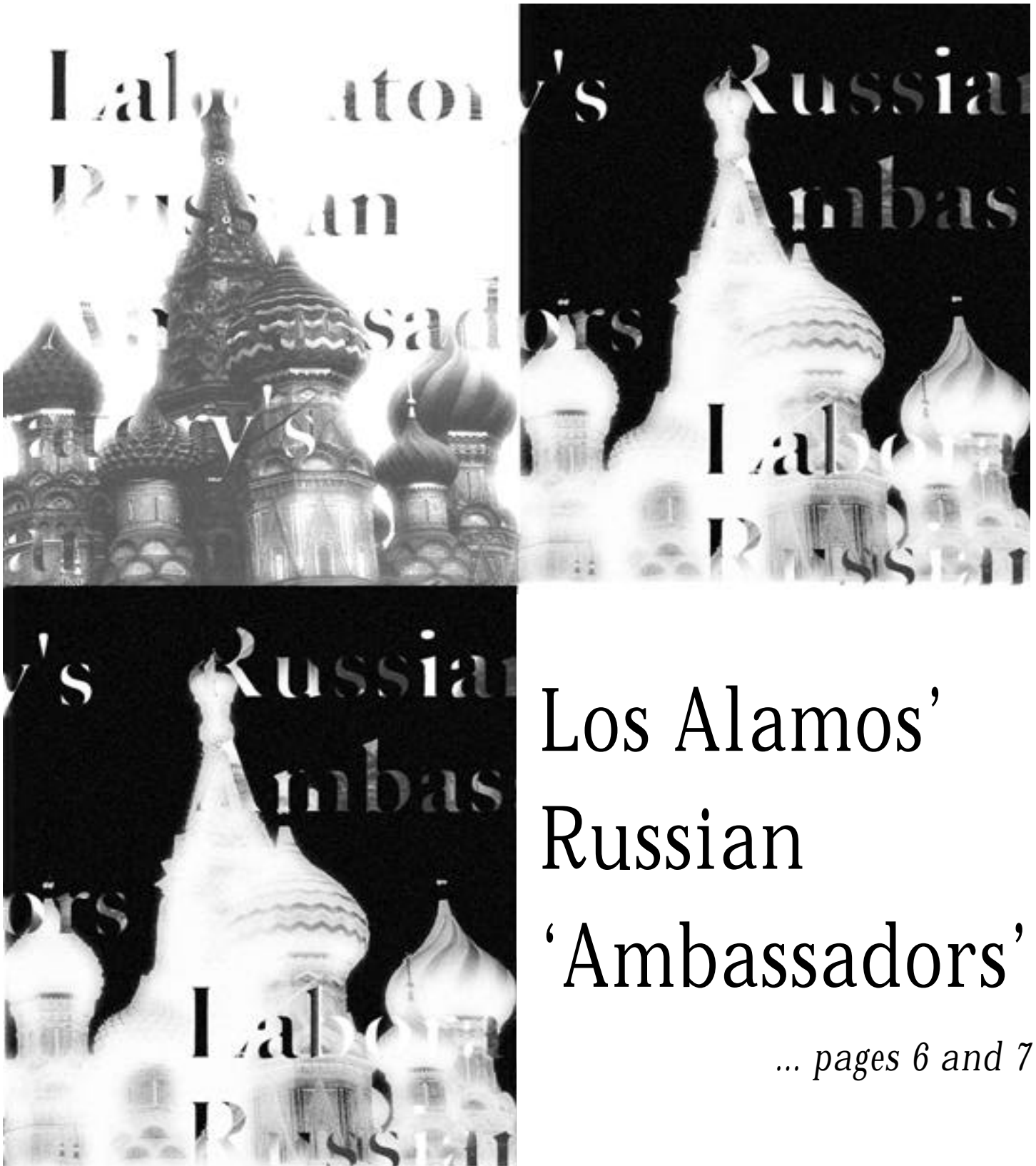


Reflections

Los Alamos National Laboratory

Vol. 3, No. 3 • April 1998



Los Alamos' Russian 'Ambassadors'

... pages 6 and 7

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Cover photo illustration by Edwin Vigil

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Correction: The cover story in the March issue of Reflections about TA-21 incorrectly said no one works at the facility. The Ecology Group (ESH-20) is located in a building at DP West, and the gates are open during the day.

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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editor's journal



Let's get physical

I promised myself a few weeks ago, for the "umpteenth" time, to get more physically fit. I just know I'll feel better, have more stamina and be better able to deal with on-the-job stresses. That summer is fast approaching — and with it the shedding of concealing jackets and bulky sweaters — only adds urgency to my need to get more fit. But with a little will power, I hope not to have too much trouble reaching my goal.

After all, I live in Northern New Mexico ... And I work at the Lab.

What does living in Northern New Mexico and working at the Lab have to do with my being able to get more physically fit? They take away my excuses for not exercising regularly. The area's usually sunny skies and serenely beautiful landscape literally beckon one to get out and walk around or go for a jog.

I can step out of my office building in Technical Area 3 during the lunch hour, walk for a short distance in almost any direction and be bombarded with scenic views and physically challenging terrain. I can confine my outings to strolls on the sidewalks that loop around the area, or I can pick up the pace and venture onto one of the many winding trails on and around Lab property — a personal favorite is the fitness trail through the woods that begins near the Lab's Wellness Center.

On those days when I've taken a vigorous walk at lunch time, I get back to the office and the old heart muscle is pumping pretty good, the tightness in my shoulder muscles has disappeared, and I'm refreshed and ready to tackle the second half of the day. I honestly don't know why I don't make getting out and walking every day at lunch time an unbreakable habit.

