Los Alamos NATIONAL LABORATORY EST.1943

NewsLetter

Week of March 28, 2005 Vol. 6, No. 7

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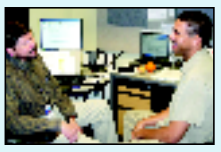

Despite the late snows recently, spring is finally here, and summer is not far behind. What do you do during spring, with regard to fitness, to get in shape for summer activities and clothing? Learn what your co-workers had to say on Page 6.

Los Alamos NewsLetter
P.O. Box 1663
Mail Stop C177
Los Alamos, NM 87545

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Albuquerque, NM
Permit No. 532

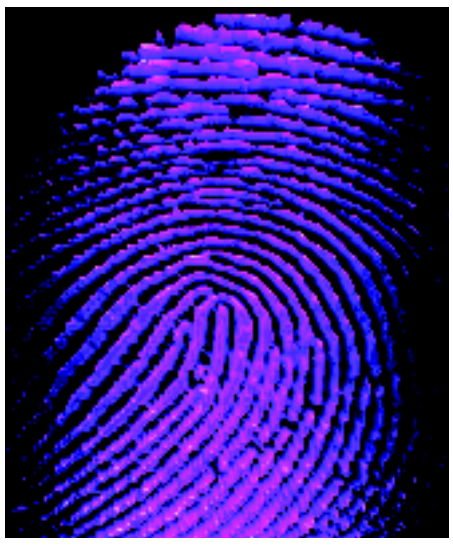
LALP-05-002

Researchers develop fingerprint detection technology

by Todd Hanson

Laboratory scientists have developed a novel method for detecting fingerprints based on the chemical elements present in fingerprint residue. Known as micro-X-ray fluorescence, or MXRF, the technique has the potential to help expand the use of fingerprinting as a forensic investigation tool.

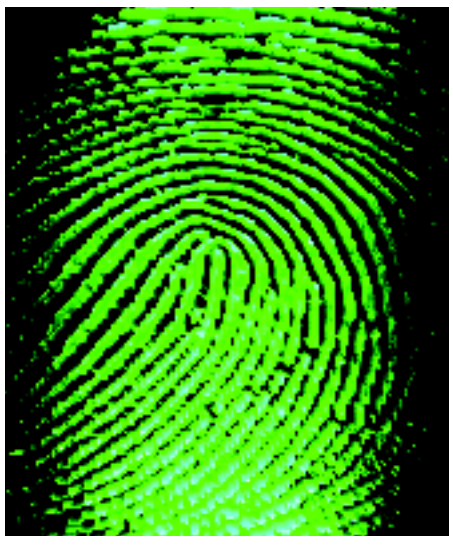
In research presented at the 229th national meeting of the American Chemical Society in San Diego, Calif., Los Alamos scientist Christopher Worley of Actinide Analytical Chemistry (C-AAC) described the detection of fingerprints based on elemental composition using micro-X-ray fluorescence showing how the salts, such as sodium chloride and potassium chloride, excreted in sweat are sometimes present in detectable quantities in human fingerprints.



MXRF actually detects the sodium, potassium and chlorine elements present in those salts, as well as many other elements, if they are present. The elements are detected as a function of their location on a surface, making it possible to "see" a fingerprint where the salts have been deposited in the patterns of fingerprints, the lines called friction ridges by forensic scientists.

The technique has several advantages over traditional fingerprint detection methods that involve treating the suspect area with powders, liquids or vapors in order to add color to the fingerprint so that it can easily be seen and photographed. Using this technique, known as contrast enhancement, it is sometimes difficult to detect fingerprints present on certain substances, such as multicolored backgrounds, fibrous papers and textiles, wood, leather, plastic, adhesives and human skin. Children's fingerprints are particularly difficult to detect due to the absence of sebum, an oily substance on the skin that is secreted by the sebaceous glands, which captures the contrast enhancing agents. Also, coloring a fingerprint with traditional contrast enhancement methods can be an arduous process that sometimes yields only limited success.

Worley warns that MXRF is not a panacea for detecting all fingerprints since some fingerprints will not contain enough detectable elements to be "seen." However, it is envisioned as a viable companion to the use of traditional contrast enhancement techniques at crime scenes, since it does not require any chemical treatment steps, which are not only time consuming, but can permanently alter the evidence. Since MXRF is noninvasive, a fingerprint analyzed by the method is left pristine for examination by other methods like DNA extraction.



In addition to Worley, the MXRF development team includes Sara Wiltshire, Thomasin Miller, George Havrilla and Vahid Majidi of Analytical Chemistry Sciences (C-ACS).

For Your Safety

Ergonomics in the Laboratory

Editor's note: Many tasks performed in research laboratories place workers at risk for developing musculoskeletal disorders. Potentially hazardous activities include the use of pipettes, microscopes, microtomes, centrifuges, flow cytometers, cryostats and computers. The following is the final in a three-part series offering suggestions to help reduce the risk of developing musculoskeletal disorders.

Pipetting

Studies indicate an increased risk of hand and shoulder discomfort for laboratory personnel who pipetted for more than 300 hours per year. The risk of a musculoskeletal disorder is increased if a lab worker feels pain in the thumb and/or wrist when manipulating objects with the hand that was used to pipette.

If possible, use an electronic pipette that is a comfortable size and weight for the hand.

• Try to maintain a neutral posture. Work with elbows as close to the body as possible and keep wrists straight. Minimize twisting and rotating the wrist. Alternate use of hands, if possible, or use both hands to operate the pipette.

• Avoid resting forearms on hard or sharp work surfaces.

• Rotate pipetting tasks with coworkers to reduce duration. Change your position and work task frequently. Try to take two-minute micro breaks for every 20 minutes of pipetting.

• Use as little pressure as possible when pipetting. Try to press the "plunger" with as light a touch as possible. Minimize force when attaching or changing pipette tips. If the tip ejector requires excessive force to operate, clean the pipette or consider newer pipette models that require less force to change tips. Consider using thin-wall pipette tips that are easy to eject.

Use low-profile receptacles for used tips and waste solutions.

