Reflections

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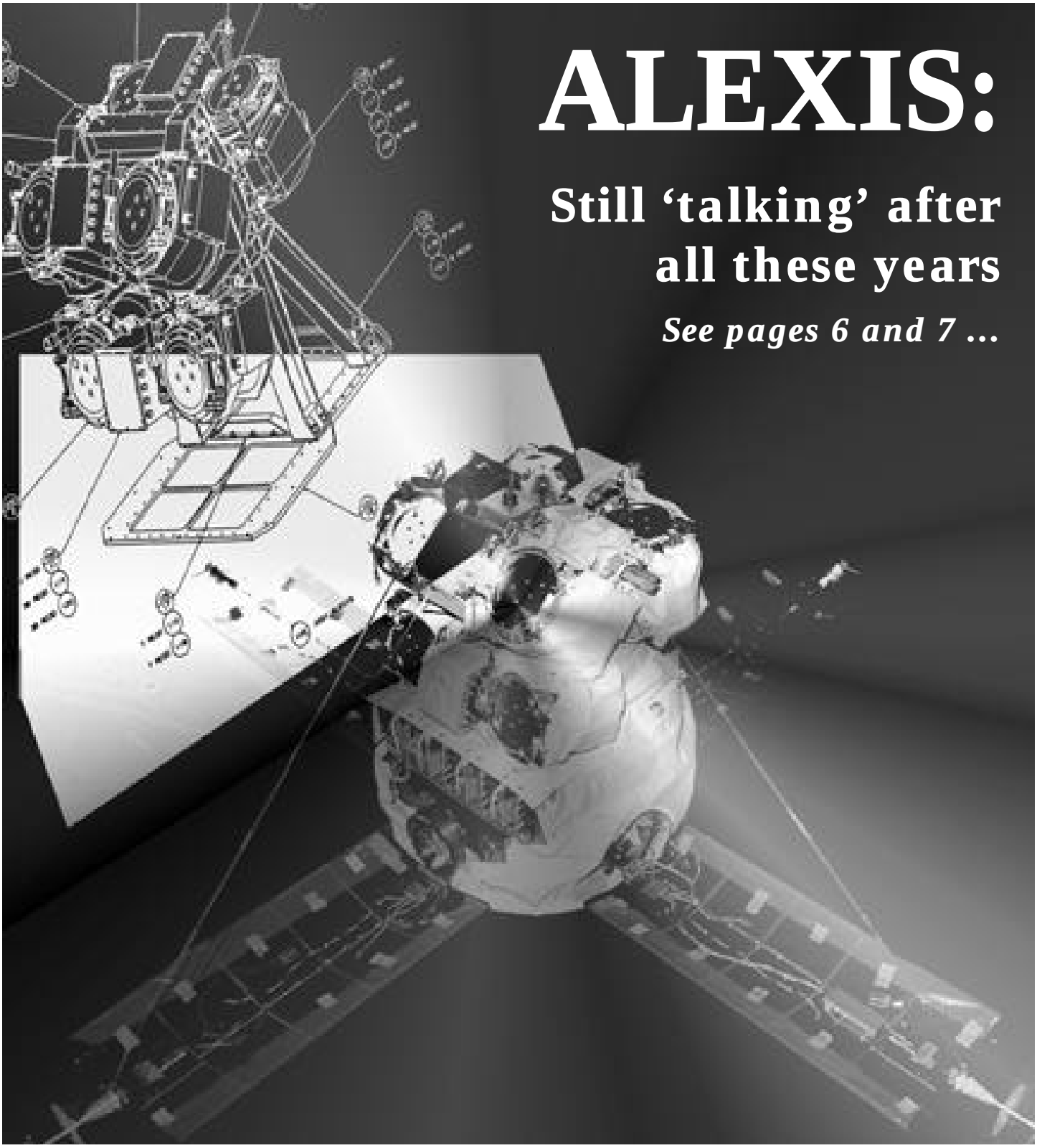

ALEXIS:

Still 'talking' after all these years

See pages 6 and 7 ...

Inside this issue ...

Cover illustration by Edwin Vigil
Photo courtesy of Nonproliferation and International Security (NIS)

Reflections

Reflections, the Laboratory monthly publication for employees and retirees, is published by Public Information (PA-1). The staff is located at TA-3, Building 100, and can be reached by e-mail at *newsbulletin@lanl.gov*, by telephone at 7-6103, by fax at 5-5552 or by regular Lab mail at Mail Stop C318. The individual telephone numbers are listed below.

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Printed on recyclable paper

editor's journal

Thanks for sharing

In April, I asked "So whaddya think?" about "Reflections" … then patiently waited to hear.

Knowing this type of publication is new for the Laboratory and also knowing that those who don't like something are usually much more vocal than those who do, I braced myself for an onslaught of "interesting" feedback, tempered (I hoped) by some constructive comments. And I wasn't disappointed — though I would have liked to have heard more specifics about what features readers did or did not like, and why.

Still, I did get some insightful, honest and constructive comments — as well as a few puzzling ones — and I thank those who took the time to offer input. I won't try to address every comment, but I will share some of the thoughts and respond to two of the concerns.

Individuals who don't like "Reflections" were quite frank in expressing their feelings. Their assessments included "overly glitzy," "a waste of money," "management-controlled," "purposeless," "too much emphasis on diversity" and "a PR document … having nothing much to do with employees of the Laboratory" and, yes, "It's not the old Newsbulletin."