We at the Lab are indeed lucky to work in such exercise-friendly surroundings, but that's not all we've got going for us with regard to fitness and health. We've got the Wellness Center. It's a great resource for those Lab employees who care about their physical well-being.

The Wellness Center, a 15,000 square foot facility at TA-3 off West Jemez Road near Bikini Atoll Road, is managed by Occupational Medicine (ESH-2). It has two aerobic workout areas with 13 treadmills, nine stair steppers, five stationary bikes, two recumbent bicycles, four ergometers, two cross-country ski machines, two upper body ergometers and one climbing machine. It also has a weight room with circuit and free weight equipment and offers a number of health-promotion classes and special health services, such as screenings for high blood pressure and diabetes. If you haven't taken advantage of the Wellness Center you might consider giving it a try. To find out more about what the Wellness Center has to offer, check out its home page at <http://drambuie.lanl.gov/~wellness/> on the Web. April is Cancer Control Month, and May is Employee Health and Fitness Month. The Wellness Center has some events planned during these months that will be of interest.

But whether you use a facility like the Wellness Center or head outdoors, it really does pay to exercise regularly. Health-care professionals tell us a healthy person is a more productive one. And who doesn't want to be more productive? Some days, though, it just helps your sanity to get out of the office in the middle of the day and work off the stress.

And speaking of health and productivity, a major workplace concern is ergonomic injuries on the job. To find out more, see "Ergonomics: old discipline for modern problems" on Page 3.

Ergonomics: old discipline for modern problems

by Ternel N. Martinez

Would you believe that people have been studying ergonomics for at least 2,000 years? At least that's the argument Patrick Girault of Hazardous Materials Response (ESH-10) puts forth in an article scheduled to be published in the July edition of *Ergonomics and Design*.

The U.S. military has studied anthropometrics — the study of differences between people — since World War II, when the Air Force took human size and reach into account when it designed the B-17 bomber and other weapons systems,

discipline has been around for a while, and apparently understood by some.

But ergonomic injuries still pose a major health problem for many industries and the Lab, one that may cost hundreds of billions of dollars in direct and indirect health care, according to the Occupational Safety and Health Administration.

"At first, people thought that cumulative trauma disorders and related injuries were caused only by excessive force and vibration," said Greg Rowell of Human Factors (TSA-9). Rowell, who provides support to the Environment, Safety and Health

tion and awkward posture. So any employee, from the person at a workstation to the glove box worker to the lifter to the mail room clerk, is susceptible to ergonomically related injuries," said Rowell, who is the only Lab employee board certified as a professional ergonomist.

Girault, also an ergonomics expert, currently is in the process of being certified, though all Lab industrial hygienists undergo ergonomics training to perform workplace evaluations.

Secondary factors that worsen trauma disorders include stress, monotony, substance abuse, overtime, age, temperature and hobbies. Among the more common trauma disorders are tendinitis, epicondylitis (tennis elbow) and carpal tunnel syndrome.

Girault pointed out that ergonomics is just as much psychological and cognitive as it is physical. "You cannot separate the two; they go hand-in-hand," he emphasized. In fact, ergonomics is composed of several disciplines. Besides anthropometrics, there's also anatomy, physiology, biomechanics, psychology, and engineering design.

So how does the Lab fare when it comes to ergonomics? Not so well. "In the six years that I've been here, ergonomic injuries have led the way in reportable injuries each year — by far," said Rowell.

Figures provided by ESH-5 show there were 334 injuries in 1996; of that number, 88 were strains, 14 were sprains and 100 were repeated trauma. These ergonomically related injuries accounted for 60 percent of all injuries at the Lab that year.

While there were fewer injuries overall last year (263), the percentage attributed to trauma disorders was higher, 68 percent. Seventy-six injuries were strains, five were sprains and 97 were repeated trauma.

In contrast, OSHA reported a 9 percent reduction in reported workplace disorders associated with repeated trauma in the United States for 1996 (about 281,000 new cases), compared to 1995. This figure also is

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What's wrong with this picture?

Certified ergonomist Greg Rowell of Human Factors (TSA-9) demonstrates some of the many common problems found with employees' work stations and their working habits: the monitor is too low; Rowell is slumped in the chair; his wrists are extended upward (called dorsi-flexion in ergonomics); and the document holder is improperly placed. Photo by LeRoy N. Sanchez

said Girault. Anthropometrics is an ergonomic discipline.

Girault further points out that the makers of Volvo and Saab automobiles incorporated ergonomics into their vehicle designs as early as the 1960s, a practice now employed by most other major car manufacturers.

The bottom line? Whether one believes that ergonomics, or "fitting the tool or task to the person," originated 2,000 years ago, the mid 20th century or any time in-between, the

(ESH) Division, chairs the Lab's Ergonomics Committee, composed of about 15 members from Occupational Medicine (ESH-2), Industrial Hygiene (ESH-5), ES&H Training (ESH-13), Facility Risk Management (ESH-3), Technical Area 55 and other organizations. Girault also sits on the committee, which meets once a month to discuss issues related to ergonomics.

"Only later did we come to find out that CTDs also are caused by repeti-

BEAM robotics beat at-risk odds



Lorenzo Montoya



Antonio Fresquez

***'I was getting tired of [school].
I wasn't interested in school.'***

by Steve Sandoval

Lorenzo Montoya and Antonio Fresquez want to work in television production and communications when they finish high school and college. They want to be the people behind the camera.

But for the last six months or so, Montoya, Fresquez, Jerome Valdez and Marc Valerio have been spending lots of time in front of cameras and microphones. They've also appeared before state legislators, scientists from the Laboratory, Gov. Gary Johnson and grade school students who wonder what the quartet has done and how they too can make robots.

Montoya, Fresquez and Valdez, all of Pojoaque High School, and Valerio of Santa Fe High School walked away with the lion's share of awards at a BEAM robotics competition last fall in India. They received more awards than any other team from the 42 countries represented in the competition.