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NewsLetter

The *Los Alamos NewsLetter*, the Laboratory bi-weekly publication for employees and retirees, is published by the Public Affairs Office in the Communications and External Relations (CER) Division. The staff is located in the IT Corp. Building at 135 B Central Park Square and can be reached by e-mail at *newsbulletin@lanl.gov*, by fax at 5-5552, by regular Lab mail at Mail Stop C177 or by calling the individual telephone numbers listed below. For change of address, call 7-3565. To adjust the number of copies received, call the mailroom at 7-4166.

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Los Alamos National Laboratory is operated by the University of California for the National Nuclear Security Administration (NNSA) of the U.S. Department of Energy and works in partnership with NNSA's Sandia and Lawrence Livermore national laboratories to support NNSA in its mission.

Los Alamos enhances global security by ensuring safety and confidence in the U.S. nuclear stockpile, developing technologies to reduce threats from weapons of mass destruction and improving the environmental and nuclear materials legacy of the Cold War. Los Alamos' capabilities assist the nation in addressing energy, environment, infrastructure and biological security problems.

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FROM THE TOP

Appendix F performance

At several recent meetings, I have emphasized that the Laboratory's overarching objective for this fiscal year is to achieve a 90 percent outstanding rating on Appendix F objectives.

Appendix F is the Laboratory's annual report card from our customer, the National Nuclear Security Administration. It consists of 10 objectives — six for mission and four for operations — which span the work of the Laboratory, covering areas as diverse as the nuclear weapons program, science and strategic research, infrastructure, business systems and the work force.

Laboratory Director Pete Nanos

Appendix F affects three vital areas: our public reputation; the funding and sustainability of certain science programs; and ultimately, the Laboratory's management contract.

First, Appendix F provides an evaluation of our performance, not just to the University of California and NNSA, but also to Congress and the country as a whole. As a publicly funded institution, we owe taxpayers good value for their dollars; Appendix F scores form the basis for our annual public report card.

Second, at least under the current contract, our Appendix F ratings influence scientific research sustained by the UC Directed Research and Development program. UC funnels back money from its management fee into joint research programs uniting Los Alamos, UC and New Mexico universities. When poor Appendix F performance reduces UC's management fee, UCDRD funds are reduced correspondingly.

Third, the Laboratory's Appendix F scores affect our management contract. Especially given the delays in the contract competition process, this year's Appendix F ratings will influence the contract competition outcome, as well as conditions written into the new management contract.

NNSA rates each Appendix F objective on an ascending scale from unsatisfactory to satisfactory to good to outstanding. Last year's difficulties caused the Laboratory to receive an unsatisfactory score on operations, and outstanding scores on just three out of 10 objectives (and 11 out of 42 measures).

Our goal this year is an ambitious one: to achieve a 90 percent outstanding rating on Appendix F measures. I believe that this goal is within our reach, but only if every employee focuses on Appendix F performance.

We can all contribute towards outstanding Appendix F ratings. The Appendix F objectives are broad enough that all employees should see themselves in at least one measure. Whether your expertise lies in engineering, programming, packaging, accounting, or so forth, Appendix F applies to you, and you can help attain an outstanding Appendix F score. Working together, we can collectively drive this institution towards a 90 percent outstanding rating on its Appendix F objectives.

The value of research

by Tom Bowles, chief science officer

One of the characteristics of basic research is that the advances it makes possible can take a relatively long time to be realized. As a result, it is often difficult to answer the question: "What good is it?" If one cannot state a direct benefit, then one cannot answer the follow-on question: "Why should this effort be funded?" Thus, an inability to show direct and immediate benefits reduces the priority of basic research when one is faced with budget deficits. Unfortunately, this is just the situation we currently find ourselves in. Funding for basic research in the physical sciences is projected to decrease by at least the rate of inflation for the rest of this decade.

It is critically important for the Laboratory that this trend be reversed. Not only does reduced funding have both immediate and long-term effects on our ability to do science, but it also will significantly reduce the number of students going into the physical sciences. This [reduced number of students going into physical science] will make it extremely challenging for the Laboratory to recruit the best and brightest needed to fulfill our national security mission as [the Lab's] aging work force retires.

If we are to reverse this situation, we need to make the case for the benefits of long-term basic research. The Laboratory Fellows, Science and Engineering Advisory Council (SEAC), Science and Technology Base (STB) Program Office, the Science Council and others have provided information needed to make this case. The data is quite interesting. For example, it was LDRD-funded research that demonstrated the ability to do studies of accelerated aging of plutonium. It also was LDRD that partially laid the basis for QMU (Quantification of Margins and Uncertainties) that is now central to our ability to certify the stockpile.

We are working to draw a complete picture of the benefits of basic research to national security. This is essential in supporting the effort being made by the University of California to push for more support for basic research. While success is not guaranteed, I can assure you from my discussion with President [Robert] Dynes that working for greater support for basic research at the Lab and UC campuses is a priority for him and the university.

Project advertises 900 new jobs to date

Staff-augmentation portion of Contingent Worker Project begins wrapping up

by James E. Rickman

Terry Roe, left, Compensation (HR-C) analyst, and Gilbert Ratliff, acting group leader of Staffing (HR-S) and co-leader of the Laboratory's Contingent Worker Project, discuss the CWP during a recent meeting. The CWP intends to substantially complete a major portion of the project by the end of the month. *Photo by James E. Rickman*

Nearly a year after it was first announced, the Laboratory's Contingent Worker Project has substantially completed a major portion of the project.

A "contingent worker" is a person who works under a Laboratory subcontract and is not an employee of the University of California. The CWP — which looked at subcontract assignments to determine whether they were more appropriate as UC employment positions — intends to wrap up the staff-augmentation portion of the project this week. The staff-augmentation portion of the project focuses on contingent worker assignments under the four primary staff-augmentation subcontracting firms: Butler, Weirich, Comforce and The Plus Group.

The second portion of the project, the task-order portion, focuses on work performed under task orders, stand-alone technical subcontracts or consultant agreements. The CWP team intends to complete the task-order portion of the project this summer.

In a master-management memo to Laboratory managers, Richard Marquez, associate director for administration, noted that although the project did experience delays due to the suspension of operations last summer, the project has achieved significant progress. He asked managers in each organization to build upon the project's momentum and take necessary measures to close out the staff-augmentation portion of the project by this week's deadline.

