

Sweet success

Protein crystallography experiment points to emerging promise of neutron analysis

If your soda pop tastes sweet, you likely have the protein D-xylose isomerase to thank. D-xylose isomerase is an enzyme that is used in the sweetener industry to catalyze the conversion of glucose to fructose through a process called hydrogen-atom transfer.

A mixture of glucose and fructose, in the form of high-fructose corn syrup, is a high-powered sweetening agent used as a sugar replacement. The enzyme most commonly used for the production of the sweetener is D-xylose isomerase. Recent experiments in protein crystallography by ORNL researchers Gerry Bunick and Leif Hanson of the Life Sciences Division have paved the way for scientists to learn exactly how that sugary transformation works.



Bunick

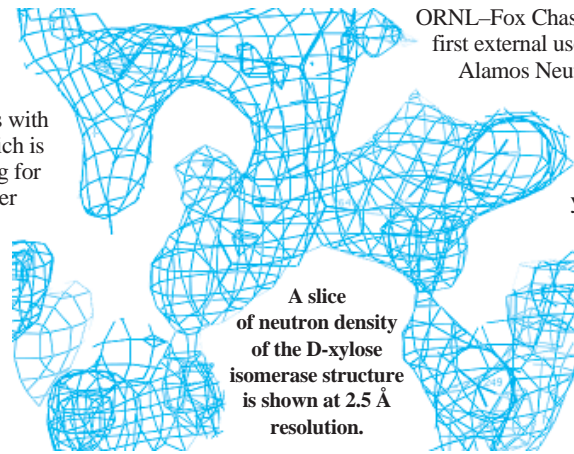
It's not simply to create a more corn-syrupy world: Better understanding of that particular hydrogen-atom transfer process could lead to improved and better targeted medicines and advances in nanotechnology.

Gerry, Leif and their partners at Philadelphia's Fox Chase Cancer Center are

also breaking ground by performing their analyses with neutrons, which is demonstrating for DOE and other potential sponsors how well the Spallation Neutron Source will be suited for macromolecular structure and function studies.

"These types of crystallography experiments have typically been done with X-ray diffraction, which damages the crystal," Gerry says. "In the case of light elements such as hydrogen, X-rays diffract very weakly. What we were able to do with neutron beams in comparison exceeded everyone's expectations."

Thermal neutrons, which do not damage the samples, also have the advantage of diffracting equally from light and heavy elements. The



A slice of neutron density of the D-xylose isomerase structure is shown at 2.5 Å resolution.

ORNL-Fox Chase research team, the first external users of the Los Alamos Neutron Science

Center's Protein Crystallography Station, began experiments last year to hone neutron diffraction techniques aimed at solving the important unknowns involving D-xylose isomerase and similar proteins. The chief

mystery with D-xylose isomerase is where the hydrogen atoms are located in the active site of the molecular structure. (The D is for deuterium—hydrogen with a neutron.) Through previous X-ray diffraction studies, including at Argonne National Laboratory's Advanced Photon Source, researchers know where the heavier elements in the enzyme sit in the molecular structure. However, half the atoms in the D-xylose isomerase molecule are hydrogen, so researchers must find a way to

(See SWEET, page 4)

Benefits' goal: Address the needs across the Laboratory

BY KATHRYN COGAR

ORNL Employee Benefits has taken on a number of challenges aimed toward increasing the value of the Lab's benefit plan in a time of steeply rising costs. They are heavily engaged in an ambitious plan—largely driven by employee needs and concerns expressed in the quality of work-life survey and numerous focus groups and forums across the Lab—to increase benefit choices available to employees.

"Our goal is to enhance benefit value for the staff and aggressively manage employee and Lab benefit costs," Darryl Boykins, director of Human Resources and Diversity Programs, says. "Understanding the needs of plan participants is central to our achieving this goal."

Rising costs associated with benefits both for employees and for UT-Battelle are an ongoing concern, with a growing sense of urgency. UT-Battelle faces the challenge of

holding the line on costs for both the employee and UT-Battelle. Factor into the mix the need to provide a robust benefits package and you begin to glimpse the complexity of the task.

This article provides an overview of activities to date and what may be coming.

Enhanced Vacation Policy

Benefits jump-started the calendar year with several enhancements to the vacation policy. Effective Jan. 1, 2003, vacation accrual increased to three weeks for salaried staff with less than five years of company service and for all new hires. In addition, the borrowing, banking and accrual waiting periods were eliminated. (See the table, page 6.)