Comments from those who gave the publication a thumbs up included "I like the new look … keep up the good work," "It's something different for a change," "I like both [the online Daily Newsbulletin and "Reflections"] for different reasons," "I like the 'fluff' — back page stories; it's interesting to see what folks do in their lives away from work," and "Fills a need … Something I've always thought lacking in Laboratory publications in the many years I've been here is the folksy 'we care about our employees as individuals touch.' "

Needless to say, there are mixed reviews out there. We knew going in we were not going to make everyone happy, no matter what we published (having been managing editor and editor of the former weekly Newsbulletin, I knew this *very* well — I frequently received mixed comments about its content and value). However, we want to provide a publication that is read and enjoyed by a majority of those who receive it. Consequently, we will continue to hone the product, adding to, amending and improving its content.

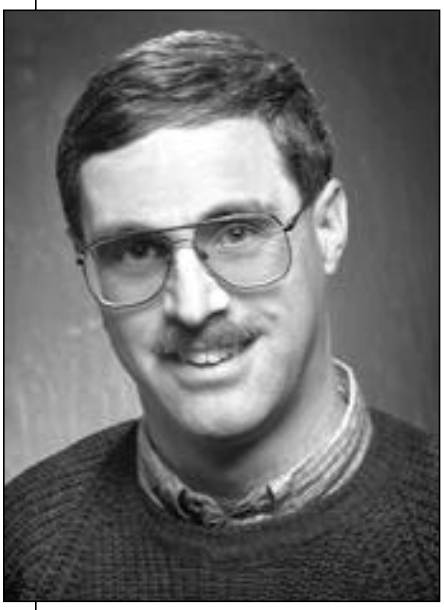
Which brings me to two recurring concerns: the paper used for "Reflections" and the high cost of the publication. First, the publication is recyclable. Not noting this on previous issues was an oversight on our part that has been corrected (the recyclable symbol appears in the masthead [to the left] of this month's issue). We would have loved to have printed "Reflections" on recycled paper, but that was far too costly. For while the paper used for "Reflections" costs more than the newsprint we used for the daily Newsbulletin, it is not "expensive" paper. We opted to move up from newsprint to 80 lb. dull-coat paper primarily to have a visually crisper and cleaner product. The cost of producing both the monthly publication and the electronic Daily Newsbulletin is about the same as it was to produce 45 issues a year of an eight-page weekly paper. Our budget was not increased (in fact, our budget is 38 percent less than it was two years ago), and new staff members were not added (the same small team that produced the weekly paper produces "Reflections" and the daily electronic Newsbulletin).

Again, thanks to everyone who took the time to share their thoughts about the publication. We may not agree with all the comments, but they all certainly gave us something to reflect upon.

And one more thing. When we goof we're the first to admit it. In last month's issue, the article on retiree and criticality safety expert Hugh Paxton ("Good old P.U.") incorrectly named Technical Area 18 as the site of both of the Lab's criticality accidents (1945 and 1946). The 1945 accident involving Harry Daghlian happened at TA-2 (Omega Site) and occurred when a tungsten carbide brick fell onto a near-critical assembly.

Outstanding scientific achievements recognized

by John A. Webster



R. Brian Dyer of Bioscience and Biotechnology (CST-4)

George T. "Rusty" Gray of Materials Research and Processing Science (MST-5)

A metallurgical engineer who studies the behavior of materials under extreme conditions and a chemist who investigates the structure and function of proteins have been honored by the Laboratory Fellows for their research.

George T. "Rusty" Gray of Materials Research and Processing Science (MST-5) and R. Brian Dyer of Bioscience and Biotechnology (CST-4) received the 1996 Fellows Prize, the highest award the Laboratory gives to recognize outstanding research in science and engineering.

Gray, dynamics properties team leader in MST-5, joined the Laboratory in 1985 after a postdoctoral fellowship in Hamburg, Germany. He received a doctorate in metallurgical engineering from Carnegie-Mellon University in 1981 and master's and bachelor's degrees, also in metallurgical engineering, from the South Dakota School of Mines and Technology.

His research focuses on the relationship between the structure and properties of materials during deformation, particularly in response to high strain rates and shock. The research, involving a wide variety of metals, alloys and composite materials, has produced an extensive database that allows accurate predictions of materials behavior in a broad range of deformation conditions.

"When you deform a material quickly, like in a car crash, it's a lot different than doing it slowly, like bending a paper clip," he said. "We're interested in understanding this so we can develop more realistic models."

The dynamics properties team led by Gray investigates materials behavior for a wide range of potential applications such as automobile design, jet engines and submarine hulls.

"I'm honored to have been recognized for my scientific and programmatic accomplishments," Gray said, "and I am grateful to my research team, colleagues and postdocs over the last 12 years who have shared my passion for dynamic material behavior research."

Dyer also joined the Laboratory in 1985 as a postdoctoral fellow and became a technical staff member two years later. He received a doctoral degree in chemistry from Duke University in 1985 and bachelor of science degree in chemistry from Wake Forest University in 1981.

He was cited by the Laboratory Fellows for his research in protein folding, the fundamental problem of how proteins achieve their native three-dimensional structures. The research is viewed as a central component in the growing field of structural biology.

"Proteins are synthesized as a linear sequence of amino acids based on instructions contained in chromosomes. We study how this linear sequence is folded into a functional, three-dimensional structure. It is important to understand the mechanism of folding for many reasons," said Dyer.

Certain disease states, for example, are the consequences of protein misfolding, he said. "Another reason is the project to sequence the human genome, a tremendous effort that is producing the code for thousands of unknown proteins. The payoff will come when we can crack this code to predict the structure and function of these unknown proteins."

Acknowledging the support of his family and the contributions of numerous postdoctoral and other students, Dyer said he hopes that this work will entice other Lab scientists to tackle the tremendous challenges that lay ahead in the biosciences, a field he called "the great scientific frontier of the next century."

Dyer also conducts research into the functional dynamics of proteins, the chemical applications of lasers and vibrational spectroscopy, photophysics and membrane phenomena.

