensive closure plan to ensure not only success, but also safety.

Once the New Mexico Environmental Department approved the plan, the Laboratory, through its contractor, brought in a firm that specialized in robotic excavation. Also, a team of explosive ordinance experts was brought on board to screen excavated material for high explosives. Excavation began in January 1999.

As the excavation progressed, the explosive ordinance team examined thousands of cubic yards of soil and debris. In all, the ER crew removed over 380 pounds of high explosives from the site to a nearby staging area. There, the ESA personnel burned the explosives and the remaining debris at pads according to NMED requirements, and disposed of it at TA-53 as hazardous waste.

Work on MDA-P continued until the May 2000 Cerro Grande Fire burned through the Jemez Mountains and parts of the Lab. Excavation was restarted after the fire and completed March 30.

Crews used high-pressure water to remove debris that was potentially contaminated with low levels of high explosives. They sampled the debris further to ensure it had been decontaminated before recycling it. More than 2,900 cubic yards of concrete and 2,200 cubic yards of scrap metal were sent to a recycling facility. This resulted in savings of more than $240,000 compared to the cost of disposing the materials as waste.

Throughout the entire project, ER worked closely with NMED to ensure successful completion of the project.

The next step is to take "confirmation samples" at the site to confirm there is no unacceptable risk to human health and the environment. The eventual reclamation of the site to its original condition is the final step.


***A remote excavator at work at Material Disposal Area P. An operator 200 feet away in a blast-protected building controls it. Video cameras on the machine show the operator exactly what he is digging into.*** *Photos courtesy of Environmental Restoration Project Office (E-ER)*

*J. Douglas Beason*

**J. Douglas Beason**, a physicist and Fellow of the American Physical Society, is the new program director for Threat Reduction Science and Technology. Beason's responsibilities involve management of defense and national security-related programs within the threat reduction directorate. He comes to this position from the Air Force Research Laboratory where he was commander of the Phillips Research Site and deputy director for Directed Energy. Before that he was at Lawrence Livermore National Laboratory and the White House Office of Science and Technology Policy. He holds a doctorate in physics (radiation hydrodynamics) from the University of New Mexico.

*Ricardo Schwarz*

**Ricardo Schwarz** of Structure/Property Relations (MST-8) has been elected a Fellow of the Minerals, Metals and Materials Society. Elevation to the status of Fellow, the highest honor bestowed by TMS, recognizes those individuals who have made outstanding contributions to the field of materials science. Schwarz was recognized for "outstanding contributions to the scientific understanding of amorphous metals, the thermodynamics and kinetics of alloy phases, dislocation dynamics, mechanical alloying and ultrasonics." Schwarz joined the Lab as a technical staff member in 1985. He is both a Lab Fellow and American Society of Metals Fellow. He has a master's in electrical engineering from the Universidad de Chile and a doctorate in physics from the University of Virginia, Charlottesville, Va.

# *August employee service anniversaries*

40 years
Gilbert Rodriguez, IM-5

35 years
John Shaner, NIS-NP
James Van Hecke Jr., HR-DO

30 years
Richard Beckman, D-1
Harry Crissman, B-2
Michael Gallegos, CCN-5
Yolanda Garcia, ESA-WE
Robert Romero, ESA-EPE
Jay Thorne, NMT-16

25 years
Judy Archuleta, IM-5
Gary Carr, LANSCE-6
Robert Damjanovich, ESA-WE
Manuel Echave, NIS-4
Will Fox, SNS-DO
James Friar, T-16
Marilee Fuehrer, NIS-18
Frank Gac, NIS-IT
James Goforth, DX-3
Sin-Tao Hsue, NIS-5
James Hyman, T-7
S.F. Klosterbuer, NIS-5
Stanley Kosiewicz, E-ET
Gary Lewis, MST-6
Larry Luck, D-11
Ronald Moses Jr., T-3
Sandra Roybal, IM-5
Robert Springer, MST-7
Ray Trimmer, ESA-WMM
Robert Watt, P-22
Suzanne Watters, ALDSSR
Martha Zumbro, DX-DO