Benefits Manager Mark Wagner says, "We are seeing a regional and national trend to provide three weeks of vacation on the front end. The changes were made to ensure our vacation benefit remains competitive with other companies nationally and in our region.

Equally important, these changes address quality of work-life issues for our staff." For more details, see the Vacation Policy 2003 feature (home.ornl.gov/~bnp/VacationUpdates.shtml) on the ORNL Employee Benefits page, home.ornl.gov/~bnp/.

BENEFITS ADMINISTRATION TRANSITION ACTIVITIES

Workers' Compensation

ORNL has been making headway in transitioning Benefits activities from BWXT Y-12 to ORNL. In January 2003 ORNL took over the management of all Workers' Compensation cases. Scott McIntyre and Heidi Fritch are now coordinating all activities. This has been a seamless, almost invisible switch with no impact on employees.

(See BENEFITS, page 6)

Blooming volunteers

Got a cause? Team UT-Battelle projects pop up like spring daffodils

ORNL employees do much to live up to Tennessee's designation as the Volunteer State. Working under the umbrella of Team UT-Battelle, employees have the opportunity to share information about upcoming drives or other activities in which they are involved and to solicit volunteers for these activities from across the Lab.

Spring is a busy season for all kinds of volunteer activities. A number of activities—from runs to relays to lakeshore cleanups—have popped up like daffodils.

For example, on March 30, volunteers helped set up for the Tennessee Archery Pro-Am Challenge, a huge sporting event for the area. Then on April 5, volunteers for the River Rescue picked up trash along the Melton Hill Lake shore. A "Share Your

Recipes" project, sponsored on behalf of this year's United Way effort, has been collecting recipes from both current employees and retirees, which will be published in a cookbook that will be on sale later this year. The proceeds of the cookbook sales will go to the United Way (see page 7).

Also beginning on April 5 and continuing for five consecutive Saturdays, Team UT-Battelle and the Atomic Trades and Labor Council are partnering to build a Habitat for Humanity House in Morgan County. This house is being built for a young family who lost their home in the tornado last November. UT-Battelle is helping the effort with a corporate contribution of \$15,000.

In addition to the skilled ATLC workers,

about 20 volunteers each Saturday are tackling other jobs associated with the build. Those unable to work as carpenters on the project but who still want to help are providing lunch and other refreshments.

Still to come, the *Tour de Cure* bike-a-thon, which provides support to the American Diabetes Association, is looking for bike riders to participate in a ride of up to 150 miles, with a minimum of \$150 raised in pledges. Event planners say this is a ride, not a race; cyclists of all abilities are welcome to join the tour on May 31 through June 1. If you're interested in participating, contact Tim Jones (jones@ornl.gov) or Bruce Siefken (siefkenbf@ornl.gov).

Anderson County East Relay For Life is inviting folks to feel "the power of purple." They're raising money for the American Cancer Society, to help provide financial support for the Society's efforts to find a cancer cure. As part of this May 9 event, Team UT-Battelle is inviting all co-workers, family and friends who have survived cancer to participate in the opening ceremony at 6 p.m. Send the invitee's name and address to Kathie Shearer (shearerkc@ornl.gov), Building 1000, MS 6446. If you would like to join the fun this year, contact Brenda Hackworth (hackworthbt@ornl.gov), 241-7249; Scott Branham (branhams@ornl.gov), 241-7614; Debbie Mann (manndu@ornl.gov), 574-6052; or Kaye Johnson (johnsonek@ornl.gov), 576-0846.

A team is also being formed to participate in

the Walk To Cure Diabetes, a fund-raising event for the Juvenile Diabetes Research Foundation. This year's JDRF Walk event will be held on Saturday morning, May 17, beginning at 9 a.m. This will be the fifth year ORNL has had a team in the walk, which will be held at Knoxville's Volunteer Landing. The funds raised by the Juvenile Diabetes Research Foundation support research and educational programs that give children with diabetes a chance at life without insulin injections, blood tests, restricted diets and a shortened life expectancy. For more information, call Deborah Jenkins, 574-8287, or e-mail jenkinsdk@ornl.gov.

Leading up to the Walk, "The Other Guys," a co-ed softball team, are looking to make it three in a row when they take on the Leadership Team in a fiercely competitive softball game in early May. They're inviting others at the Lab to join them in this battle against "those folks who determine your fate," as one organizer put it.