BEAM is an acronym for the biology, electronics, aesthetics and mechanics of robots. The 14 awards the Pojoaque team won was good enough to give the team a second-place overall finish.

The team plans to compete in this year's BEAM robotics workshop and competition sponsored by the Laboratory April 16 through 18 at Los Alamos High School.

The workshop is free for middle school and high school students. They can register by writing to Paul Argo of Space and Atmospheric Sciences (NIS-1) at pargo@lanl.gov by electronic mail. More information also is available online at <http://nis-www.lanl.gov/robot/>.

"We'll be going with more robots ... we're planning on taking first place," said Fresquez. "If there are other students interested in joining the robotics team, they're more than welcome."

The students were energized when their Pojoaque High School teacher, Bruce Kaiper, took them into his Academy for Skill Enrichment and Leadership Formation, or ASELF, program during the 1996-97 school year. Kaiper introduced the four students to the world of robotics through Brosl

Hasslacher of Complex Systems (T-13). Hasslacher introduced Kaiper to Mark Tilden of Biophysics (P-21). Tilden in turn recommended that Kaiper contact Mark Dalton, a former subcontract employee with Cray Research working at the Lab. Kaiper arranged the robotics mentorship with Dalton.

Kaiper later contacted Argo to ask that the Pojoaque High School team be allowed to compete in the Lab's BEAM robotics competition.

The boys, by their own admission, were struggling in school. The term "at-risk" is used most commonly to characterize such students in danger of leaving school. "I was getting tired of [school]. I wasn't interested in school," said Montoya. "I wasn't failing, but I was close. I was giving up, then I met Mr. Kaiper."

"Since I'm at risk, [other teachers] feel I can't do anything," said Fresquez. "Mr. Kaiper changed that. He makes you feel interested in school. He gets mentors. If you're interested in something, he'll find someone that does it. That's his number one strength."

"He told us once that he teaches us, and in return, we teach him," added Montoya. "We taught him how to do circuits for robotics. He taught us how to stay calm, not to go overboard, to have fun."

Fresquez had a 1.5 grade-point average (on a 4.0 scale), he said, before he met Kaiper. He is now a 3.0 student; he earned a 3.8 grade-point average earlier this year.

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Antonio Fresquez, left, and Lorenzo Montoya stand next to several of the trophies and awards they received for competing in the BEAM robotics workshop in India last fall. Photo by Fred Rick

Lab, pueblos forge environmental partnerships

Editor's note: *The Laboratory is celebrating Native American Heritage Month during April with a number of events. Information about them, with dates, times and places, is being carried in the Daily Newsbulletin. Meantime, "Reflections" presents an overview of the many activities in which nearby pueblos and the Lab look at environmental issues and concerns.*

by Steve Sandoval

The cooperative agreements the Laboratory, University of California and Department of Energy signed with Cochiti, Jemez, San Ildefonso and Santa Clara pueblos have formalized working relationships between the Lab and pueblos near Los Alamos.

The agreements are based on guiding principles of government-to-government relationships that direct federal agencies to work closely with American Indian tribes, said Gil Suazo of the Community Involvement and Outreach (CIO) Office and the Lab's tribal relations adviser. The Laboratory, as a contracted federal facility, complies with these guiding principles by

working actively with Indian tribes, especially the four pueblos, on environmental and educational programs, among other things, and providing technical assistance.

The Department of Energy, which has accords with the four pueblos, provides funding to assist the pueblos in developing environmental programs to assess potential impacts related to operations of the Laboratory.

"These activities with the agreements we made to work cooperatively with the pueblos provide for an active exchange of information and a closer working relationship," said Suazo. "We are still in the early stages of assessing information and data with the pueblos, who are still developing their technical expertise. The work of assessing potential impacts based on Pueblo cultural use of resources is yet to come."

As part of its environmental surveillance program, the Lab has collected soil, fish and produce samples at San Ildefonso Pueblo for more than 20 years. The samples are collected to test for radionuclides, such as tritium, plutonium, cesium and strontium, and heavy metals, such as mercury, beryllium and lead, associated with Lab operations, said Phil Fresquez of Ecology (ESH-20) and soils and foodstuffs team leader.

ESH-20 staff members, for example, collect and test eggs that free range chickens lay; they also examine meat and bone samples from cows that have been butchered or killed in roadway accidents to look for uptake of radionuclides and heavy metals.

Similar collections occur at the other three pueblos with cooperative agreements, Fresquez said, adding that ESH-20 also does similar sampling in Los Alamos. "We've always collected from the perimeter around the Laboratory, including the townsite," he said.

Fresquez said results from soils and foodstuffs collected are reported back to Pueblo leaders through letters, meetings with pueblo officials and publications, such as the annual environmental surveillance report.

Suazo said Taos Pueblo, which presently doesn't have a cooperative agreement with the Lab, in 1994 received technical assistance and equip-

ment for a study on locally generated dust particulate problems. Results from the study showed no impact to the pueblo from Lab operations.

And since 1993, Air Quality (ESH-17) has maintained an Airnet station at Taos Pueblo to sample airborne radioactivity in response to Pueblo concerns about potential impacts from Lab air emissions.

Suazo said Jemez Pueblo is being provided technical assistance, including the loan of equipment, for a DOE-funded wind-energy feasibility study.

And Santa Clara Pueblo recently was loaned a computer by the Lab to support cooperative agreement activities and improve communication, he said.

Several Lab organizations are involved in the Canyons Restoration Project to clean up and monitor canyons around Los Alamos, he said. The project involves evaluating the impacts of Lab-produced contaminants within the major canyon systems of the Pajarito Plateau.