TA-55 opens its gates for a day to children

by Jody Heiken of Communication Arts and Services (CIC-1)

How much plutonium in the form of reactor-spent fuel is there worldwide? Not many employees at the Laboratory could answer that question. But now more than 220 children from ages 9 to 17 can tell you quite simply: 188.5 elephants' worth.*

Putting science into perspective and making it both exciting and accessible for young people was the goal for Take Our Children to Work Day at the Technical Area 55 Plutonium Facility. Scientists, technicians, training specialists, safety and security employees, as well as support staff explained how they work, how the facility protects its employees and the environment from radioactive contamination and what is accomplished there. TA-55 sponsored more than a dozen ongoing talks and demonstrations in different locations, and many employees created other informal sessions to explain TA-55's programs and projects.

TA-55's guests get a glimpse of safety and security monitors while touring the Plutonium Facility's Operation Center.

Bruce Matthews, Nuclear Materials Technology Division director, tells the young visitors how he first became interested in science as a career.

Employees' children try out gloveboxes and equipment similar to those their parents use daily at TA-55. *Photos by Mick Greenbank of Materials Characterization and Analytical Chemistry (CST-15)*

When the Plutonium Facility invited kids through its gates April 24 for Take Our Children to Work Day, the Labwide event became more than just a chance for kids to visit their parents' workplace. It was an opportunity to promote education and encourage young people to think toward careers in science and technology.

Nuclear Materials Technology (NMT) Division director and deputy director, Bruce Matthews and Dana Christensen, who were escorting their own children, welcomed the visitors and talked about how they had become interested in science.

Just like their parents, kids visiting the site wore badges, passed through security and were scanned at metal-detector portals. They moved on to the Training Center, where they learned to use gloveboxes and computer-based training. They wore safety glasses to visit the on-site machine shop and viewed the sophisticated equipment and computers used to design and manufacture many specialized metal pieces for the facility.

In the Operations Center, the staff demonstrated how ventilation, alarm and other systems are monitored to maintain a safe, secure facility for their parents. The visitors met Lt. Worf, a remotely controlled robot, visited "007," the mobile analysis station, and saw heat sources like the ones TA-55 made for NASA's Cassini mission to Saturn. Using a hand-held instrument, they found a small radioactive source hidden in one of many identical cans. From a humorous demonstration, they learned the importance of following procedures in laboratory experiments. Each child received a booklet of puzzles, questions and information to help them remember facts and their experiences at the facility.

Younger children were alternately awed and giggling, as they tried on the protective clothing and equipment their parents use at the facility. Older children talked to TA-55 students who are working at the Laboratory while attending high school and the University of New Mexico, Los Alamos — preparing for their future careers in a most interesting way, while earning money for college.

At TA-55, Take Our Children to Work Day was a visit to the future for children the Lab hopes will choose science/technology careers — and perhaps become part of our Laboratory's new workforce in another decade.

** 188.5 elephants @ 14,000 pounds each = ~2,640,000 pounds*

Area residents reach out to Mexico

by Ternel Martinez

Adults and students prepare cement from tubs and wheel barrels to make the floor of one of the new homes they are building. They already had framed the floor pad and leveled the area earlier in the day. To the left is a cardboard home typical of this section of Juarez. The new home was constructed in front of the recipient family's old home. *Photo courtesy of Randy Erickson*

They live in houses made mainly of cardboard, the roofs consisting of any material they can get their hands on. When it rains, the rampant leaking turns the dirt floors to mud.

There are no doors or windows on these homes, and electric power, scarce as it is, usually is in the form of makeshift wires connected to utility poles. On a good day, sanitary conditions are horrible.

Their children meet outdoors for school, for there is no facility to house them. The instructors write the day's lessons on plywood. If it rains, there is no school. They are some of the poorest families in some of the poorest regions of Mexico.

But over the past 11 years, a lucky few from Tijuana, Agua Pietra, Juarez and other towns and cities have gotten new homes built by adults and high school students mainly from the Los Alamos area. Many of the adults work at the Laboratory.

Under the sponsorship of The United Church of Los Alamos, adults and students from the community head to Mexico during spring break, using their own vehicles or renting several trucks and vans filled with construction tools, food supplies, tents and other necessities.

This year's weeklong project cost about $38,000. The group raised about $10,000 through a mission auction, where group members solicit items from individuals and local businesses in Los Alamos, Santa Fe and Española for auction. The rest came from private donations, money donated by the United Church and the $200 per person registration fee for the 158 people who participated this year.

A little more than half of the money raised was sent to AMOR Ministries, a nonprofit organization based in San Diego, Calif., that facilitates the trips. AMOR does the "investigative" work by meeting with a committee that includes pastors in Mexico to determine which families are in most need. They chose six families and one church congregation from Juarez for the group to help this year.

AMOR representatives also meet with community leaders to determine the proper design for the homes to be built. They then buy the appropriate building materials.

Randy Erickson, program manager for Nuclear Material Stabilization and Disposition (NMSM-SD), has been involved with the annual project since its inception. He and his wife, Laura, who has been involved since 1988, were project co-directors last year. Erickson said in spite of these families' living conditions and lack of material goods, they seemed to be content. "It was obvious that they have strong family ties," said Erickson.

He also pointed out that the homes the group builds for the families are not grandiose by any standard. "We would consider them tool sheds in America," he said, "and the new homes have no utilities, but to the families, they're a vast improvement."

The four 11-foot by 22-foot single family and three 22-foot by 22-foot doublewide homes had to be built from the foundation up in four days.

If the group could not finish the homes in time, the families would have to wait until sometime this summer for another affiliated group from elsewhere in the United States to finish the task.