Team UT-Battelle is an employee-driven, coordinated, volunteer community service organization that comprises Lab staff, family members and retirees working to assist area communities. The Team UT-B board facilitates these projects by offering advice, consultation and organizational support toward getting the projects and initiatives off the ground.—Deborah Barnes [ornl](#)



TEAM
UT-BATTELLE

ORNL people

Eleven ORNL inventors have been designated "distinguished inventors" by Battelle for having to their credit 14 or more patents. A total of 29 inventors at Battelle and Battelle-managed institutions were honored; Battelle President and CEO Carl Kohrt hosted them at the March 26 dedication in Columbus, Ohio. ORNL's honorees are **Tuan Vo-Dinh, Amit Goyal, Donald M. Kroeger, Vinod K. Sikka, J. Michael Ramsey, Chain Tsuan Liu, Terry N. Tieg, Rodney A. McKee, Thomas George Thundat, Timothy D. Burchell and Mariappan Parans Paranthaman.**

A longtime ORNL physics booster has been honored by China for research collaborations. **Joseph H. Hamilton**, Landon C. Garland Distinguished Professor of Physics at Vanderbilt University and director of ORNL's Joint Institute for Heavy Ion Research, has received the 2002 National Prize of International Scientific and Technological Collaborations of China. Hamilton, who is also ORNL's first Visiting Distinguished Laboratory Fellow, was a guiding force in creating the joint institute in the 1970s.



Curtis Boles

Laura Chavez-Becker and Tom Willoughby of the Computing and Web Technologies Division get their piece of the pie, with ice cream, on March 11 as ORNL celebrated two million hours without a lost workday injury.

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Lab Notes

Perfecting power on the grid

ORNL and a host of visiting officials dedicated the National Transmission Technology Research Center on March 25. The center will eventually consist of four test facilities on the ORR; one of them, the Powerline Conductor Accelerated Testing facility, which *ORNL Reporter* covered in issue #40, is already established just down the way from ORNL on Old Bethel Valley Road.

The NTTRC is a DOE and industry partnership to advance power transmission technology. With an aging infrastructure and growing power demand, transmission is viewed as a weak link in the nation's power grid. Establishing new power lines is becoming less feasible economically and politically—more power must flow on existing rights of way. Technologies developed and tested at the NTTRC will help the United States ensure the security of its grid and also reclaim leadership in a technology that, like many others, has stiff competition overseas.

The nascent facility has already charted a "first." The Engineering S&T Division's Tom Rzy says that two conductor splices installed at the PCAT site were the first field splices of a composite overhead conductor, according to 3M's Herve Deve and Joaquin Delgado.

The NTTRC's key partners with ORNL are 3M, the Tennessee Valley Authority, Alcoa, PLP, Nexxans, Wire Rope Industries, Neetrak, the Western Area Power Administration, the Electric Power Research Institute and the Power Electronics Applications Center.

State's First Lady gets involved

Being First Lady carries with it certain responsibilities, one might assume. Andrea Conte, wife of

Tennessee Gov. Phil Bredesen, assumes the job apparently with plenty already. Conte came to ORNL on March 13 to top a full slate of Women's History Month activities.

As founder of You Have the Power; Know How To Use It,



First Lady Andrea Conte addressed a Women's History Month crowd.

Curtis Boles

Oak Ridge National Laboratory

Inc., a not-for-profit agency dedicated to raising awareness of crime and justice issues, Conte speaks from experience when she says, "Getting involved is easy; the hard part is making your involvement count for something." First

Lady is a job that comes with no description. Nevertheless, Conte has wasted little time in writing herself one.

Her first priority, she says, is children.

Child Advocacy Centers are being established in the state. There are currently 21 centers across the state, with three more planned.

Her second priority is to restore the state's criminal injury compensation fund, which was emptied last year during the state's fiscal crisis. Conte again speaks from experience: She escaped an abduction attempt years ago. When the perpetrator was later caught after murdering someone, Conte found the criminal justice system "appalling."

Her third project is to restore the governor's mansion, which needs renovation to its infrastructure. The Bredesens, who already were Nashville residents, will seek private funds for that project.

Also on ORNL's Women's History Month slate were talks by ORNL's Will Minter on women of the Wild West and by Steve Stow and Hanford Historian Michele Gerber on women involved in the Manhattan Project.

Copper Ridge's monumental mystery

Until 60 years ago the Oak Ridge Reservation was populated with farms, schools and churches, some of them in very out-of-the-way places. Of the more interesting remnants of those communities are several grave houses—structures built around particular graves in cemeteries, usually of children. They are unusual to the area, and Bill Alexander, a recent retiree, has always been interested in them.