20 years
Juliana Allen, IBD
Paul Arendt, MST-STC
Paul Argo, CCN-8
Cris Barnes, P-24
Roy Bates, ESA-WMM
Frank Bobrowicz, CCN-2
Harry Dewey, C-ADI
Ronald Flury, ESA-EA
Richard Hale, ESA-WMM
Irma Holtkamp, STB-RL
Renee Idar, HR-5-STAFF
James Irwin, P-FM
Stephen Knox, NIS-RD
Ronald Lujan, S-3
Wayne Lunsford, ESA-WE
Bonnie Martinez, HR-7-DS
Christine Maestas, STB-DSTBP
Richard McLellan, NMT-5
Cherryl Mingo, DX-DO
Benny Moya, IM-5
Larry Parker, NIS-IT
Thomas Phillips, ESA-EPE
Robert Potter, ESA-DE
Arnold Sandoval, NMT-2
Donna Schneider, BUS-2
Floyde Smith, ESH-1
Gerald Vasilik, DX-4

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## LASSO …

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submitting an end of the year report to the LASSO program. LASSO money can be used to buy computers and provide Internet access for classrooms that lack the hardware.

Several scientists in the Nonproliferation and International Security (NIS) Division deliver lectures, conduct tours of laboratories and provide hands-on activities for the teachers. The teachers learn cutting-edge science and technology that they can take back to their classrooms as opposed to textbook material that may be 10 years old. The scientists also help the teachers develop lesson plans and science projects for the upcoming school year and help make this information available on the Web.

Los Alamos scientists also visit classrooms throughout the school year as part of the LASSO program and engage students and teachers in a variety of activities, such as robot building and lectures and demonstrations on the sun and solar wind. The activities are directly tied to Los Alamos space science programs and help to develop critical thinking and problem-solving skills and to expand an understanding of space science with the goal of encouraging lifelong learning.

For more information on the LASSO program visit *http://set.lanl.gov/programs/lasso/lassomain.htm* online.

## Service anniversaries …

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15 years
Robin Bachman, BUS-2
Joseph Baiardo, NMT-16
H. Thomas Blair, NMT-15
Timothy Burns, E-CO
Dawn Flicker, X-4
Katherine Garduno-Paul, C-AAC
Janette Lujan, DX-4
Edward Joyce, D-3
Marcos Martinez, NMT-13
Vivian Pearson, FWO-DO
Leroy Rodriguez, DX-8
Robert Ryan, NMT-3
Stephen Schreiber, NMT-2
Paula Stretz, D-5
Stevie Strottman, STB-DSTBP
Antoinette Taylor, MST-10
Charles Thorn, ESH-OIO
Octavio Vela, ESA-DO
Edward Whitted, D-5
Charles Wilder Jr., CCN-5

10 years
Thomas Allen, NMT-15
Alexander Balatsky, T-11
Peter Barnes, P-25
Marilyn Bentley, NW-MM
David Bowman, DX-5
James Koster, NIS-6
Anna Swertfeger, ESS
A. Rene Pozzi, IM-8
Debbie Trujillo, ESA-WE
Louise Walker, ESA-WE

5 years
Leo Archuleta, NMT-2
R.T. Baker, C-SIC
John Bernardin, SNS-03
David Bracken, NIS-5
Donald Dry, C-INC
Michelle Espy, P-21
Daniel Grove, ESA-WE
Kevin Honnell, ESA-WE
Kiril Ianakiev, NIS-5
Glen Johns, LANSCE-6
Michael Johnson, NMT-5
Cliff Joslyn, CCS-3
Daniel Keogh, C-SIC
Keith Kihara, ESA-DE
Sandra Knoll, BUS-8
Sergey Kurennoy, SNS-DO
Claudia Lewis, EES-9
Jane Lloyd, NMT-15
Jennifer Macy, NIS-FMU-75
Charles Mielke, MST-NHMFL
Benny Montoya, P-25
Joey Moya, NMT-2
Michelle Murillo, CCS-4
Michael Pigue, NIS-4
Shawn Rivera, IM-8
Stephen Rojas, NW-EP
Steven Salazar, NIS-4
Patrick Sullivan, BUS-8
Amanda Swensen, BUS-8
Martin Trujillo, BUS-4
Laura Wolfsberg, E-ET
Chang Yub Kim, B-2
Dongxiao Zhang, EES-6