To account for the short time period, the group would sometimes work 12-hour shifts and take 15-minute lunches, said Grace Hollen of Communication Arts and Services (CIC-1), one of the crew leaders.

Hollen said she still cannot get over the level of poverty that these families live in. "It's really an eye-opening experience. I can't believe that people can live under these types of conditions. It's unacceptable, and my heart goes out to them," said Hollen.

Power tools are not used. Erickson explained that apart from the availability of power in the area, safety issues are the main reason. So everything had to be done by hand, from mixing cement to cutting lumber with hand saws.

Despite the time constraints, the group completed all the homes, one of which was built next to a church and will be used as a Sunday school. Additionally, the group had both the resources and time to install windows and doors on the homes, something it had not been able to do in the past.

Hollen said one of the major experiences for the participating students is interacting with the recipient families. "They develop strong relationships with the families and play with their children," said Hollen. "It's wonderful to see."

The dedication ceremony made the whole project worthwhile for the students and adults, added Erickson, who drove to Mexico in an old government truck that he had bought at an auction years ago — and left for the local pastor to use. "The families were so appreciative. We made a substantial difference in their lives."

The group also took the opportunity to drive through the community where it had helped other families last year. "Some had painted the window sills. Others had put drapes on their windows. They were making improvements to their homes, and that really made us feel good," said Erickson.

Talking with ALEXIS

by John A. Webster

"There it is, right there," says Cindy Little, pointing to one part of an imposing array of numbers on a computer screen at the Laboratory's Satellite Operations Center.

Sitting at an adjacent workstation, her partner, Bryan Dunne, quickly logs basic flight information, such as temperature, voltages and time of day.

A few seconds later, Dunne walks around Little to the radio frequency equipment rack to check an oscilloscope glowing with wavy lines to make sure the signal is coming in at the proper strength.

Meantime, Little punches a few keys at her workstation, sending a command to reset a number of error parameters.

Less than 10 minutes after the initial contact, the flurry of activity is over. Another data exchange with ALEXIS, a Laboratory-built and operated satellite, has been completed.

Four times a day, the staff at the Satellite Operations Center, or SOC, "talks" with ALEXIS, making sure it's functioning properly, downloading the data it has collected since the last pass and telling it what to do.

The calm, almost routine contact with the satellite contrasts sharply with activity at the SOC four years ago. At that time, about two months after the April 25, 1993, launch, members of the project team wondered if they'd ever talk with ALEXIS. On launch, the magnetometer, which controls the attitude, failed when a bracket holding the solar panel to which it was attached was damaged. This situation prevented contact with the satellite and raised fears that it may be lost for good.

The team kept trying to reach ALEXIS, however, and on June 2, the satellite replied briefly. Four weeks later, on June 30, the ground station and the satellite held their first meaningful conversation, and ground control of ALEXIS was established. The fourth anniversary of the revival of the satellite will be marked by the ALEXIS team late this month.

On this morning late last March, Little and Dunne were on duty well before dawn. So a short time after their second "chat" with the satellite at 7:20 a.m., they made sure that everything worked properly on that pass and is ready for the next one, then leave to catch up on their sleep.

Bryan Dunne, standing, of Astrophysics and Radiation Measurements (NIS-2), and Cindy Little, of Space Data Systems (NIS-3), are on duty in the Laboratory's ALEXIS Satellite Operations Center while the satellite was directly overhead during a recent orbit. Dunne is verifying the strength of the radio signal from the satellite, while Little sends new commands to instruments on the satellite. *Photo by Fred Rick*

The ALEXIS staff comprises about half a dozen people who manage the ground equipment and the satellite and instrument package. The workload includes command transmission, satellite attitude control, monitoring the health of the satellite, data collection, and archiving and analysis.

The team includes a number of students who are important to the success of the project, which operates on a tight budget.

"They're absolutely vital," Diane Roussel-Dupré of Space Data Systems (NIS-3), a co-principal investigator on the staff, said of the students. "They're the ones in the trenches every day."

Dunne, a graduate research assistant in Astrophysics and Radiation Measurements (NIS-2) with a bachelor's degree in physics and computational and applied mathematics from Rice University, is on his third tour of duty with the program.

"I've learned a lot more doing this than in any class," said Dunne, who spends about half his time operating the satellite and half working on specific scientific projects. "In class, you learn how to solve a problem, but you never learn how to take a real-life situation and figure out what to do with it."

Little runs the SOC, whose name makes the facility sounds more imposing than it actually is. The entire operation is contained in two small rooms, one created from the end of a hallway, in the Physics Building at Technical Area 3. One room houses the equipment for real-time communications with the satellite, and the other is used for data analysis and storage. Contact with ALEXIS, which orbits at an altitude of 460 miles, is made through a 6-foot radio dish on top of the building.

Little, of NIS-3, said two people are on duty for each pass primarily so "two sets of eyes" can check on what's happening. She is tired this morning because the staffing level for the project at the time was at a minimum, so she had to be on hand for most recent passes, but she said the early workday had at least one compensation — she got her first pre-dawn look at Comet Hale-Bopp.

ALEXIS, an acronym for Array of Low Energy X-ray Imaging Sensors, is a Nonproliferation and International Security (NIS) Division project with two experiments, each with a defense component and a basic research component. In one experiment, an array of six low-energy X-ray telescopes scans the sky for variable sources of extreme ultraviolet photons, called EUV transients.

The technology used for the telescope array is also being tested for potential use in systems to detect nuclear explosions in space. ALEXIS telescopes can detect the short, intense burst of photons from a nuclear explosion. The experiment is helping researchers understand the natural background such instruments would encounter during a treaty-monitoring mission.