One grave house in particular is a log structure—the only grave house made of logs on the ORR—that sits on top of Copper Ridge above the Tower Shielding Facility. It wasn't known who was buried under the decaying structure, but Bill thought he had found a clue when another Lab retiree, Bill Shinpaugh, told him he thought he knew the family.

Two brothers from that family and former residents of the Gravel Hill community, Paul and James Nelson, were recently driven up to the log grave house. Alas, they didn't recognize much about the grave house, which is much deteriorated, or the area, which has been changed by road cuts and vegetation. The TSF's huge towers now sprout out of the adjacent valley like two giant beanstalks. However,



Jim Richmond

Paul Nelson (left) and ORNL retiree Bill Shinpaugh examine the ORO's unique log grave house.

many paths and building foundations can be seen near the grave house—it's evident that flat spot on top of the ridge was once a considerable settlement.

Bill Alexander would like to restore the log grave house, which is slowly but surely returning to the soil, and others on the ORR. "They symbolize the rich history of Oak Ridge," he says. "There is some good work to be done here."

Engineers develop crush on TMAC

ORNL is helping the automobile industry create safer cars. The National Transportation Research Center's new integrated physical and virtual test machine for automotive crashworthiness—the only machine of its kind in the world—will provide critical crash data not currently obtainable.

The "TMAC" enables automotive engineers to provide more accurate materials performance data obtained from progressive crush tests, which are then used to improve the simulations used in the design of crash energy management structures. TMAC can also assist the military, NASA or other customers with structural material testing needs.

The TMAC's crushing mechanism can reach a speed of 18 mph and sustain forces of up to more than 60,000 pounds over approximately 10 inches of crush length. Specification and procurement of TMAC was a collaborative effort between ORNL and the Automotive Composites Consortium.

Working on the project from ORNL's Polymer Matrix Composites group in the Metals and Ceramics Division are Ray Boeman, Mike Starbuck, Don Erdman and Rick Battiste of M&C's Mechanical Characterization and Analysis group.

Reported by Bill Cabbage and Fred Strohn

TWIXt bench & battlefield

At ORNL people impress the most, says NSD's visiting Army officer

Despite all of the technology he's been exposed to during his seven months at ORNL, it is the researchers who have impressed visiting U.S. Army Maj. John Grimes the most.

He describes "very large brains" and "very superior efforts."

"Technologies like the infrared lamp and the manufacturing technologies have much potential, but the people are the real strength here," John says. "I've been very appreciative of their focus and helpfulness, especially as a nonscientist."

Soldiers involved in the latest overseas conflict are no doubt appreciative of the technologies they have at their disposal.

Although not the first military officer to do a stint at ORNL, Maj. Grimes is the first national laboratory assignee from a U.S. Army program called Training With Industry. John's degree is in industrial management (he also has a master's degree in human relations and a graduate certificate in technical program management). He describes the TWI program as a "cross pollination" of military ways with current practices in industry, where many of the military's technologies and weapons originate or are manufactured.

"TWI farms out officers each year into industry to learn current business practices and bring them back into the Army," he says.

"This is the first time the Army has done it with a national lab, so in a way I'm trailblazing."

The major is doing his "tour of duty," as the service calls such endeavors, assigned to the Lab's National Security Directorate. If the



Maj. John Grimes with his 759th Ordnance Company insignia.

TWI program with the NSD continues, the Army will send an officer each year for a tour that lasts from September until June.

John says his assignment is turning out to be as intensive in business development as it is in program management. As an acquisition

corps officer, John is studying the life-cycle management of weapons systems, taking mission needs into consideration from conception to deployment. ORNL, of course, would be on the early end of that cycle, even as early as the basic research stage.

"The Army has S&T too, but one advantage here is that I'm exposed to the basic research end, which I would not necessarily see in the military, even in its S&T community," John says.

The Medina, New York, native has put in 13 years with the Army. His assignment at ORNL, which began last September, is up in July. At some future date he'll do a "utilization tour"—a three-year assignment that could again be at a research facility. But he has no idea yet just where.

"You have a lot of homes when you're in the service," he says, adding that his next assignment will be the Army's Command and General Staff College at Fort Leavenworth, Kansas.

John's major deliverable from his ORNL tour is his monograph, or research project. It focuses on overcoming Army challenges with advancing basic research to functioning systems on the battlefield. "I just began this research, and any ideas from the ORNL populace would be helpful," John says. Contact him at 574-8798, grimesjh.—B.C. [oml](#)

Sweet

Continued from page 1

determine their exact atomic positions to understand the enzyme's structure and function.