The CWP team has completed its review of the nearly 1,500 staff-augmentation assignments identified under the project. The team estimates that as many as 1,000 new UC positions could be created under the auspices of the CWP.

To date, under the staff-augmentation portion of the project, nearly 900 UC jobs have been posted and more than 600 job offers have been accepted. Former contingent workers have filled 80 percent of these jobs so far. Nearly three-quarters of the new UC jobs are full-time regular positions.

Every new UC position created under the auspices of the CWP has undergone extensive analyses by Human Resources (HR) Division personnel to ensure that job classifications and salary levels are consistent with similar UC positions across the Laboratory. This approach helps ensure that salary fairness achieved under Laboratory Director Pete Nanos' salary initiative is maintained across the institution.

"The results of the Contingent Worker Project to date have been consistent with goals originally set out for the project," said Gilbert Ratliff, CWP co-leader. "The project has provided opportunities for contingent workers to become UC employees, and, as a result, has enhanced contingent workers' opportunities for employment stability, upward mobility and career enhancement."

Under the task-order portion of the project, about 100 subcontracted positions have been identified as more appropriately UC positions. CWP team members estimate that only about 10 to 15 percent of the 1,800 task-order/stand-alone technical services agreements could be affected by the CWP.

The task-order portion of the project is being conducted in a more deliberate manner than the other portion. Marquez is reviewing all recommendations of the task-order portion to ensure that Laboratory divisions have based their proposed actions on prudent business decisions. Based on these reviews, the CWP team is identifying appropriate strategies, such as redefining scopes of work within task orders, to maintain sound business practices. Marquez has instructed additional review of such strategies by the cognizant associate Laboratory director to ensure that the strategies address business requirements of the affected line organization.

In addition, CWP and Laboratory leaders have met with regional business leaders, through the Lab's Business Integration Board and other venues, to design processes to help ensure that the Laboratory's use of task orders is more business friendly. These ongoing dialogues with regional businesses help fulfill commitments that the Laboratory made during a CWP-sponsored "vendor town hall" meeting last spring.

"The task-order portion is an important component of the overall project," said Ratliff. "Under this portion, the team has gathered a large amount of useful information that is being used to improve business processes, such as creation of a system of centralized oversight for contingent-worker assignments. Once implemented, these improvements will help ensure that contingent worker assignments are appropriately managed and that the Laboratory utilizes contingent workers appropriately and cost effectively."

Managers with questions about completing the CWP within their specific organizations should contact their HR generalist or deployed HR group leaders, or contact Ratliff at 5-5196. More information about the Contingent Worker Project is at the updated CWP Web site at *http://int.lanl.gov/orgs/hr/cwp* online. Questions about the project can be sent to *cwp@lanl.gov* by e-mail.

More information also is available on the Tell Pete Web page at *http://int.lanl.gov/communications/tell_pete_archives.shtml* online.

UC tops annual list of universities receiving patents

For the 11th consecutive year, the University of California is the leader among the nation's universities in developing new patents, according to a report by the U.S. Patent and Trademark Office. The report presents a preliminary list of the U.S. universities receiving the most patents for invention (i.e., utility patents) during the 2004 calendar year.

Last year, UC recorded a total of 424 patents. The final list is expected in December 2005.

"Academic institutions are generators of discovery and innovation, and their patented inventions benefit all Americans through new jobs and new products that improve our lives daily," said Jon Dudas, under secretary of commerce for intellectual property and director of the U.S. Patent and Trademark Office.

In FY 2003-04, nearly 1,200 new inventions were disclosed by UC faculty and researchers. Overall, the UC system's invention portfolio is comprised of more than 6,600 active inventions. Total licensing revenues, the income received from UC agreements with industry, was $93.2 million in FY 2003-04, a portion of which is re-invested back into research and education on UC campuses. Many of these cutting-edge R&D projects are in fields directly related to the knowledge industry clusters, and thus, amplify many of the productivity gains arising from UC research.

Through the eyes of Louis Rosen

A look at Laboratory history and the future of LANSCE

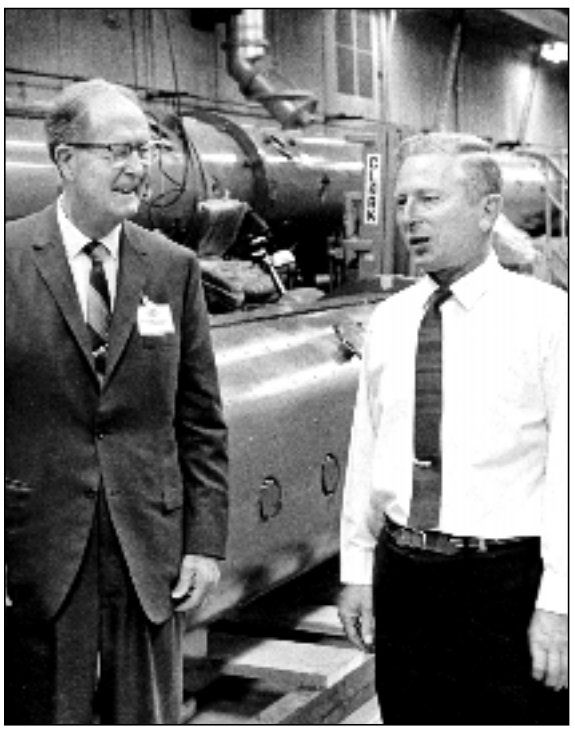
by Hildi T. Kelsey

Rich in history, deep in drama and teeming with scientific genius — Los Alamos National Laboratory, with a near mythological presence in America's psyche, is forever engraved in this nation's illustrious past and remains an intellectual icon during its challenging present. While many at the Lab can recount various versions of Los Alamos' milestones relayed through news articles and television specials, multiple books written by historians and biographers, and even folklore spun by residents through the decades, few can offer first-hand, eye-witness accounts of events spanning from the Lab's hurried beginnings in the 1940s to its dynamic evolution and transformed mission of the new century.