The other experiment aboard ALEXIS is called Blackbeard, which consists of a complex radio receiver that tests techniques for monitoring signals originating on Earth for indications of possible violations of international treaties governing the testing and use of nuclear weapons. It also detects strange, upper-atmospheric phenomena that may be associated with high-altitude, upward-moving lightning flashes.

Blackbeard is a precursor to a more sophisticated satellite experiment called FORTE, which stands for Fast On-orbiting Recording of Transients Events. FORTE is scheduled for launch in July.

ALEXIS, which not only overcame launch problems but far exceeded its expected lifetime of one year, has been an exciting experiment in itself as a small (248 pounds), relatively inexpensive ($17 million) satellite performing a complex mission.

Jeff Bloch of NIS-2, the project leader and principal investigator for ALEXIS, said the project has allowed researchers to gather, analyze and share data much faster than in previous satellite experiments.

Previously, Bloch said, it would take months or sometimes years for data tapes from space missions to be analyzed. "Now," he said, "we're pushing data onto the (World Wide) Web within two hours of receipt from the satellite for others to look at it."

Since ALEXIS is operated by a small team, it is also much more flexible than other experiments, he said, and the team has demonstrated it can operate satisfactorily for a relatively low cost.

The smallness of the team can present problems, however

"We're running the satellite and doing the science," Bloch said. "And when there are difficulties with the satellite, it drains from the scientific effort."

Still, the team must be doing something right. Last year, more than 30 students inquired about applying for work on the project.

"It's the best (work) experience I've had," said Dunne, who is returning to school as a graduate student in the fall. "The people here have been great."

ALEXIS — A résumé

ALEXIS:

- weighs 248 pounds
- is 24 inches in diameter
- is 30 inches tall (45 inches with the Blackbeard antenna)
- orbits 460 miles above the Earth
- completes an orbit in 100 minutes
- cost $17 million
- stores 78 megabytes of data onboard
- downloads data at 750 kilobits per second
- has a World Wide Web site at http://nis-www.lanl.gov/nis-projects/alexis

In four years of life, it has

- proven the value of mini-satellites for science and technology missions
- worked at least four times as long as planned
- recovered from serious damage at launch
- investigated the characteristics of interstellar hot gas
- detected phenomena possibly linked with upward-moving lightning
- shared real-time data with others through its WWW site
- been the subject of some 100 hours of tours by Lab visitors in the last year

It collects data for ongoing projects by the ALEXIS team. They include

- mapping the cosmic diffuse extreme ultraviolet (EUV) background
- detecting transient EUV sources in space and identifying them as possible targets for investigation by NASA's EUV Explorer satellite
- producing a sky catalog of EUV sources
- searching for gamma-ray burst counterpart emissions at EUV wavelengths
- monitoring solar-reflected EUV emissions from the moon
- searching for EUV emissions from comets
- continuing monitoring of cataclysmic variable outbursts
- measuring instrument performance in orbit as a function of time

Albert awarded fellowship in D.C.

Diane Albert

Diane Albert of Materials Technology: Metallurgy (MST-6) has been awarded a resident Fellowship by the National Academy of Engineering. The fellowship begins this summer in Washington, D.C.

She will be working with the associate director of the National Academy of Engineering program office on "The Impact of Academic Research on Industrial Performance: A Multi-Industry Study," a project funded by the Alfred Sloan Foundation.

The NAE Fellows program seeks to achieve three main objectives: to broaden the Fellow's exposure to, and understanding of, major technology, engineering, and science issues facing the United States in both domestic and international arenas; to provide opportunities for Fellows to work with academic, industrial, and government leaders in technology, engineering research and education; and to furnish Fellows with new perspectives on the impact of technological change on society and on the consequences of political, economic, and social actions for technology development and deployment.

Albert applied for the fellowship, expressing interest in the "Managing Technology Innovation" program, she said. Other programs at the National Academy of Engineering include "Changing Nature of Engineering" and "Technology and Environment." She traveled to Washington, D.C., in February for an interview.

"I think they were looking for someone with a technical background, but they also wanted someone interested in United States science and technology policy. The people in the program office thought that I was sufficiently informed that it bore out my assertion that I was interested in the work that the NAE does," she said.

Albert added she was supported in her nomination for a fellowship by Laboratory Director Sig Hecker and her group leader, Richard Mah.

Albert earned her bachelor's degree in metallurgical engineering from Ohio State University and her doctoral degree in metallurgical engineering and materials science from Carnegie Mellon University. Albert has worked at the Lab since 1993.

Albert will reside in Washington, D.C., during her year away from the Lab.

Canepa named EM/ER deputy program manager

Julie Canepa

Julie Canepa is the new deputy program manager for the Environmental Restoration (EM/ER) Project Office. She began her new duties May 1.

Canepa was selected under what's called succession planning, meaning she is expected to succeed ER Program Manager Hansjorg Jansen when he retires later this year.

The Lab employee of more than 11 years was both program manager for the Yucca Mountain Project in the Energy Technology (ET) Programs Office and group leader for Nuclear Waste Management Research and Development (EES-13) before accepting her new position.

She said her more than 10 years of of involvement with the Yucca Mountain project (four of those years as program manager) has especially prepared her well for the new position. "I cut my professional teeth on Yucca Mountain," said Canepa.

"I learned a lot about managing a program that is rich from a scientific and technical standpoint and exists in a highly regulated environment, with elements of quality assurance and accountability as well."

Canepa added because EM/ER deals with the same issues and exists in the same type of environment as the Yucca Mountain Project, the transition will be a smooth one. "I see myself growing even more on a professional level.

"The ER program is incredibly important to the Lab, and anything I can do to support the program will help other related Lab programs that also have to deal with environmental issues."

Palounek chair of newly formed Student Programs Advisory Committee

Andrea Palounek

The chair of the newly formed Student Programs Advisory Committee said the key impediment to a meaningful summer experience for students is lack of communication between them and their mentors.