"We've just calculated the first neutron-density map of the structure we analyzed at Los Alamos," Gerry says. "We've processed that data and can actually see how the atoms have diffracted. With X-rays we would hardly pick up hydrogen, but the neutrons see hydrogen and deuterium atoms as well as other, heavier atoms."

An article published late last year by Los Alamos National Laboratory noted that the experiments at Los Alamos, even before the analysis, exceeded expectations, with quality nearly equaling the best ultra-high-resolution X-ray data. Gerry believes the early success will lead to more neutron analysis of

protein crystal structures, particularly at the SNS.

"We're very excited now that we have these first neutron density maps," he says of the seed-money program. "Xylose isomerase is the largest protein that has been analyzed at

high resolution by neutron diffraction."

The research is being done in response to a request from DOE's Office of Biological and Environmental Research to provide clear evidence of neutron diffraction's applicability to macromolecular structure and function research, with an eye toward developing instruments and methods for similar work at the SNS.

The Fox Chase team is interested in the roles of magnesium and water in the function of the enzyme—knowing where the hydrogens are located is a key to understanding those processes. That knowledge will be useful in working with magnesium-containing

enzymes that are important to cancer research.

The research at Los Alamos made the cover of the Winter 2002 issue of the *American Crystallographic Association Newsletter*. Gerry has also been a long-time collaborator with NASA in protein crystal research, including having several experiments performed in space.—B.C. [oml](#)

Pioneering researcher, Henri Levy, dies at 89

Henri Levy, 89, retired ORNL scientist whose work went back to the Manhattan Project, died March 25 in Oak Ridge. Co-workers recall that Henri helped pioneer neutron crystallography and did some of the earliest condensed-matter studies of sugar and single crystals of ice. He also helped pioneer studies of hydrogen-containing crystals and the use of computers in crystallography.

"Levy and his group developed computer programs for the analysis of both X-ray and neutron diffraction data. This work and the instruments that were developed have had a profound effect on the way large molecules are studied today by crystallographers around the world," says Levy's former co-worker William Busing, an ORNL retiree.—Reported by Phil King [oml](#)



Gerry Bunick and Leif Hanson's work at Los Alamos made the cover of the Winter 2002 issue of the *American Crystallographic Association Newsletter*.

Back in the bead business

Revived interest in nuclear fuels leads Lab to dust off sol-gel microsphere process

The Nuclear S&T Division's Jack Collins thought he might have made the last of his uranium "kernels" years ago, as the nuclear industry entered a fallow period and nuclear-fuel projects dwindled away. Now, however, as interest in nuclear power fitfully reawakens, Jack is firing up the uranium sol-gel production process after more than a decade, making uranium microspheres in a process that could eventually fuel tomorrow's advanced gas-cooled nuclear reactors.

"They don't make 'em like they used to" doesn't apply here.

"No one has done work like this since the 1980s," Jack says. "Everyone pretty much got out of the nuclear business of making spheroidal fuel. Now we're getting back in."

Researchers in the old Chemical Technology Division once turned out the tiny little kernels—they are more like beads in that they are almost perfectly spherical—by the millions. In the process, a uranyl nitrate solution is precipitated into solid gel spheres. After drying, the gel spheres are moved to the Metals and Ceramics Division, where they are sintered and coated. After the M&C Division's coating development work is complete, tentative plans are to change over to making enriched uranium microspheres that could be used in an advanced reactor, such as a pebble-bed reactor.

Jack's work is part of the Advanced Fuel Cycle program, which aims to re-establish ORNL's fuel-particle fabrication capability. Following more than a decade of doing other things, Jack is dusting off his notebooks and training a younger chemist in the art and science of the internal gelation process.

After 48 runs since beginning last fall, Jack and his colleague, Rodney Hunt, can turn out

enough gel-spheres in their small lab-scale batch process to yield around 150 grams a day. ORNL's old facility, which was located in Building 3503, could turn out the beads by the bucketsful—at a rate of a kilogram an hour, working around the clock.

"Most of the optimum chemical and operating process parameters were determined and defined years ago," Jack says. "We did

extensive work with uranium, plutonium, thorium and mixed-oxide fuels, and learned how to make perfect beads of each of these materials."

For the coated fuel work, the spheres must be perfectly round because the coatings of carbon and silicon carbide layers magnify imperfections. The air-dried beads themselves are tiny,

starting out at just 1,000 microns or smaller, which shrink to half that size after sintering.