Senior Fellow Emeritus and Los Alamos medal recipient Louis Rosen is a rare exception.

Rosen came to the Lab in 1944 to "work on the problem of implosion." He was instrumental in the development and construction of the Los Alamos Meson Physics Facility (LAMPF) and still holds an associate position at the facility — now called the Los Alamos Neutron Science Center (LANSCE). Not only can Rosen recall momentous, notable Laboratory events from the last five decades in meticulous detail, he also is generous in sharing his feelings about these occurrences and the prominent individuals involved.

"In early 1944, the Laboratory was a cauldron of excitement," Rosen said.



Rosen, right, and Sen. Clinton P. Anderson in the beam tunnel of the Meson Physics Facility. *File photo*

When Los Alamos National Laboratory was first established, Rosen reflected, Oppenheimer thought an [atomic weapon] could be designed, engineered and built with 300 people.

"But something happened on the way to the concert," he said. "Spontaneous fission!" Rosen explained that one isotope in plutonium fissioned whenever it wanted. This meant the supposed easiest "gun-type" assembly being contemplated at the time needed to be re-evaluated. "No one knew how to assemble the plutonium fast enough to avoid pre-detonation. This made the Lab expand by a factor of 10. I was recruited to work on the problem of implosion.

"The Laboratory was a very collegial place when I got here and for some years afterward. People helped each other; talked to each other," Rosen recalled. "They were not put into a little box. Ideas were encouraged by everyone. In fact, it was crucial to the success of the Manhattan project."

Rosen asserts that the Germans failed to "beat us to the bomb" because the chief scientist in charge of the German nuclear weapons development program was a dictator who forced everyone to pursue his ideas. Conversely, Rosen maintains because Oppenheimer was so open-minded in encouraging ideas from everyone, it was the secret of the success of the project at Los Alamos.

"The most junior staff members could walk into their division leaders' offices and talk freely. It was an important aspect in maintaining the flow of ideas and morale among the workers. There was great encouragement to think creatively and to take intellectual risks," beamed Rosen.

The Lab's fluid, dynamic science mission

Rosen recognized, as did many, that the Lab's science mission must be flexible to adapt with the changing times and historical challenges. "Obviously," said Rosen, "the first challenge was to produce a nuclear weapon that would win the war. This was done in record time." Rosen insists it was the high morale, patriotism and spirit of cooperation among everyone at the Lab that led to the triumphant, successful testing of the first atomic weapon.

"At the inception of the project, a new Ph.D. at the Lab was paid $280 a month. But no one complained about the salary. Nor, did they complain about the living conditions," said Rosen.

"It was rough at Los Alamos then, especially for families — no grocery or clothing stores, no gas, no place to buy a new car if yours died on you. Even so, people were never happier than during those challenging days. We were all one big family. We all pitched in and helped each other."

According to Rosen, the first Laboratory crisis came after the war — after the danger had passed — in the form of a mass evacuation of the Lab by some of its best people. Great scientists and professors were leaving to go back home or take higher paying jobs with lucrative salaries at universities and companies.

"The Lab was a happy hunting ground for universities needing technical staff," said Rosen.

"Our big break came with Joseph Stalin. We all knew he was a bad apple opposed to democracy. When Stalin initiated the Cold War, the Lab came back to life. Nuclear physicists, chemists, metallurgists, biologists — all came back to see if it was possible to develop a fusion weapon."

History tells us that Los Alamos was, indeed, successful — the testing of GEORGE, the first fusion device, in the Pacific on May 8, 1951 led to the development of MIKE, the first proven thermo-nuclear weapon, which was tested Oct. 31, 1952.

Rosen had a more colorful way of stating the victory: "If Stalin had achieved this first, this interview would be in Russian."

By the mid-1950s, the Lab had invented the fission bomb, the fusion bomb and miniature versions of both. Rosen remembered that [Norris] Bradbury was director then and the atmosphere at Los Alamos was still exciting, eclectic. The next step was to make sure the devices were reliable.

"During this whole stage, Bradbury continued to encourage employees to think outside the box. The greater part of intellectual effort focused on new ways to do things better, more safely, more securely and less expensively," he said.

Then, Rosen recalls, another shift in the Lab's science mission occurred — Laboratory staff and Director Bradbury came to realize in the late 1950s, with the Cold War raging, that it was necessary for Los Alamos to be a cornerstone of national security, especially in the nuclear weapons arena. But, according to Rosen, Bradbury argued that Los Alamos

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The LAMPF Auditorium is renamed the Louis Rosen Auditorium in August 1995.

Perspective on past directors

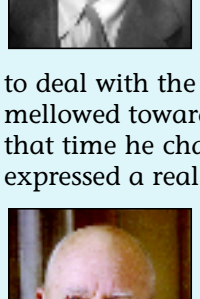
During his illustrious career, Louis Rosen had the opportunity to work with six of the Laboratory's seven directors. He said that because he spent the last three years away from the Lab caring for his ailing wife, who has since passed away, he really has not had a chance to "get to know" Director Pete Nanos. Below are Rosen's chronological reflections on each of the six directors.

J. Robert Oppenheimer: Oppenheimer didn't suffer fools gladly. He gave the impression that he knew everything. The problem was — he did know everything. Oppenheimer was a great scientist, not the greatest, but great enough to deal with the greatest scientists here. He mellowed toward the end of his days — at that time he changed completely and expressed a real willingness to listen.

Norris Bradbury: Bradbury was a kind and gentle person, a listener and a decision-maker. He took risks and was willing to accept the blame. It was Bradbury that took a great risk in the construction of LAMPF because all the experts said it would be near impossible to create. But, Bradbury had high confidence in the creative ability of his scientists and was able to convince Congress of the project's merits. It was a great joy working for Norris Bradbury. He was my mentor. In fact, it was the most joyful period in my professional life.

Harold Agnew: He was a great entrepreneur who grew the Lab — budgets were never a problem. However, Agnew was less enthusiastic than Bradbury when it came to bringing outsiders in to use LAMPF, and we often disagreed on this issue. There was one important exception. During Agnew's term as director, the 10-day limit for Chinese scientists to study at the Lab was lifted, and they were permitted to work at the accelerator during long-term visits.