The Lab works with Northern New Mexico pueblos on many other environmental concerns. They include installing air monitoring stations at San Ildefonso and Jemez pueblos as a part of the Lab's environmental surveillance network and setting up Neighborhood Environmental Watch Network (NEWNET) stations — instruments to monitor gamma radiation and environmental and meteorological conditions — at San Ildefonso and Cochiti pueblos. The Lab also is working with San Ildefonso Pueblo on plans to place air monitors on pueblo land near the Laboratory's low-level radioactive waste storage facility to monitor for potential radioactive contamination from airborne particles; assisting Santa Clara Pueblo with installation, calibration and operation of a machine the pueblo purchased to test for airborne particulate matter; and interacting with tribal environmental program staff on water quality issues such as Cochiti Pueblo's study of Cochiti Lake to assess potential impacts from Lab operations.

Water Quality and Hydrology (ESH-18) staff also has worked with nearby pueblos to analyze data from samples and provide technical support on water quality, wastewater and effluent discharge issues, and groundwater, surface water and sediment sampling.



Ken Mullen of Water Quality and Hydrology (ESH-18) collects water samples for testing at Santa Clara Pueblo, as Pueblo Gov. Walter Dasheno, standing, observes. The Laboratory works closely with nearby pueblos on a number of environmental issues. Photo by James E. Rickman

Los Alamos' Russian 'Ambassadors'



Irv Lindemuth, right, of Plasma Applications (X-PA) shakes hands with Vladimir Chernyshev, deputy chief scientist and head of the Electrophysical Department at VNIIEF, during an October 1994 joint magnetized target fusion experiment at Ancho Canyon. Pictured center is interpreter Lena Gerdova. Photo by Fred Rick

by Steve Sandoval

The Cold War ended earlier this decade, but the United States today still faces daunting challenges: what to do with the stores of nuclear weapons and materials in Russia and how to stop the exodus of those materials and nuclear weapons scientists from Russia.

The issue gave rise to numerous joint collaborations between Los Alamos and Russian scientific institutions as an important part of the Laboratory's mission of reducing the nuclear danger. Along the way, lasting relationships and fond memories have been formed between Russian citizens and Lab employees who have traveled to Russia to do work.

"Throughout all the financial, civil and social hardships that Russia is currently experiencing, the people are steadfastly proud of their culture, accomplishments and hospitality," said Rick Wallace of Safeguards Systems (NIS-7). "Wherever we traveled, we were invited into people's homes where they shared whatever they had available. They invariably went far out of their way to welcome us and provide for our needs and interests, whether it be food, drinks, entertainment or souvenir-shopping excursions."

Other Laboratory employees who have traveled to Russia to work with their Russian counterparts in various programs expressed similar thoughts.

Said Cheryl Rodriguez of Space Data Systems (NIS-3), "Getting to know my colleagues and their families as friends, I saw that they too have grandparents struggling with the problems of old age, babies being born, teenagers faced with the challenge of finding their place in a rapidly changing world and never enough money in the bank to pay all the bills."

Lab employees have been to Russia to work with Russian counterparts on a number of projects, such as pulsed power

applications, a "virtual laboratory" on the Internet, a joint U.S.-Russian materials protection, control and accountability program, and the now defunct Topaz Russian space nuclear reactor for powering satellites.

Many Russian scientists in return have come to the Laboratory to collaborate on cutting-edge science in a number of areas and continue friendships that go beyond the workplace.

Susan Voss of Nuclear Systems Design and Analysis (TSA-10) remembers a May 1991 visit to Los Alamos by Russian scientists who had designed and built Topaz. Before the month-long visit ended, Voss and the Russian scientists took a raft trip down the Rio Grande.

"As we were floating down the river," Voss recalled, "two of the Russian scientists proceeded to serenade me to the tune of 'Oh Susanna' in very broken English and very off-tune ... It was definitely memorable."

The foundation for the many different endeavors now under way began with the Lab's Russian counterpart, the All-Russian Scientific Research Institute of Experimental Physics at Sarov (formerly known as Arzamas-16).

Irv Lindemuth of Plasma Applications (X-PA) is a project leader for international collaboration in pulsed power applications. Of all the Lab employees who have traveled to Sarov, Lindemuth is perhaps closest to the people there. Outside his work, Lindemuth is actively involved in cultural and educational collaborations and exchanges with Sarov, now Los Alamos' official Sister City.

Lindemuth has a wealth of memories about his many trips to Russia. One, in particular, steamed from a November 1996 trip for a joint Russian-American magnetized target fusion



A team of Laboratory scientists and technicians and their Russian hosts dined at a cottage in September 1995. The team was at VNIIEF, the All-Russian Scientific Research Institute of Experimental Physics, to perform joint magnetized target fusion experiments. Lab employees shown are at left, Irv Lindemuth of Plasma Applications (X-PA), James Goforth of Hydrodynamic Applications (DX-3), Jack Shlachter of Hydrodynamic and X-ray Physics (P-22) and George Idzorek, also of P-22. On the right side of the table is Henn Oona of DX-3, rear, and Brodie Anderson, foreground, also of P-22. Photo courtesy of Lindemuth



Nuclear Weapons Technology (NWT) Division Director Steve Younger, right, hugs Alexander Bykrov of VNIIEF after a 1993 joint high magnetic field experiment at Ancho Canyon. The experiment was the first time Russian scientists were allowed to go behind Lab fences. Photo by Fred Rick

Dynamic Experimentation (DX) Division toured the still-closed city and visited one of the schools — they were there for technical discussions and the first seminars on pulsed power applications at Arzamas-16 and to invite Russia's nuclear weapons director to Los Alamos. "Being two of the first American visitors, we didn't expect people who we thought considered us to be enemies to share their children with us," he said.