Jack and Rodney are producing the depleted-uranium beads. Rick Lowden, Jerry McLaughlin, and Joe Kelly in the M&C Division are "re-perfecting" the coating process using a fluidized-bed chemical vapor deposition reactor.

Rick says the project has also brought him back to nuclear fuels, which had been the cornerstone R&D activities for his group when he joined ORNL almost 20 years ago. "We've been tasked to re-establish nuclear particle fuel R&D capabilities in the United States," he says. "One of the first jobs I had when I came to ORNL was to reconfigure the particle coating furnaces to make ceramic composites, and now we are making particles again—so I've been full circle."

Rick and the others work on the coatings in the High Temperature Materials Laboratory and a new coating facility in Building 4508. Jack's "factory," which produces the microspheres that "feed" Rick's work, is located in a lab in Building 4501.

"The coatings keep the fission products contained inside the kernel," Jack says. "The finished-product spheres are put in a graphite block, which is then inserted to fuel the reactor."

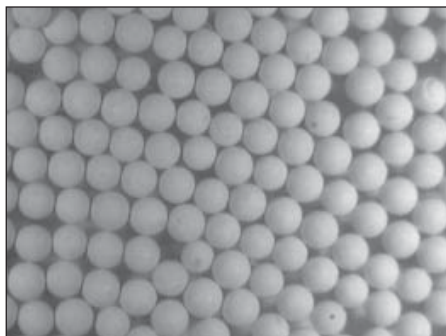
In the bead-making process, the acid-deficient uranyl nitrate is chilled, combined with a chilled hexamethylenetetramine and urea

solution and dispatched to an injector system, which delivers uniform droplets of the chilled broth into a veil of hot silicon oil. As the clear yellow droplets are transported by the flowing oil through a forming column, they precipitate into solid, perfect yellow spheres within three to four seconds. Exiting the forming column, the gel spheres travel through a few yards of plastic tubing and are collected in a stainless steel wire-mesh basket.

The whole apparatus, with its progression through yards of tubing and its plummet down the cascade of oil, resembles the fancy 25-cent gumball machines at the mall—except in this case what comes out is nuclear reactor fuel.

Jack says the plan is to change, at some point, from depleted uranium to enriched uranium, which he says is chemically identical as far as the process is concerned. He and Rodney have honed the process since last fall to the point where its efficiency in producing spheres of a desired size is in the 80- to 95-percent range.

"We've done this for years," Jack says. "We believe that we can make beads with this process better than anybody in the world. In addition to making nuclear reactor fuels, we've developed the process over the years to make numerous spheroidal inorganic sorbents to treat radioactive wastes and to encapsulate radioactive waste as a waste form. So they've



The tiny spheres produced in the Nuclear S&T Division lab come in sizes 1000 microns or smaller.

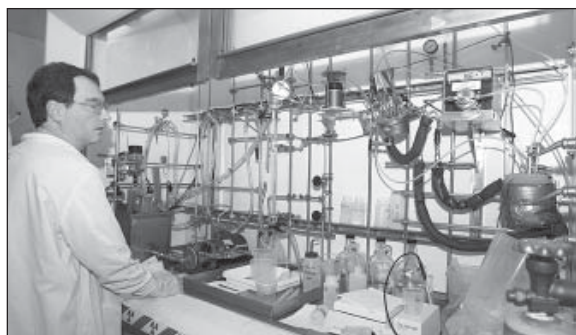
The apparatus resembles a fancy gumball machine, except what will come out is nuclear fuel.

been used on both ends of the nuclear spectrum, from fuel production to waste treatment."

Jack says that despite what's written down in the books, there is enough art involved in beadmaking to make hands-on experience a valuable part of the process. With retirement plans about a year or two away and the possibility of larger-scale production of the spheres on the horizon, he's reassured to have Rodney learning the ropes with him.

"Sol-gel Jack," a title given to him by the many students that worked for him in the early nineties, is also tickled to resurrect the process and to share the science and art of bead making with others. He lists some of the other researchers who perfected the process decades ago: Milt Lloyd, Sam Shell, Paul Haas, Vic Fowler, Dave Williams, Roger Spence, Barry Spencer, Walt Bond, Al Ryon, John Begovich, Sharon Robinson and others. Half of these researchers are retired or deceased.

Jack points to the patterns in a pan full of drying microspheres: "I can almost see those guys smiling in there."—B.C. [ornl](#)



The Nuclear S&T Division's Rodney Hunt is keeping the flame for the microsphere process.