Donald Kerr: I was unhappy with the matrix management structure Kerr introduced at the Lab. In short, I thought it was a disaster. By increasing the number of managers and support staff, it amplified overhead costs and interfered with the creativity of the scientific staff.



Siegfried Hecker and John Browne: Both of these scientists were extraordinary leaders of the Lab — not only from a scientific standpoint, but also from a sociological basis. They knew how to maintain high morale, respect and confidence in the Lab. Both were fair to a fault and understood the technological challenges the Lab faced, as well as the role of basic science in meeting these challenges.

Rosen was a recipient of the 2002 Los Alamos National Laboratory Medal award. The Los Alamos National Laboratory Medal is the highest honor the Laboratory can bestow on an individual or small group. *Photo by LeRoy N. Sanchez*

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could not remain a world-class nuclear weapons facility if that was the only thing it was doing.

"He realized that we needed to diversify and take intellectual risks. Thus, we could remain a world-class facility on one hand and maintain national security on the other," said Rosen.

As a result, some efforts explored under Bradbury during this time included nuclear propelled rocket tests, nuclear reactors built on the principle of high temperature, gas-cooled reactors and fusion energy (which continues today under the heading of plasma physics). But, it was a sabbatical by Rosen in 1959 that would generate the idea for the largest Laboratory scientific endeavor during Bradbury's tenure as director.

The urging from his wife, Mary, for a long-term vacation from Los Alamos — and a fellowship from the John Simon Guggenheim Memorial Foundation for advanced professionals — brought Rosen to Paris for a year. His experience there convinced him that the best way for Los Alamos to move to a major effort in science was to construct the Meson Factory, a high-intensity proton accelerator, capable of producing Pi-mesons at intensities 1,000 to 10,000 times then available. The accelerator, thereby, would provide a powerful new probe of the structure of the nucleus.

In 1960, Rosen came back from Paris to spearhead the initiative and, with the help of Jerry Kellogg, obtained initial funding from Bradbury for the project. This funding came from the weapons budget. Additional funds for the design were awarded by Congress in 1965. "By the time the fusion program downsized, we were able to attract the very brightest people to design and develop this facility. Darragh Nagle, Ed Knapp and Don Hagerman — all borrowed from the fusion program — were brought on-board to invent the new accelerator," he said. "We profited from other experts, such as Lew Agnew, who came to us from divisions across the Lab."

By 1966, they had developed the prototype, a side-coupled cavity linac capable of accelerating high-intensity beams of protons. In 1968, the Lab received full funding for the construction of the Los Alamos Meson Physics Facility (LAMPF), a linear accelerator that stretches a half-mile and provides pulses of 800-million-electron-volt protons at a repetition rate of up to 120 per second and an average current of one milliampere — the "highest beam power ever achieved." The facility at Technical Area 53 was completed in four years; the first beam was generated on Rosen's birthday in 1972.

According to Rosen, the Lab benefited greatly from the construction of LAMPF. He estimated that about 1,000 current employees at the Lab originally came here through LAMPF. "It was a strong revitalization factor for the Lab at that period. We started to assemble support from the academic community, who would use this facility for research — world-class research that could not be repeated anywhere else. It was a magnet for scientists and graduate students from all over the world," he said, "and therefore, a God-send to recruiters. From the very beginning, LAMPF had a strong neutron science focus and a focus on isotope production."

Both activities expanded over time until 1995 when the major thrust grew to be spallation neutron sources. LAMPF became the Los Alamos Neutron Science Center (LANSCE), which also embodies proton radiography and a brand-new isotope production facility.

Rosen explained that LANSCE currently conducts proton radiography by taking moving pictures of the dynamics of a mock-up device being imploded by explosives. "This opens the way to answering all kinds of questions regarding the aging nuclear stockpile — right now, only LANSCE can do that," said Rosen.

He added, "But LANSCE already is an old facility — it needs major upgrading. This [upgrade] needs to be done for the future of LANSCE and our nation. LANSCE can be rejuvenated at a fraction of the $1.5 billion cost it would take to reproduce it. If not done, it signifies an eventual shut down of the facility.

"In its heyday, LAMPF was nicknamed the flagship of nuclear science; LANSCE can be the flagship of neutron science," said Rosen.

Trip to China

In addition to his critical leading position in the development of LAMPF/LANSCE, Rosen singled-out his role in bringing Chinese scientists to do experiments at the Lab as one of the most memorable accomplishments during his career because of its relevance to achieving a peaceful world.

Previous regulations stipulated that foreign scientists from communist countries could work at the Lab for only a 10-day period. Rosen set himself the goal of changing this after a conversation with Chinese Vice Premier Fang Yi during his trip to China in mid-1970, where he presented a series of lectures on nuclear energy and accelerators. At the Emperor's palace in China's Forbidden

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Rosen's wife, Mary, displays items the couple brought back from their trip to China.

Q: Despite the late snows recently, spring is finally here, and summer is not far behind. What do you do during spring, with regard to fitness, to get in shape for summer activities and clothing?

Robert Baran of Authorization Basis (NMT-14)
Combining aerobic activity with weight training is essential to keeping my body and my mind healthy, and that makes me the high performer that I am.

Joy Torres of Customs and Disposition (SUP-2)
I generally do yoga. I'm not much of an outdoor-runner type, but I do cardio at least three times a week at the Wellness Center, and I do my yoga everyday except on the weekends. I look forward to the changing seasons and the warm days and nights that summer brings.

Bill Rider of Material Science (X-7)
I try to keep up with what I always do, and that includes working out year-round. I do a little weight lifting and at least one aerobic activity every day. And I try to get outdoors whenever possible since my dogs need their exercise too.

Robert Winkel, Operation and Facility (IH&S) Support (HSR-8)
I do weights year-round, and when the weather is bad I'll work out on the treadmill and elliptical trainer. I also try to go mountain biking year-round, including traveling to lower elevations where I can go out on the clear trails.

Sabrina Miller of Security Integration (S-2)
I go to the gym everyday and do 40 minutes on the treadmill along with some weight training. I also stay active and fit by playing indoor soccer. During the summer I enjoy going out and mountain biking, running and playing softball.