# This month in history

## August

**Aug. 1, 1790 —** First U.S. census: 3,939,326 citizens in the 16 states and the Ohio Territory

**Aug. 1, 1818** — Maria Mitchell born; first U.S. woman professor on astronomy and first woman elected to the American Academy of Arts and Sciences

**August 1837 —** The Chimayo Revolt against new taxes results in the assassination of Gov. Albino Pérez

**Aug. 5, 1864 —** The spectrum of a comet is observed for the first time by Giovanni Donati

**Aug. 2, 1939 —** Albert Einstein writes a letter to President Roosevelt, mentioning the possibility of building an atomic bomb

**Aug. 20, 1942 —** The first macroscopic amount of plutonium is isolated at the University of Chicago's Metallurgical Laboratory

**Aug. 9, 1974 —** Richard Milhouse Nixon becomes the first person to resign as president of the United States.

**Aug. 1, 1990 —** The creation of what would become the World Wide Web was suggested this month in 1990 by Tim Berners-Lee and Robert Cailliau at CERN. By October, they had designed a prototype Web browser. They also introduced HTML and the URL. Mosaic, the first graphical Web browser, was designed by Marc Andreessen and released in 1993. By early 1993 there were 50 Web servers worldwide.

**Aug. 11, 1995 —** President Bill Clinton announces a ban on nuclear weapon testing (or zero yield) while supporting the Comprehensive Test Ban Treaty

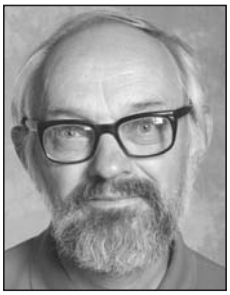
## News from UC

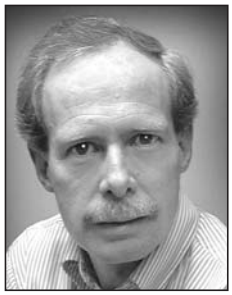
### *Scientists decipher "fail-safe" system that limits gene copying in cells*

Our cells constantly flirt with disaster. Before each division, they duplicate hundreds — often thousands — of DNA snippets from each chromosome. But if any snippet gets copied twice, the daughter cells will get faulty instructions and may start a buildup of errors that can cause cancer generations. Scientists at the University of California, San Francisco, have deciphered the long-puzzling process by which every cell regularly averts these dangers by shutting down the gene-copying process as soon as one complete copy is made. The discovery involves a fail-safe system of overlapping controls requiring that three separate chemical processes be reversed before the genes can be re-copied — a highly unlikely series of events and therefore a near-perfect protection.

### *DNA analysis of salamanders turns up new species under almost every log*

A new species of salamander discovered in an isolated range of hills in southeastern Mexico highlights the agile inventiveness of evolution as well as the many species still waiting to be discovered in out of the way spots and even under our noses. The soil dwelling salamander looks identical to a salamander living in mountain foothills several hundred miles away, but DNA analysis by zoologists at the University of California, Berkeley, showed them to be distinct species. Experts can't tell them apart, but they apparently evolved from different ancestors and are not one another's closest relatives. The discovery is one of many surprises that have emerged in the past few years as biologists use DNA comparisons to distinguish species and chart family trees. More and more researchers are finding that what once were thought to be separate populations of the same species are, in fact, different species or lineages, each as genetically distinct as a horse from a cow. This unsuspected diversity, often termed "cryptic biodiversity," is turning up in everything from whales to birds, fungi to flowering plants.