Curtis Boles

Benefits

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Disability Management

One of the more complex transition projects involves bringing over the administration of short-term and long-term disability and Family Medical Leave (FML). July 1 is the target date for initial transition. As part of the transition to ORNL, Benefits' Cindy Spence is conducting a major review of short-term disability, long-term disability, FML, and leaves of absence plan design and administration to identify potential changes between our current plans and where our plans should be. She states, "The goals of the review are to identify changes that result in a plan that

- provides an adequate level of income security,
- achieves cost savings,
- promotes efficiency of administration,
- is easy for employees to understand,
- minimizes abuse,
- encourages employees to return to work and
- complies with the law."

Integrating the management of these plans is one of the options under consideration. UT-Battelle has retained Buck Consultants to recommend a provider of integrated disability management and to assist in consolidating the disability benefits program. They will be working very closely with Becky Parks, the Benefits SAP functional lead, to coordinate all systems changes.

Medical Plan

UT-Battelle's overall goal for the medical plan is to enhance its value by providing a range of choices for participants. Success largely hinges on our ability to control costs, which are rising nationwide. In response to the rising costs of medical benefits, UT-Battelle has retained Buck Consultants to conduct an extensive review to assess cost, utilization, plan design, efficiency and competitiveness of our current medical plans and to coordinate a request-for-proposal process for new medical plan providers. Any changes in medical plans would not come on-line until January 2004. Possible selection of new providers is scheduled for July and August, to allow time for transition and communicating changes to employees in time for open enrollment in the fall.

Wellness and Disease Management

Benefits has formed a new Wellness Task Force with participants from Medical Services, Industrial Hygiene and Safety and other stakeholders across the Lab as part of a Lab-wide effort to explore options for coordinating a comprehensive, integrated wellness program.

Sally Jaunsen, manager of Health and Welfare Plans notes, "Preventing disease and promoting improved health behavior can help

employees lead healthier, longer and more productive lives. Program goals are to involve all employees, deal with all major health risks, offer choices, target both employees and the worksite environment, and provide for periodic evaluation of results."

A key component is often called a Disease Management Program, focused on known risk areas such as diabetes, hypertension and cardiovascular disease. As part of the medical-plan RFP process, Benefits will be assessing potential Disease Management Program providers.

Savings Plan

At its most recent meeting, held Feb. 19-20, 2003, the Joint Retirement and Savings Plan Committee approved the addition of a small cap value fund to the Savings Plan investment options. The Goldman Sachs Small Cap Value Fund is scheduled to go "live" in June. CitiStreet is developing a communication plan to introduce the new fund to all plan participants.

Voluntary Benefits

In early summer Benefits will initiate a review of voluntary benefits, such as legal services, financial services and homeowners and automobile insurance. Although employees bear 100 percent of the premium cost, they typically receive the benefit of paying group rates and the convenience of payroll deduction. Benefits staff will be assessing the level of interest among employees and reviewing programs and vendors. Any new program will most likely go into effect in January 2004, with enrollment taking place as part of the Open Enrollment period in October.

Phased Retirement

The purpose of a phased retirement program is to retain critical skills and knowledge within the Laboratory. There has been and continues to be much discussion about the needs of the Lab and the most appropriate program design. Do we need post-retirement employment practices to assist in retaining key skills, or is the need for part-time employment practices to

help staff "phase" into retirement?

Metals and Ceramics Division Director Everett Bloom is leading a focus group to understand the needs of the Lab and what changes, if any, are needed in our retirement program to accommodate a pre- or post-retirement option. Changes in the pension program are governed by many constraints, including IRS regulations, system requirements and potentially many legal issues as well. Implementing a pre- or post-retirement option will be a complicated process that will take many months to work through.

HIPAA

The Health Insurance Portability and Accountability Act of 1996 has received a lot of attention in the health-care industry; employees are starting to receive notices concerning their privacy rights. Originally called the Kennedy/Kassebaum bill, HIPAA is a reform bill that protects health insurance coverage for workers and their families when they change or lose their jobs. HIPAA also has a focus on administrative simplification that is designed to improve the efficiency, effectiveness and security of the healthcare industry. A major component of HIPAA is the Privacy Rule, which deals with access to medical records and other health information to protect confidentiality.

The implementation date for compliance with the privacy requirement is April 14, 2003. Benefits has been working with all our providers to ensure that our plans are HIPAA compliant. Due to HIPAA compliance requirements, on April 7, 2003, CIGNA Healthcare will be implementing a new verification process for all calls going through their Interactive Voice Response (IVR)/Voice Response Unit (VRU). Callers will be asked to input the following information.