"The children at the school spoke impeccable English," said Lindemuth, noting that he and Reinovsky learned about half of the classes for seniors are taught in English.

Caroline Mason of Environmental Systems and Waste Characterization (CST-7) recalls an April 1997 visit to Kazakhstan. She was there with Nancy Marusak of Geoanalysis (EES-5) at the request of the National Nuclear Center of the Republic of Kazakhstan and the United Nations Educational, Scientific and Cultural Organization (UNESCO) to help set up a virtual laboratory to study radioecological issues in Kazakhstan.

Mason said their hosts went out of their way to make Mason and Marusak welcome. "They succeeded from the time they met us at the airport with lilac blossoms to our return to the airport at 3 a.m. for our return flight," said Mason.

Mason and Marusak later learned they were the first American women scientists to give presentations at the National Nuclear Center.

Former Laboratory Director Sig Hecker recalls an April 1993 visit to Los Alamos by Yevgeny Avrorin, the current director of

experiment at Sarov. After a hard day of meetings, discussions and scientific experiments, Lindemuth said Russian scientists took the Lab team to a club in Sarov where Russians go to practice English. On a visit three months earlier, Brodie Anderson of Hydrodynamic and X-ray Physics (P-22) had written a poem about his visit to the club. When they returned to the club in November, Lindemuth said a 13-year-old Russian girl there with her father stood up and recited in English Brodie's poem. "Because the poem expressed so well how all of us feel about our visits to Sarov, it was a real touching experience," said Lindemuth.

On their first visit to Sarov in January 1992, Lindemuth and Bob Reinovsky of the

"But we're alike ..."

*We live apart — across the sea;
But we're alike both you and me.
In things that matter can't you see;
Like love and trust and living free.
We think of these each time we meet.*

*Excerpt from "The Special Thing"
by Brodie Anderson*

Chelyabinsk-70 (the Russian Livermore Laboratory), in which Avrorin presented Hecker with a memento displaying a piece of an SS-11 Russian missile that used to be pointed at the United States. The inscription read "from Russia with love."

"In spite of the great economic difficulties of the past few years, the Russians maintain a good, healthy sense of humor ...," said Hecker, now a Senior Fellow at the Lab.

An avid runner, Hecker also recalled a visit last October to Sarov, where he was allowed to run anywhere in the town without a Russian security officer. During his first visit to Sarov five years earlier, Hecker said, "I was closely supervised ... We have made great strides, so to speak, in the closed cities," he said.

Charlene Douglass of Computer and Communication Security (FSS-14) remembers a February 1996 visit to Moscow and Chelyabinsk — Douglass was part of a Lab contingent presenting a class on computer security programs and techniques. She said that a Russian university student took her and other Lab personnel to Gorky Park, where they were allowed to play on large ice sculptures in the park. "[The university student] took a [plastic grocery-type] bag out of her pocket and told us to go slide down the sculptures while sitting on the bag," Douglass said. "We had an absolutely fabulous time playing on the ice sculptures with all the other kids."

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A baby sleeping soundly in a hospital in Sarov is covered by a quilt made by several Los Alamos women. Another Los Alamos-made quilt hangs near the foot of the crib. Lab scientists delivered the quilts to Russia during a recent trip. Photo courtesy of Sig Hecker

people

Olivera recognized by New Mexico Tourism Association



Chris Olivera

Chris Olivera of the Laboratory's Community Involvement and Outreach (CIO) Office has been recognized by the Tourism Association of New Mexico for his support of tourism.

Olivera received the "Tourism Association of New Mexico President's Award" at the 1997 Governor's Conference on Tourism in Taos last November.

The award recognizes Olivera's "outstanding work as an association board member and his unfailing advocacy of New Mexico tourism."

Olivera was the acting manager of the new not-for-profit Los Alamos National Laboratory Foundation for several months. He has worked at the Lab for six years.

Perea named DX deputy director



Jacob Perea

Jacob Perea is the new deputy director of the Laboratory's Dynamic Experimentation (DX) Division.

Perea replaces Barbara Stine, who moved to the Nuclear Weapons Technology

(NWT) Program Office.

Perea is a 23-year Laboratory employee who has worked in weapons-related fields since joining Los Alamos.

Since 1995, Perea has been group leader of Electronic and Data Systems (DX-7). He joined the Lab in the former Control Systems Group (E-4), designing and implementing control systems, before moving to the former Timing and Firing Phenomenology (J-8) Group.

Perea was named team leader in 1982 of the former Instrumentation and Control Section (WX-10). Five years later, he became deputy group leader of

the former Command, Control and Communications (also J-8) Group and group leader of this group in 1990.

Perea earned a bachelor's degree in electrical engineering from New Mexico State University and a master's degree in business administration from University of New Mexico.

Sahota new BUS-2 group leader



Amy Sahota

Amy Sahota is the new group leader for Budgeting (BUS-2). She had been BUS-2 deputy group leader the past four years. Prior to that, Sahota was group leader for Travel (BUS-1).

The 16-year Lab veteran said her goals are to further strengthen the group's stewardship of Lab business services by increasing communications, encouraging employee development and establishing specific standards for enhancing business excellence. "I encourage both management and staff to call me if they have budget inquiries," she said.

Sahota received her bachelor's degrees in education and biology/chemistry from Panjab University in Chandigarh, India. She received her master's in business administration from the College of Santa Fe. Before coming to the Lab, Sahota worked for Aerojet Strategic Propulsion Co. in Sacramento, Calif.,

as an operations control leader. She also worked at Idaho National Engineering Laboratory as a project control leader.

Maloy receives Robert Lansing Hardy Award



Stuart Maloy

Laboratory staff member **Stuart Maloy** has received the 1998 Robert Lansing Hardy Award from the Minerals, Metals and Materials Society.