*John Bdzil* *David L. Clark* *Paul Jackson* *Thomas Terwilliger* *Joe Thompson* *Merri Wood-Schultz*

# Laboratory selects six new Laboratory Fellows

*by Todd Hanson*

Laboratory Director John Browne has selected six Los Alamos staff members as Laboratory Fellows, the Laboratory's highest scientific honor. The honor is made yearly to technical staff members who sustain a high level of excellence in programs important to the Laboratory's mission, make important scientific discoveries that lead to widespread use or are recognized as leaders in their fields both within and outside of the Lab.

"I'm pleased to recognize these distinguished members of our technical staff," said Browne. "It is valuable to note who some of the men and women are that serve our nation and the world with such technical and scientific excellence."

The new Fellows are John Bdzil of Detonation Science and Technology (DX-1), David L. Clark of the Nuclear Materials Technology (NMT) Division, Paul Jackson and Thomas Terwilliger, both of the Bioscience (B) Division, Joe Thompson of Condensed Matter and Thermal Physics (MST-10) and Merri Wood-Schultz of Thermonuclear Applications (X-2).

Bdzil was named Laboratory Fellow for having attained international recognition in the field of detonation theory. His work has had an impact on many of the important theoretical developments in detonation theory over the last 30 years. Bdzil's Detonation Shock Dynamics method has become the recognized standard for highly accurate numerical modeling of detonation in high-explosive systems. This work has improved the Laboratory's ability to model the behavior of complex explosive systems.

Clark was named for his exceptional work in the structural inorganic and environmental chemistries of the actinides and his stewardship of the Seaborg Institute at Los Alamos. He is recognized internationally for his efforts to bring state-of-the-art molecular science concepts in structural characterization and theory of inorganic chemistry to the chemistry of actinide elements. The most notable example of these efforts has been Clark's involvement in the development of a new research field known as Molecular Environmental Science in which molecular level understanding is used to unravel the fate and transport of actinide ions in the environment.

Jackson was recognized for his creative, highly regarded research in the fields of molecular and cellular biology and his recent efforts in the area of biological threat reduction. He is responsible for developing novel applications and pioneering research tools used in the field including Polymerase Chain Reaction-based and Amplified Fragment Length Polymorphism-based methods for the rapid detection and unambiguous identification of biological threat agents and other human and animal pathogens. Jackson came to Los Alamos as a Director's Funded Postdoctoral Fellow. He was awarded the Laboratory's Distinguished Patent Award in 1990 and is the co-author on five U.S. patents.

Terwilliger is recognized for his outstanding work in the development of the computer program SOLVE, which enables the creation of automated solutions of protein crystal structures from X-ray diffraction data sets. He also has been a leader in the development of a new field called "structural genomics" that aims to discover the three-dimensional shapes of all proteins in nature. He is the leader of a worldwide consortium of more than 250 scientists applying the ideas of structural genomics to find new anti-tuberculosis drugs by identifying the structures of proteins from Mycobacterium tuberculosis. Terwilliger is an American Academy of Arts and Sciences Fellow and a recipient of the Presidential Young Investigator Award, a 1998 R&D 100 Award and a Los Alamos Distinguished Copyright Award.

Thompson's efforts in discovering and understanding uncoventional forms of superconductivity and magnetism have contributed substantially to Los Alamos' reputation as a center of world-class materials research. Thompson also is a Fellow of the American Physical Society and has received awards for his work from the Laboratory, the U.S. Department of Energy and the Japan Society for the Promotion of Science. He also is one of the top 150 most frequently cited physicists in the world.

Wood-Schultz was honored for major contributions to the Laboratory's nuclear weapons program, particularly for her work in weapons certification both before and after the cessation of nuclear testing. She has distinguished herself as a foremost expert on the physics certification of the secondaries of nuclear weapons and is widely recognized for her important contributions in nuclear weapons intelligence. She has served as a long-time steward of a stockpiled thermonuclear weapon system and in that capacity has pioneered the technical management of emerging weapons issues.

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