Dwight Stevenson of HSR-8
For me the name of the game is stress reduction. I go to the Wellness Center to work out, and I also play ice hockey twice a week at the Chavez Center in Santa Fe. Other things I enjoy doing include hiking, backpacking, golf, white water rafting and, on occasion, fly fishing up in the San Juans.

PEOPLE

Four Lab physicists honored by American Physical Society

The American Physical Society has honored four Laboratory physicists for their outstanding contributions to physics, naming them fellows of the society.

Steve Elliot, **David Montgomery**, **David Moore** and **John Singleton** were among 201 scientists nationwide elected as American Physical Society fellows in 2004.

"This achievement is something of which the Laboratory can be very proud," said Tom Bowles, chief science officer, in congratulating the quartet. "I'm particularly pleased that their peers have chosen to recognize Steve, David, David and John in this manner. The range of scientific contributions made by these four scientists admirably reflects the importance that the Laboratory associates with having a broad science basis that supports the nation's needs."

No more than one in 200 APS members are recognized as fellows because they have made advances in knowledge through original research and publication or made significant innovative contributions in the application of physics to science and technology. They also may have made significant contributions to the teaching of physics, or they may serve and participate in APS activities.

The new APS fellows will receive certificates at the annual meeting of the division that sponsored their nominations. Those citations will specify the achievements for which they were nominated.

The four Los Alamos physicists, the groups in which they work at the Laboratory and the research for which they were elected APS fellows are as follows:

Steve Elliott, Neutron Science and Technology (P-23)

APS' nuclear physics unit nominated Elliott "for significant contributions in neutrino physics, in particular for solar neutrino experiments that have demonstrated that neutrinos have nonzero mass and for his research on double beta decay."

Research into neutrinos, which are nearly undetectable and yet permeate every nook and cranny of the universe, is key to understanding astrophysics and the fundamental nature of all matter. Elliott first came to the Laboratory as a postdoctoral fellow working on the Soviet-American Gallium Experiment. After a stint teaching at the University of Washington in Seattle, he returned to the Laboratory as a staff member in 2002. He is an active member of the Sudbury Neutrino Observatory experimental team. Elliott holds doctoral and master's degrees in physics from the University of California, Irvine.

David Montgomery, Plasma Physics (P-24)

Nominated by the plasma physics unit of APS, Montgomery was recognized "for outstanding contributions to the understanding of stimulated scattering processes in laser produced plasmas through innovative new experimental methods and for the first observation of electron acoustic waves in laser-plasmas."

Montgomery came to the Laboratory's Physics (P) Division in 1996, following 12 years in the Inertial Confinement Fusion Program at Lawrence Livermore National Laboratory. His research career has focused primarily on the control of plasma instabilities for laser-driven thermonuclear fusion experiments. He holds a bachelor's degree in physics and mathematics from Northeastern State University, Tahlequah, Okla.

David Moore, Materials Dynamics (DX-2)

David Moore was nominated by the APS' Shock Compression Topical Group "for breakthroughs in the use of nonlinear optical and ultrafast spectroscopies to understand the behavior of molecules under shock compression."

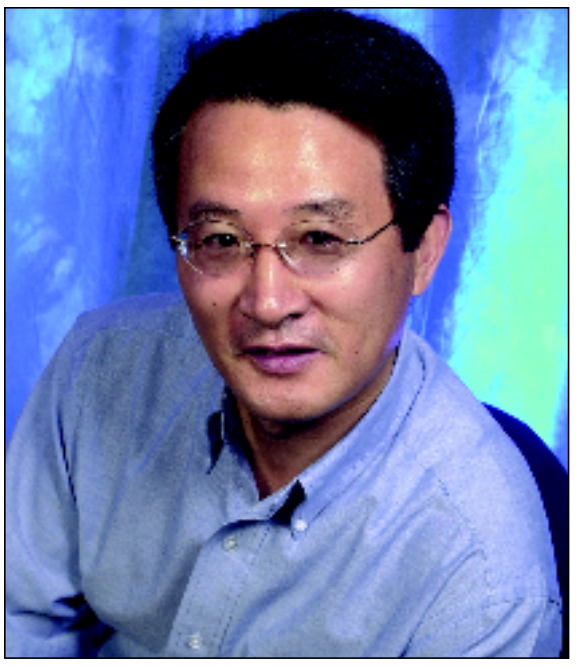
Moore came to the Laboratory in 1980 as a director's postdoctoral fellow and has worked in several divisions, although remaining focused throughout his research career on spectroscopy, shock physics and shock chemistry, with the goal of improving the safety of explosives. He holds a doctorate in physical chemistry from the University of Wisconsin, Madison.

John Singleton, National High Magnetic Field Laboratory (MST-NHMFL)

In his nomination, the Condensed Matter Unit at APS recognized Singleton "for elucidation of many-body and reduced-dimensionality effects in molecular organic crystals and semiconductor systems, featuring creative use of optical and magnetic field techniques and clear technical exposition."

Singleton came to the Laboratory in 2000. His research seeks new types of materials for future electronic devices, as well as novel materials and processes that could improve radios or other signal transmitting equipment. Singleton holds doctoral and master's degrees in physics from Oxford University in the United Kingdom.

For Laboratory closures, delays or early dismissal information, call UPDATE at 667-6622 or 1-877-723-4101 (toll free).



Quanxi Jia

Jia named Asian American Engineer of the Year

A Los Alamos scientist widely known for his innovations in the field of electronic materials and high-temperature superconductivity has been named the 2005 Asian American Engineer of the Year by the Chinese Institute of Engineers USA.

Quanxi Jia, a Laboratory Fellow since September 2003 and currently the Device Team Leader in the Superconductivity Technology Center of the Materials Science and Technology (MST) Division, has been honored for his many outstanding scientific and technical achievements.

Jia's fields of expertise are in the growth of metal-oxide films (ferroelectric, ferromagnetic, conductive oxides and high-temperature superconductors), the fabrication of electronic devices, and in the structural/electrical characterization of electronic materials. He is the author/co-author of more than 240 refereed journal articles and nine book chapters. Jia has garnered 22 patents in the fields of electronic materials and devices and has 10 more pending. He is the winner of two R&D 100 awards — the first in 1998 for his Underground Radio work and the other in 2003 for Flexible Superconducting Tape. In 2000, he received a Laboratory Achievement Award for his accomplishments.