"Many times mentors don't take into account the views that students may have regarding their experience here," said Subatomic Physics (P-25) Deputy Group Leader **Andrea Palounek.** "Mentors have to be good listeners," she added.

Palounek has been involved (formally and informally) in science education programs at the Lab for several years. The programs she has participated in include the Teacher Opportunities to Promote Science program, the Preservice Research Institute for Science and Mathematics program, and the Supercomputing Challenge.

In addition, she is an adjunct professor at the University of New Mexico. Palounek also is part of an informal committee that is working toward developing

continued on Page 10

Service anniversaries listed for April and May

April

35 years
Richard Siemon, STB-FE

30 years
Horace Martinez, MST-6
Stephen Newfield, DoD-PO

25 years
Hillard Howard, ESH-OIO
David Martinez, CST-3
Rodney Mason, X-PA
Raymond Olivas, NMT-8
Annabelle Rivera, HR-1
Joe Roybal, CIC-11
Lawrence Sprouse, NIS-6
John Sutton, NIS-3

20 years
Robert Albers, T-11
Debra Archuleta, ESH-17
Mary Campbell, DX-2
James Clifford, CIC-5
Robert Dinwiddie, ESH-1
Barry Drennon, EM-ER
John Dukowicz, T-3
Mike Geelan, AOT-7
Laura Liles, BUS-2
Paul Lujan, BUS-4
Melvin McCorkle, FSS-DO
Carolyn Mangeng, NWT-PO
Louis Montoya, DX-5
Byron Palmer, CST-3
Vicky Romero, CIC-17
Johan Rutten, ESA-DE
Jack Shlachter, P-22
Lilly Silva, HR-5
Michael Smith, CIC-13
B. Clarence Torres, CIC-10

15 years
Joseph Borovsky, NIS-1
Stephen Francis, EM-SWO
David Holtkamp, P-22
John Huttenburg, DX-1
Roberta Martinez, LC-LEL
Esther McCorkle, STB-EPO
Leland Morrison, NIS-4
Nelson Stalnaker, CST-8
Danny Vigil, L-5
Glen Wurden, P-24
Stephen Younger, NWT-PO

10 years
Gregory Buntain, DX-2
Margye Harrington, L-8
Judith Heath, FSS-9
Herbert Konkel, TSA-11
Roberta Idzorek, ESA-WE
Steve Vigil, NMT-2

5 years
D. Allison-Trujillo, P-22
Dennis Armstrong, ESH-17
Marc Bailey, ESH-18
Catherine Finn, ESH-3
Antonio Gonzales, ESA-DE
John Jameson, ESH-1
Deborah Leyba, HR-5
Roger Rumsey, BUS-2
James Russell, CIC-1
Jon Schoonover, CST-4
Roland Schulze, MST-5
S.C. Thayer, LC-GL
Clarita Trujillo, ESH-1
H.J. Turin, EES-5
Lily Wang, MST-4
David Wilkey, NIS-NAC

May

30 years
Janis Dye, CIC-1
Gerald Gallegos, CST-25
Raymond Miller, FSS-6
Rae Ridlon, DX-6

25 years
Donald Clark, L-5
James Downing Jr., DX-6
Carrol George, FSS-11
Arlene Lopez, APT-PDO
Adan Roybal, BUS-4
Dolores Roybal, CIC-6
Kate Salazar, FSS-9
Joe Sandoval, P-23
W.H. Spangenberg, CIC-7
Danny Valdez, BUS-3
Dora Vigil, BUS-5

20 years
Donald Casperson, NIS-2
Gloria Chavez, HR-5
Robert Gallegos, P-23
Harold Garcia, CST-18
Louella Kissane, FSS-8
Leslie Linke, CIC-18
Daniel MacDonell, ESA-FM-ESH
Lawrence Martinez, CIC-7
Leo Martinez, DX-5
Eva Montoya, ESH-14
Kent Musgrave, ESA-WE
Alden Oyer, NIS-8
Robert Pearson, FSS-11
B.L. Quintana, NIS-7
Ralph Ricketts, ESA-DE
John Rodgers, ESH-4
Marvin Romero, NMT-2
Richard Shaw, FSS-1
Gary Stradling, DoD-PO
Charles Trujillo, FSS-8
Jimmy Vigil, BUS-6

15 years
D. Gail Diedrich, STB-DSTBP
Molly Herrera, HR-5
Gary Luedemann, EES-1
Andy Martinez, CIC-8
Lourdes Martinez, CIC-6
William Midkiff, L-2
Jerilyn Mosso, CST-25
Elvis Ortiz, ESA-WMM
Eric Pitcher, LER-MLNSC
Barbara Stevens, NMT-2

10 years
James Abernathey, L-7
Stewart Boggs, P-23
Carol Burns, ET-PO
Raymond Cantrell, ESA-FM-ESH
David Carter, MST-6
Kenneth Dye, DX-4
Caleb Evans, MST-10
Samuel Garcia, ESH-5
Tracy Hendricks, MST-6
David Hollowell, X-TA
Cheryl Lemanski, LS-5
Chris Martinez, ESH-9
Cheryl Montoya, MST-6
Susan Pacheco, CST-9
Christopher Romero, DX-5
Shirley Roybal, EES-IFPP
Scott Watson, DX-6

5 years
Tina Alarid, LC-LEL
James Beck, X-TA
William Brug, CST-3
James Chaffee, CST-DO
Charles Costa, DX-DO
Laura Crotzer, X-HM
Thomas Downen, BUS-8
Cindy Dworzak, BUS-8
Lisa Jaegers, BUS-2
Jeffrey Johnson, CIC-6
Laverne Gallegos, CST-9
Devin Gray, NMT-2
John Huchton, ESH-20
Michael Kuzmack III, FSS-6
Erick Lindman Jr., X-TA
Irene Lopez, ESH-2
Victor Martinez, ESH-5
Glen Nakafuji, X-HM
Keith Pallesen, BUS-5
Martin Peifer, ESH-1
Marian Peters, EES-3
Edward Pogue, DX-6
Michael Smith, FSS-6
Myra Stafford, ESH-5
Randolph Tremper, IP-PO
Todd Urbatsch, X-TM
Joanne Wendelberger, TSA-1
Karen West, EES-13
Belinda Wongswanson, NIS-4

Obituaries

Phil Porter

Lab retiree Phil Porter died March 20 in Santa Fe. He was 82.