Maloy, of the Accelerator Production of Tritium Technical Project Office (APT-TPO), first joined Los Alamos in 1989 as a graduate research associate. He also was a post-doctoral candidate at the Lab working in Materials Research and Processing Science (MST-5) and the Center for Materials Science (MST-CMS) before becoming a staff member in Ceramic Science and Technology (MST-4).

The Robert Lansing Hardy Award recognizes a young person of exceptional promise in the broad field of metallurgy.

Maloy received a plaque and \$500 from the Minerals, Metals and Materials Society at the organization's annual meeting and exhibition in February in San Antonio.

Maloy has bachelor's, master's and doctoral degrees in metallurgy and materials science from Case Western Reserve.

In Memoriam

Jack R. Richard

Lab retiree Jack R. Richard, 73, died Feb. 11 after a long illness. A World War II top Navy turret gunner and Distinguished Flying Cross recipient, Richard came to the Lab in 1956 as a chemical plant operator in High Explosives and Implosion Systems (GMX-3). He moved to Health Physics (H-1) later that year as a health monitor trainee. Richard remained in this group until his retirement in July 1984, working as a health protection technician and later as senior health surveyor during his tenure.

Marion "Tub" Powers

Laboratory retiree Marion "Tub" Powers died Feb. 20. He was 73 and lived in Santa Cruz. Powers joined the Lab in 1947 as a warehouse man and held numerous positions, including providing mechanical support to the Lab's Helios and Antares experimental laser fusion projects. He retired in March 1987 as a mechanical technician III. Powers was a United States Navy veteran.

February employee service anniversaries

35 years

Charles Owens, ESA-WMM

30 years

Charles Cranfill, X-HM
David Deck, NIS-4
Dale Engstrom, DX-4
Michael Henke, EES-15
Thomas Hirons, EM-DOE-FP

25 years

Frank Archuleta, CST-1
Leroy Atencio, P-21
G. Richard Dooley, NMT-13
Grace Gomez, BUS-3
John McClelland, P-25
Loretta Olivas, CST-11
Margaret Sanchez, CST-7
James Smith, MST-STC

Kimberly Thomas, CST-11
Mary Trujillo, FSS-15

20 years

Joseph Abdallah, T-4
Frank Ameduri, P-22
Linda Archuleta, BUS-1
P.M. Auchampaugh, EES-1
W. Scott Baldridge, EES-1
Patricia Blount, BUS-6
John Dallman, DX-DO
Robert Deupree, DX-7
Robert Fujita, ESA-WE
William Haag, FSS-12
F. Lyle Kerstiens, DX-7
Leo Maes, FSS-9
Anthony Martinez, NMT-9
Yolanda Martinez, NIS-8
Andrew Obst, P-23
Johannes Peterson, CIC-7
W.C. Priedhorsky, NIS-2

Dennis Roybal, BUS-5
Richard Sanchez, BUS-4
Gayle Travis, BUS-2

15 years

Walter Atencio, ESH-3
Donna Berg, CIC-14
George Brooks Jr., CST-9
Nancy Brown, LS-3
Charles Farrar, ESA-EA
Orlinda Garnica, BUS-2
Christine Jolly, HR-5
Valerie Lopez, DoD-PO
Roger Osantowski, ESA-WMM
Dipen Sinha, MST-11
Gerald Weber, CIC-2

10 years

Lenna Andrews, CIC-4
Robert Ayars, CIC-7
Craig Bachmeier, FSS-6

M. De-La-Torre-Garcia, NMT-1
Joyce Guzik, X-TA
Marcia Hunsberger, CIC-1
Hemendra Kalia, EES-7
Robert Kelly, P-22
Brad Kemp, BUS-5
Russell Miller, CIC-15
Paul Wiemann, MST-FAC

5 years

Davis Christensen, EM-SWO
Wynn Christensen, NIS-3
Cathleen Grastataro, ESA-DE
Kenneth Mullen, ESH-18
David Nix, CIC-3
Laura Ortega, NMT-1
Anthony Stanford, EM-SWO
Eliot Stenzel, AA-3
Jill Tikalsky-Pryor, AA-IEO
Sharon Woodruff, NMT-7
Vincent Worland, EM-RLW

Los Alamos' Russian ...

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The same young lady, after noting that Douglass has a mug collection, gave Douglass a mug from her china collection as a souvenir. When Douglass returned later that year, the same woman gave her a mug marking the 850th anniversary of Moscow. "Both mugs are hanging in a priority spot in my office," said Douglass.

Jim Sprinkle of Safeguards Science and Technology (NIS-5) recalled one of his trips to Kazakhstan to a low-enriched uranium fuel-pellet fabrication facility that makes the pellets for half the Soviet-style reactors. Sprinkle and a Lab contingent were introducing nuclear material control and accounting systems, which, among other things, utilize computerized inventory. Sprinkle said this approach helps international inspectors auditing the facility and verifying proper use of the nuclear material. "The audits are now possible and the facility now passes such audits with flying colors," he said.

Sprinkle recalled that employees at the facility, like many other scientists and technicians in Russia, weren't paid regularly, at times going six months without a paycheck. But employees kept working because the job ensured housing and retirement, although some moonlighted for people who operated start-up companies and small businesses.

"In general, it was surprising how well they kept their morale up," said Sprinkle.

Linda Anderson of Safeguards Systems (NIS-7) noticed an American staple during one of her trips to Russia: a lot of McDonald's restaurants in Moscow. "Although I don't usually spend a lot of time in Moscow, I did notice that there is a lot of new construction right outside the 'beltway' in

Moscow. ... a good indicator that the economy is getting a little better," said Anderson.