Jia received his bachelor's and master's degrees in electronic engineering from Xian Jiaotong University, China, in 1982 and 1985, respectively, and his doctorate from the State University of New York at Buffalo in 1991. Before coming to the Laboratory in 1993, he was a lecturer in Xian Jiaotong University and later a visiting associate professor at Kumamoto University in Japan.

The CIE/USA award recognizes established engineers who have made outstanding contributions to the engineering profession, the public welfare and/or the humankind. This is the fourth consecutive year that a Los Alamos scientist has received the award. Last year, Los Alamos computer scientist Wu-chun Feng received the award. In 2003, Joe Tiee received the award; and in 2002, Los Alamos' Paul Pan was an award recipient.

Ecke appointed Center for Nonlinear Studies leader

Robert Ecke is the new leader of the Center for Nonlinear Studies (T-CNLS).

Ecke came to Los Alamos in 1983 as a Director's Funded Postdoctoral Fellow in the Physics (P) Division and T-CNLS to work on nonlinear dynamics and chaos in cryogenic convection. He became a technical staff member in 1986 and continued his work on convection in many different contexts, including pattern formation, rotating convection, solutal convection and turbulence. Ecke served on the executive committee of T-CNLS from 1987 to 2001 and he was T-CNLS acting deputy director from 1992 to 1994.

Ecke's career at the Lab is lined with academic honors and achievements. In 1991, he won the Laboratory Fellow's Prize. Ecke was elected a Fellow of the American Physical Society in 1994 and a Laboratory Fellow in 1997. His professional activities include serving as chair of the American Physical Society's Topical Group on Statistical and Nonlinear Physics, associate editor of Chaos and divisional associate editor of Physical Review Letters.

Robert Ecke

Additionally, Ecke has co-authored more than 85 publications and currently works on the dynamic properties of granular materials and on the fundamentals and applications of fluid turbulence.

Marking Ecke's appointment during the 25th anniversary of T-CNLS, Alan Bishop, division leader for the Theoretical (T) Division, said, "As Bob takes over the reins at T-CNLS, it is striking out into important new interdisciplinary directions promoting science frontiers in support of the Laboratory missions."

Since 1981, the T-CNLS' mission has been to identify and study fundamental nonlinear phenomena in the physical sciences. It serves as the focal point for research in nonlinear science at Los Alamos and hosts graduate students, postdoctoral researchers as well as short- and long-term visitors. T-CNLS also organizes many workshops and meetings in emerging research areas.

In Memoriam

Ben G. Maestas

Laboratory retiree Ben G. Maestas died Jan. 9. He was 76.

Maestas served in World War II and Korea, and was employed by the Lab for 35 years.

Maestas began his career at the Laboratory in 1948 in the former Experimental and Pit (M-1) Division. He also worked in the former Weapons Engineering (W-1, 7), Nuclear Rocket Propulsion (N), Laser Research and Technology (L-1) and Applied Photochemistry (AP-4) divisions. Maestas retired from the Laboratory in 1982 and later returned as a consultant.

Maestas is survived by his daughter Catherine Mobley; sons Greg, Rex, Gerald and David; and special friend, Margaret Jaramillo.

Howard Lewis Rice

Laboratory retiree Howard Lewis Rice died Jan. 25. He was 61.

Rice was born in Delta, Colo. From 1961 to 1964, he served in the U.S. Navy as a radio communication operator and also was in the Underwater Special Tactical Unit, which is now considered the Navy Seals.

In 1984, Rice joined the Lab in the former Experimental Physics (P) Division. During the course of his career in Los Alamos, he also worked in the former Site Engineering (ENG) Division and the former Facility Security and Safeguards (FSS) Division, where he served as a program team leader.

Rice retired in 1997, but continued to work at the Lab as a contractor with Butler until his death.

He is survived by his wife, Elaine Rice of Security Integration (S-2), and his son Rusty.

Louis Rosen ...

continued from Page 5

City, Fang Yi asked Rosen if the Lab would allow some of the most promising Chinese scientists to study in Los Alamos. Rosen was in favor of accepting well-known Chinese scientists whose names were recognized in their fields and persuaded then-Director Harold Agnew to submit the request to the Atomic Energy Commission. After compelling arguments from Rosen and others in favor of this regulatory revision, the AEC granted the request.

"I consider this the most important contribution I was able to make in terms of the United States' relationship with China," said Rosen.

The nation's changing priorities

Rosen says this country faces new problems today — terrorism, proliferation of nuclear weapons by rogue nations and prohibition of nuclear weapons testing. "We must have ways to ensure the safety, security and reliability of the weapons stockpile. We need to understand how they work at an atomic level, understand how they age. Neutron science is key to understanding the operation of nuclear weapons and nuclear energy generation for peaceful purposes as well," he said.

Rosen exhibited some discouragement in his evaluation of current, popular support for scientific programs. "During the development of the first atomic bomb and throughout the Cold War, science was a very high priority for the nation and Congress. Unfortunately, this has changed. Today, the citizenry and Congress are more ambivalent about the utility of science. This is very dangerous; science is a driver in one's use of resources and in solving problems with the environment, while also growing the economy in a stable way," he said.

"Problems cannot be solved by emotional outbursts or by throwing money at them — they must be solved by scientific underpinnings," he added. Rosen stressed that the Lab must maintain quality staff and seize new initiatives as opportunities emerge but concedes that shrinking funds may make such progress " more difficult than it used to be."

Food for thought

by Hildi T. Kelsey

What do you get when you combine a Lab employee who has a master's degree in nuclear engineering with a former University of Colorado football player and the holder of a doctorate in food science and technology?

A stylish, contemporary new bar and restaurant in Los Alamos.

After nearly a year of Herculean trials and tribulations faced by owners Ron Selvage of Technical Mission Support (LANSCE-10), Ian Christian, a former University of Colorado football player, and Fred Prochaska, a food consultant, Trinity Beverage Company (TBC) opened its doors in November.