Porter, who was an avid ham radio operator, came to Los Alamos in 1946 to perform precision repairs, calibration and maintenance on high-precision instruments in the Lab's Instrument Shop in Procurement (A-4). He also was foreman of the shop.

Porter later worked in High Explosives and Implosion Systems (GMX-3). Other groups that Porter worked for included Reactor Testing (N-6) and Electrical Engineering (J-8). He retired in 1977.

He is survived by two daughters, Cheryl Miller of Denver, Colo., and Linda Campbell of Santa Fe; five grandchildren and six great-grandchildren. Memorial services were held March 26 at the United Church of Los Alamos.

Earl Rutledge

Laboratory retiree Earl Rutledge died March 23 at his home in Rio Rancho.

Rutledge worked for the Lab from 1946 through 1988. After retiring, Rutledge returned to the Lab as an associate until 1991.

Rutledge joined the Lab as a stock clerk and rose through the ranks to become a group leader in the former International Technology (IT) Division and later assistant to the the deputy associate director.

He is survived by his wife, Beverly; three daughters, Cindy Schroeder of Abiquiu, Teresa Chacon of Arroyo Hondo and Deborah Smith of Dixon; four grandchildren; and one brother, James, of Atlanta.

people

Astrophysics conference honors Lab fellow

Art Cox

Retired Laboratory Fellow **Art Cox** is being recognized for his contributions to the study of pulsating stars during an international conference at the Lab this month.

The conference, "A Half Century of Stellar Pulsation Interpretations: A Tribute to Arthur N. Cox," will be held at the J. Robert Oppenheimer Study Center June 16-20.

Cox, who joined the Lab staff in 1953, has made major contributions to the study of pulsating stars in such areas as calculating stellar opacities, which refer to resistance to the transport of radiation, and computer modeling.

"At the outset of Art's career, pulsating stars had been known for a long time, but no one knew why they pulsated," said John Castor of Lawrence Livermore National Laboratory, who will present an overview of Cox's career at the conference.

"In the 1960s, he became the center and inspiration of a group of astrophysicists that answered this question and went on to answer many others, until stellar pulsation theory became perhaps the best understood part of astrophysics," Castor said.

Stars can pulsate in brightness, temperature and other ways. Studying them helps researchers understand more about their life cycle and their place in the evolution of the cosmos.

"The job of a scientist is to figure out how things work in the universe," said Cox. "Many stars pulsate, and as they pulsate, they reveal ... what's going on inside. I've been doing this for a very long time, since I got here in 1953 — at least on a part-time basis while worrying about testing weapons and other things."

Joyce Guzik of Thermonuclear Applications (XTA), chair of the local organizing committee for the conference, said this year's event may be the biggest ever. It was booked solid by mid-April, she said, with more than 150 participants, two-thirds of them from outside the United States.

Guzik said the schedule includes 11 review talks, 55 other talks, 100 posters in two sessions and an evening banquet in honor of Cox. It is being supported by the Applied Theoretical and Computational Physics (X) and Theoretical (T) divisions and the Nuclear Weapons Technology (NWT) Program Office and by the Institute for Nuclear and Particle Astrophysics and Cosmology.

Cox, who has an asteroid named for him, is a member of the American Astronomical Society, the American Association for the Advancement of Science and the International Astronomical Union.

He organized the first stellar pulsation conference in the series, which also was held at the Lab, in 1971. They have been held about every other year since.

Purdue University graduate student receives award

Suhail Saquib

A Purdue University graduate student who worked at the Laboratory last year has received an award for a paper he wrote and research he did at the Lab.

Suhail Saquib's paper, "Model-based image reconstruction from time-resolved diffusion data," deals with optical diffusion tomography. Saquib worked in Hydrodynamic Applications (DX-3) and collaborated on the paper with Ken Hanson and Greg Cunningham, also of DX-3.

Saquib has returned to Purdue where he is completing work toward his doctorate in electrical engineering.

Saquib received the Michael Merickel best student paper award from the Society for Photoptical Instrumentation Engineers at the society's annual medical imaging symposium in February in Newport Beach, Calif.

Saquib received $1,500.

The paper is scheduled to be published in Proceedings of the SPIE.

The paper also can be found on the World Wide Web at http://bayes.lanl.gov/~kmh online.

Palounek chair ...

continued from Page 8

a master's of science education degree program for UNM. Palounek recently was named to the American Physical Society's Forum on Education as well.

Finally, whenever time permits, Palounek visits schools throughout the state during special events such as Career Day. "Physics is wonderful, fun stuff," said Palounek. "I believe we have a duty as scientists to show students how neat science is and why we think what we do is worthwhile."

The 11-member Student Programs Advisory Committee is responsible for improving the Laboratory's Undergraduate Student and Graduate Research Assistant programs in areas such as mentoring, student orientation and education.

The committee held its first meeting April 23. The topics discussed included ways to improve mentoring in time for this summer's influx of students, including the establishment of formal mentoring guidelines and possibly holding voluntary training/orientation sessions for designated mentors. Information about mentoring and mentoring strategies is available at http://education.lanl.gov/resources/mentors/ on the World Wide Web.