Anderson works with a Lab team providing Russian nuclear facilities with software developed by NIS-7 as part of a materials control and accountability program to help Russians better control, track and account for their nuclear materials through the use of software and databases.

"I don't get a sense that the Russians feel like they're doing without in their everyday life," said Anderson. "I don't think they feel like they have come to live without things because they have never had many of the things that we take for granted."

Rodriguez of NIS-3 has been traveling to Russia for three years to work on a joint U.S.-Russian materials protection, control and accountability program. She works at three facilities, including one in Sarov.

"I remember that I felt culture-shocked during my first visit to Russia. In the fall of 1994 life was perhaps better than it had been for Russians in previous years, but coming from the U.S. it was like stepping back into our depression era for me," said Rodriguez. "Now, after three years, my perception is that much has changed for the better, despite the political and economic challenges that will face the Russian people for generations to come."



Former Lab Director Sig Hecker gets in an early-morning run while on a recent visit to Sarov. Photo courtesy of Hecker

BEAM robotics ...

continued from Page 4

Montoya earned a 2.8 grade point average the last reporting period, he said.

For his part, Kaiper said his students just needed a little push, a little encouragement. "I observe what students do in my classroom in terms of problem solving," he said.

"I honor what they know," Kaiper said of the quartet. "I don't beat them over what they don't know ... I incorporate the knowledge that they already have into their learning plan," he said.

"The key is be aware that knowledge works in relationships."

Argo felt the relationship between the students and the Lab's work in robotics was a win-win situation for both sides. "This is a real opportunity to catch kids who aren't necessarily academically motivated, to give them an outlet for their own ingenuity," he said. "That was what was exciting about seeing these guys ... I wouldn't have known they were at risk. They were just so enthusiastic about building things. This was an opportunity for kids to view the Lab as a place that does things they might be interested in."

The members of the quartet are sharing their newfound knowledge. They've been to Tesuque, Chapparral and Sweeney elementary schools in Santa Fe and to Chimayo Elementary School.

"We've actually been role models for other students," Fresquez beamed. "The way I look at it is we can use the publicity we've gotten on other students at risk to show that it could happen to them."

"Robotics has brought us a long way."



Lorenzo Montoya, left, and Antonio Fresquez make circuits that help power their robots under the watchful eye of Pojoaque High School teacher Bruce Kaiper. The students use parts from discarded Walkman radio-tape players, video cassette recorders and other machines to build their robots. Photo by Fred Rick

Fresquez recently went to the state Capitol in Santa Fe to visit with Gov. Johnson. He was lobbying the governor to sign a bill passed by the 1998 Legislature that would allocate \$250,000 for a documentary film on the Pojoaque BEAM team. The documentary will be used as an educational training video, Kaiper said.

Ergonomics: old discipline ...

continued from Page 3

15 percent lower than the record 1994 figure (332,000). So while the percentage of ergonomic injuries nationwide has gone down, the percentage of such injuries at the Lab has gone up.

"We've been trying for years to raise awareness regarding ergonomics," said Rowell. He and Girault also estimated that over the years, they have spoken to more than 4,000 employees, past and present, on the subject.

The Lab is making a more concerted effort this year to incorporate ergonomics into employees' daily work environments as part of an effort to reduce the

overall number of injuries by 22 percent in 1998.

Helena Whyte of ESH-5 said while the Lab currently has no formal ergonomics program, it does have many elements as part of its new ergonomic initiative. For example, the group is developing an ergonomics standard, with input from several focus groups.

Also, ESH-5 and Facility Management Units 66, 71 and 78 maintain an ergonomics Web site at <http://drambuie.lanl.gov/~ergonomics/>. While some sections still are under construction, helpful information regarding ergonomically correct equipment, training and other ergonomics resources are available.

Girault wrote an ergonomics training program in the early 1990s. ESH-13 currently offers a revised version of that program. In addition, TSA-9 offers an ergonomics training

program called the Ergonomics Employee Involvement Program and conducts risk assessment workplace evaluations upon request, in which employees help determine whether they should make changes to their work stations. In addition, ESH-5 and ESH-13 provide specialized, onsite training using a risk assessment model developed by Dow Chemical.

Whyte also strongly urged employees to seek help as soon as they begin to feel any discomfort in their backs, wrists, elbows, forearms, neck, shoulders, ankles or fingers. Tenderness, swelling, pain, numbness or tingling sensations in any of the above-mentioned areas are the early warning signs of an ergonomically related problem.

For more information on ergonomics, call Rowell at 5-5907, Girault at 7-7827 or Whyte at 7-2854.

This month in history

April

1536 — Cabeza de Vaca and three others reach northwestern Mexico after possibly crossing what is now southern New Mexico and hearing rumors of the Seven Cities of Cibola

1818 — The U.S. flag in its present form is flown over the U.S. Capitol for the first time

1902 — Marie and Pierre Curie isolate the element radium

1946 — The Soviet Council of Ministers issues a decree designating Sarov as the site for a special R&D organization to design and develop an atomic bomb

1949 — The U.S. Civil Service Commission says Los Alamos residents can run for public office

1970 — The first Earth Day

1983 — New Mexico Gov. Toney Anaya declares "Los Alamos National Laboratory Week" to commemorate the Lab's 40th anniversary

1986 — An explosion and fire occur at the Chernobyl nuclear power plant in the former Soviet Union

1988 — The Space Science Laboratory at TA-3 is dedicated

1994 — Groundbreaking is held for a main building at the Dual-Axis Radiographic HydroTest (DARHT) Facility

1994 — FermiLab physicists find evidence for the existence of the top quark

1996 — The Lab's Outreach Center in Española is opened

Syndicated materials

Removed at the request of the syndicate

Answers to last month's 'Brainteasers'