Alluring to all five senses, TBC greets customers with a whirlwind of brilliant reds, soothing blues and calming purples, while large screen televisions hover strategically throughout the bar and restaurant.

This initial sensory introduction is accompanied by the captivating aroma of freshly prepared cuisine, such as filet mignon, pork tenderloin, veal picatta or good, old-fashion burgers. Absent is the smoke coming from cigarettes, as TBC is a smoke-free environment. Complementing this atmosphere are the subtle sounds of various musical selections emanating from the disc jockey booth.

Upon being seated, a customer is greeted with the comfortable feel of cushioned, leather seats and the smoothness of birch dinner tables or the slickness of the speckled granite bar. The entire dining experience is culminated with imaginative appetizers and entrees, tempting desserts and tasty beverages.

But Selvage said it is the "people" that truly make his restaurant worth visiting.

"We found great managers like Tanya Herbert, Emmy Wells and owner/manager Ian Christian. And, we have an amazing chef, Tom White, who designed the menu and brought a real upscale flavor to our restaurant," he said, adding, "I am extremely proud of how far our staff members have come and what they have been able to accomplish."

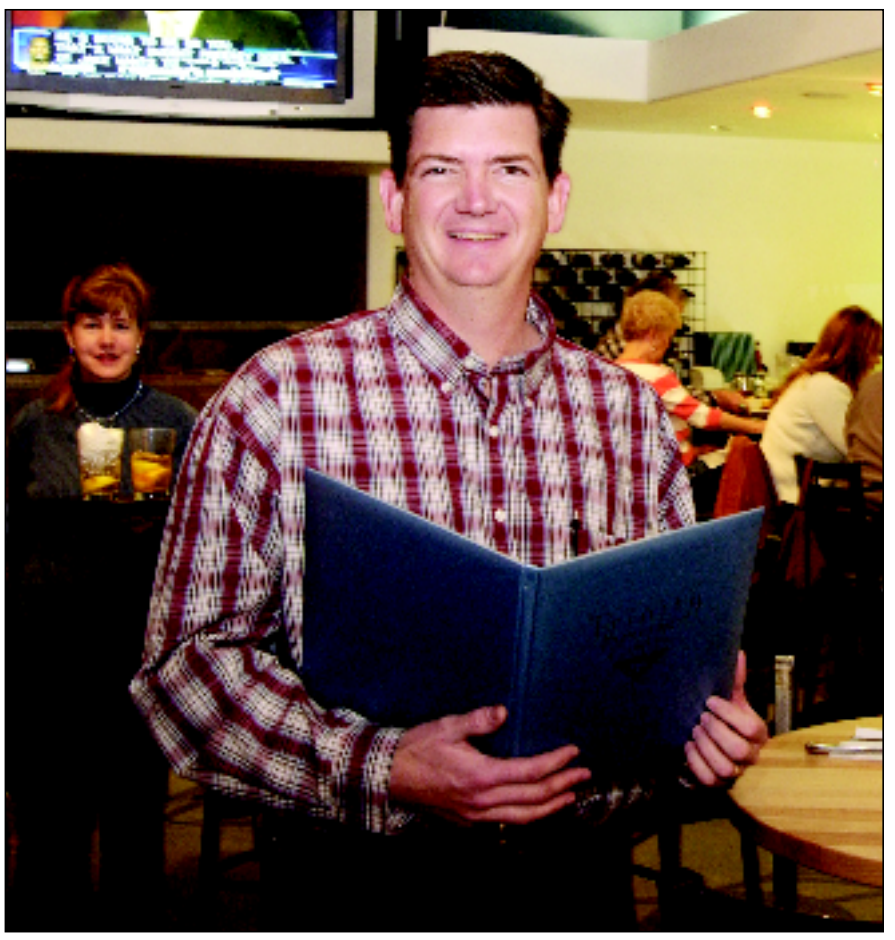
According to Selvage, the road to opening day, paved with obstructions and obstacles revolving around mountains of paperwork, intricate licensing requirements and the acquisition of a viable, available space was not an easy journey. He actually saw a need for a different type of restaurant/bar in Los Alamos in 1993, but it was not until a year ago that he noticed a liquor license was available. Even then, the realization of TBC still was uncertain.

"The biggest challenge was finding a space that was adequate and then addressing the cost of making the space look nice. We quit several times and picked back up, but we persevered through it all," said Selvage.

Selvage and his partners eventually decided upon conference room space in the back of the Los Alamos Inn. The transition from conference room to contemporary upscale establishment was difficult and complex, but according to Selvage, it was worth the effort.

"Having customers come up and say our restaurant reminds them of places they have seen in New York, Chicago and San Francisco represents a true victory for me," commented Selvage. "We are extremely pleased with the turnout — it has been much higher than expected. We are happy people in the town and at the Lab have come out to support us."

Acting as a manager on Sundays and during peak times — helping out wherever he is needed, including serving food, tending bar, and even scrubbing dishes — Selvage's excitement over TBC's success is well justified.



Ron Selvage of Technical Mission Support (LANSCE-10) is co-owner of one of Los Alamos' newest restaurants, Trinity Beverage Company. In the background is his wife, Kim. *Photo by LeRoy N. Sanchez*

"This has been a dream of mine for a long time. You know, the kind of unrealistic college dream that everybody has. I guess I just would not let it die," he said.

Maybe this is why, to his staff, Selvage is somewhat of a superhero — dubbed Batman by TBC employees for wearing his "utility belt," consisting of two dangling cells phones, a point of sale card and his Leatherman all-purpose knife.

"You do whatever it takes," he said.

However, Selvage said his true "powers" come from his supportive family, top-notch management, talented chef and dedicated partners.

His wife, Kim, who also teaches project management workshops that involve Lab employees, works one or two days a week as a manager at TBC, serving food when needed. His two young children Derek and Ruby also try to find ways to help their daddy.

"I couldn't have done it without them," Selvage exclaimed.

Trinity Beverage Company is located at 2201 Trinity Ave. in Los Alamos. More information, including hours of operation and the menu, can be found at *http://www.trinitybevco.com* online.

Photos courtesy of Trinity Beverage Company