Did you know...

There are more than 200,000 light fixtures at the Laboratory.

This month in history

June

1854 — Congress ratifies the Gadsden Purchase, adding 29,670 square miles to New Mexico and Arizona

1868 — The Board of Regents of the University of California holds its first meeting

1942 — The Manhattan Engineer District is established in New York City

1952 — MANIAC, a computer designed and built at the Laboratory, becomes operational

1956 — Lab researchers Frederick Reines and Clyde Cowan announce evidence for the existence of neutrinos, work for which Reines received the 1995 Nobel Prize for physics

1973 — Lab scientists announce the first detection of gamma-ray bursts, blasts of extremely high energy that originate outside the solar system

1988 — The Laboratory is designated as a human genome research center by DOE

1989 — For one second on the morning of June 7, the time and date are 01:23:45, 6-7-89

1989 — The first annual Bridge the Gap Festival (now called Festival Los Alamos) is held in downtown Los Alamos

1989 — Energy Secretary James Watkins announces a 10-point plan to strengthen environmental protection and waste management at DOE facilities

1994 — The Lab and several former Soviet atomic facilities sign lab-to-lab agreements on nuclear materials control and accountability

1996 — UC announces plans to open an office in Los Alamos

Syndicated material removed at the request of the syndicate

spotlight

Laboratory 'Marathon Men'

by Steve Sandoval

Jerry Martinez of Media (CIC-17) and Tim Gallegos of Facilities Management (NMT-8) are a contrast in motion. Martinez is a veteran marathon runner who has run a personal best marathon time of 2 hours 27 minutes; the other is fairly new to distance running and admits to being excited and anxious to run every time he walks up to the starting line.

Not that Martinez doesn't get excited about a race. He's just been marathon running since the mid 1980s, with nearly a dozen marathons under his belt.

The two Laboratory employees participated in the 101st Boston Marathon in April and both finished close to the time they hoped to make. Martinez' time of 2:41.56 was good for 144th overall; the Velarde, N.M., native was the second finisher from New Mexico. Martinez did his first marathon, the Tour of Albuquerque, in 1984.

Gallegos, who has been running only 16 months, finished in 3:22.35, good enough to finish in the top one-third of the nearly 9,000 runners who ran the marathon officially and another 2,000 runners who started the marathon but didn't officially register. In runner-speak, these entrants are called "bandits."

"I ran comfortably all the way," said Martinez, who started in the first "corral," as they are called, with the more elite runners. The marathoners are grouped in corrals and separated by a few yards at the starting line to avoid the bunching up and general chaos one finds at races with many entrants. Placement in a corral depends on meeting a qualifying time based on age group, Gallegos said.

"I was very excited and anxious to run," said Gallegos. "I had a lot of nervous energy, and I just wanted to run."

Gallegos started in the fourth corral. To get an idea how crowded a starting line is, it took Martinez eight seconds to cross the official start line in his corral; it took Gallegos 55 seconds to finally cross the starting line from his place in corral four. Each corral had about 1,000 runners.

"When I started I stayed on the outside for about 3 miles," Martinez continued, adding that he kept pace with runners ahead of him. At the 13.1-mile halfway point — marathons are 26 miles, 385 yards — Martinez's time was 1:18.41, still on pace to break his goal of running a 2:35.

But at the 15-mile point, Martinez said, he was nearly two minutes off the pace he needed to keep to break 2:35. Still, Martinez was generally pleased with the way he ran in the Boston Marathon.

From his vantage point, Gallegos had to fend off lots of runners to get into a running rhythm. "It was very crowded at the start," he understated. "Even the midpoint was crowded. I had people around me all the way. We fought each other the whole way."

Gallegos' personal best marathon time was 3:11. At the halfway point, his time of 1:29.10 was on pace to nearly break three hours, which was his goal. "In the second half of the race I was slowing down. I got tired of bobbing and weaving, and I just wanted to have a safe run.

"I didn't hit the wall, but I had to dig pretty deep at mile 25. I was getting pretty tired. I decided I should shoot for 3:10."

When Martinez and Gallegos finished, neither said they were breathing heavy or experiencing muscle fatigue. Both attribute their physical condition at race's end to their conditioning program, and Boston's sea-level elevation being easier to run in than Northern New Mexico's higher altitude.

Laboratory employees Tim Gallegos, left, of Facilities Management (NMT-8) and Jerry Martinez of Media (CIC-17) get in a lunch-time practice run at the Lab. Gallegos and Martinez ran in the Boston Marathon in April. *Photo by James E. Rickman*

Both runners ate lots of pasta — carboloading in runner-speak to give the body longer-lasting energy and build up endurance and stamina without developing muscle fatigue — and consumed plenty of fluids to maintain hydration. And in the weeks leading up to the race, both runners put in nearly 100 miles a week in training runs, usually during the lunch hour, after work and on weekends.

"You race like you train," said Martinez. "It takes a lot of energy and dedication to run marathons … When I first started [running marathons] I didn't know what I was getting into."

"If you put the time and training in, that's going to make you a good runner," said Gallegos. "You're always competing against the number one competitor, and that's yourself."

Gallegos attributes his relative success in marathons to veteran runners like Martinez and several others including, Lab employees Oliver Trujillo of Occupational Medicine (ESH-2), Senovio "Leo" Torres of Photo, Video and Digital Imaging (CIC-9), Clyde Hayes of Property Management (BUS-6) and Bill Williams, Joe Cortez and Rudy Maes, all Gallegos' co-workers at TA-55, who took Gallegos under their tutelage. "These guys will make you a good runner," he said.

Reflections
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