(1) Harold Agnew; (2) 1951; (3) The first test in space of a particle beam, conducted by the Lab at the White Sands Missile Range in 1989; (4) At least eight — Alvarez, Bethe, Fermi, Feynman, McMillan, Ramsay, Reines, Segre; (5) A Lab committee that "rode herd" on the implosion research program, including the Trinity test, during the Manhattan Project; (6) 1976; (7) A Lab research program into controlled thermonuclear reactions; (8) 120,000; (9) It was the building where the nuclear components of the first atomic bomb were assembled; (10) It was the first hospital in Los Alamos; (11) 5 years; (12) 6; (13) LANSCE-9 — High Power Microwave Sources and Effects, Advanced Accelerators, and Electrodynamics; (14) At the Nevada Test Site; (15) A pulsed-power facility used to study hydrodynamic effects and material properties; (16) The winter of 1957-58; (17) 17; (18) The Romero Cabin now located next to Fuller Lodge; (19) Underground nuclear tests conducted by the Soviet Union and the United States in 1988 under the Joint Verification Experiment project; (20) November 1952.

spotlight

Physicist sets sail for exotic sites

by Steve Sandoval

When people want to get away from it all, they sometimes go for a leisurely drive in the country, take a rugged hike, a not-so-rugged soak in the hot tub or maybe just go up on the roof.

Plasma physicist Melissa Cray goes to South America. Or Central America. Or sometimes to Australia or the Caribbean.

In two months, Cray begins a one-year-plus leave of absence from the Laboratory, where she is manager of the Inertial Confinement Program (NWT-ICF), to sail from Australia to Germany on her yacht, Vagabond Too.

She'll return to the Lab in July 1999 — Cray is a 14-year employee of the Lab — knowing that she won't have the same job she's leaving. But this is one adventure excursion Cray couldn't pass up.

"It's sort of consistent with my personality," Cray said in explaining the trip. "Every year I've taken vacations that people might consider exotic ... I spent a month in Bolivia, Costa Rica, Venezuela, Nepal and Australia.

"I have been sailing and diving for over 15 years. As I don't have a family and am 37, it's the right time in my life to do this," she said. "I've always had a passion for sailing," she said, adding that she also scuba dives and is an underwater photographer.

Cray learned about this sailing opportunity after vacationing in Australia last year. She met an Australian businessman who offered Cray a partnership in building a 54-foot-long catamaran that will accommodate 12 people, including a chef, Cray and Gerd Marggraff, the majority investor, professional boat builder and yacht charter expert.

The catamaran can be powered by diesel engines when not under sail. Cray said it is a fast boat with its top speed reaching 18 knots. It has sleeping quarters, two bathrooms and cooking areas in the hulls; the top deck includes a salon for entertaining and dining, a navigation area, a large covered cockpit and plenty of deck area for sun bathing, she said.

Marggraff launched the boat in February from Queensland, Australia. Cray will meet Marggraff and Vagabond Too in Hobart, Tasmania. The boat is being "fit out," boat speak for putting in the vessels' plumbing, electrical wiring, furnishings and other amenities. While



Melissa Cray



Melissa Cray of the Inertial Confinement Program (NWT-ICF) stands on the deck of a boat during a cyclone while on a scuba diving excursion in February 1997 in the outer Great Barrier Reef in Australia.

Marggraff finished construction of the vessel, Cray arranged charter passengers for the voyage.

Cray developed a World Wide Web page — <http://internet.roadrunner.com/vagabond> — that gives information on the route, charter cost and other details.

And talk about exotic? The journey begins in Brisbane, Australia, heads up the eastern coast along the Great Barrier

Reef to Darwin, Australia, then due north to Indonesia and the islands of Bali, Java and Sumatra.

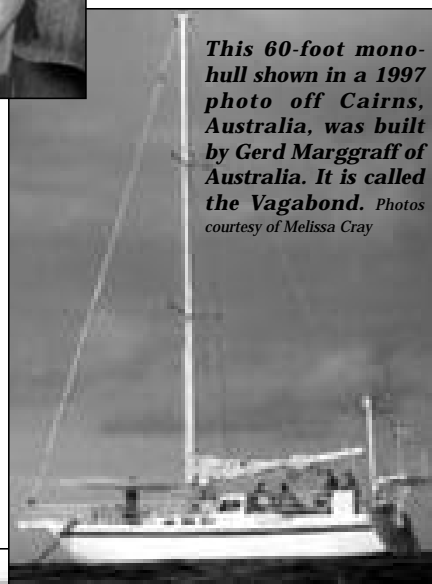
From there Vagabond Too heads to Phuket, Thailand, then west across the Indian Ocean to Sri Lanka, some 2,000 miles from Thailand; then to Djibouti, a small country near the entrance to the Red Sea, covering another 2,000 miles. The vessel then travels up the Red Sea to the Suez Canal and into the Mediterranean Sea. Stops in the Mediterranean include Turkey, Greece, Italy and the French Riviera before the vessel heads up the Atlantic coast to North Germany, where the journey ends.

They will allow time for passengers to dive and visit the various countries, said Cray.

Cray said the voyage will complete a circumnavigation Marggraff started more than 10 years ago when he sailed from Germany, stopped in Australia and never left. "We chose the route to Germany for the best weather, best winds and the most fun," she added.

Cray hopes to recruit about nine passengers at a time to join the sailing adventure. She will provide daily updates on the journey through the Web page, and electronic mail will allow passengers to communicate with family, friends and loved ones at home.

"A person should always consider all the alternatives in life and not be afraid to take risk. With luck, courage and hard work, people make dreams a reality," said Cray.



This 60-foot mono-hull shown in a 1997 photo off Cairns, Australia, was built by Gerd Marggraff of Australia. It is called the Vagabond. Photos courtesy of Melissa Cray

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