- Subscriber ID number
- Caller date of birth
- Member date of birth
- Subscriber ZIP code

Information will be matched against their eligibility system and the call will be routed appropriately.

(See **BENEFITS**, page 7)

Enhanced Vacation Policy

Plan feature	Old policy	New, Jan. 1, 2003
Accrue 3 weeks	5 years' service	Date of hire
Banking	5- and 10 -year wait, then 40 or 80 hours maximum per year	No waiting, may bank up to the 200 or 240 hour maximum
Banking maximum	200 or 240 hours based on vacation schedule	No change
Vacation borrowing	6 month wait	Date of hire
Accrual begins	15 th of month rule	Date of hire
Vacation deferral	6 months after end of calendar year	No change

Benefits

Continued from page 6

Employees will be receiving updates to the Books of Benefits that include the new HIPAA provisions. For more information about HIPAA, see the fact sheet www.hhs.gov/news/press/2002pres/hipaa.html, developed by the U.S. Dept. of Health & Human Services, www.cms.gov/hipaa.

Benefits Communications Program

Benefits continues to place a strong emphasis on the importance of communicating effectively with employees. They have launched a Web reconstruction project that will result in a complete redesign of the Benefits Web pages. HR&DP Director Darryl Boykins has expanded the project to include all of the HR&DP Web site. Kathryn Cogar, project lead says, "Interim upgrades have already been made to the Benefits home page. Expect to see dramatic improvements in HR's look, organization and usability in the months ahead."

To keep employees informed on the status of the many programs and initiatives under development, Benefits will provide updates on an ongoing basis. In addition to providing information on the Benefits home page, *ORNL Today* and *ORNL Reporter*, Benefits staff are available to Make presentations at staff meetings and brown bags across the Lab. To schedule a session, contact Gail Moore at 574-7474.

Benefits will continue to develop features, articles and announcements on benefit-related areas of interest. These will be announced in *ORNL Today* and posted on the Benefits web site. Based on last year's success, the Benefits Fair will be held again this fall, in conjunction with the open enrollment period.

Feedback

With so much going on, employees are sure to have questions about activities and anticipated changes. ORNL Employee Benefits encourages you to contact them at 574-7474, or by e-mail at ornlbenefits. As mentioned earlier, they will keep you updated with status reports throughout the year. Look for further announcements on the Benefits Web page, *ORNL Today* and *ORNL Reporter*. [oml](#)

LM stock investment option ends on April 30

On April 30, 2003, the Lockheed Martin Stock Fund will be eliminated as an investment option in the Savings Program. If you have a balance in the Lockheed Martin Stock Fund, call OneCall, 574-1500, for more information regarding the options available to you.

Silent auction, cookbook project give United Way drive early start

This year's ORNL United Way campaign, chaired by Greg Turner, is getting off to an early start with several spring activities. Items are now being collected for another silent auction—a follow-up to last year's event, which brought in some \$2,000 for UW coffers.

"The silent auction was a very popular activity in the 2002 campaign," says Carol Leffew, who is helping to coordinate the event. "We're starting the collection of items earlier, so the 2003 auction should be even bigger and better."

Last year's most sought-after items included an autographed jersey and baseball from Todd Helton, a state flag that had flown over the capitol in Nashville and 12 cubic feet of mulch "delivered and spread" by a group of Business and Information Services employees.

If you would like to submit an item for the

auction, contact Carol at 574-5982 or leffewcj. Submission deadline is May 30, but Carol would like to get items as quickly as possible so that they can be photographed for display on the United Way home page.

Work continues on the 60th Anniversary collection of recipes from current and retired employees. These cookbooks will be available to sell later in the year, with all proceeds going to United Way.

The deadline for recipes for employees with Web access has passed (recipes were submitted with an electronic form that took much of the labor out of the process). However, retirees and those who wish to submit a recipe but do not have Web access may send a legibly handwritten copy to Carol Leffew, MS-6262, Building 4500-North. Include your name, category under which the recipe falls (e.g., the appetizer, main dish, dessert), list of ingredients and directions for preparation. Project volunteers will type in your recipe for you.

Recipes should be submitted by April 30. Questions can be directed to Carol at the number above.—*Cindy Lundy* [oml](#)



Letters

Trash to treasure

Former AEC Director Dixy Lee Ray many years ago suggested that perhaps "nuclear waste" might, many times, be better considered as a "nuclear resource." A fantastic example of the resource nature of "stored nuclear material" was a front page article in the *ORNL Reporter*, issue #46, March 2003. The very useful medical isotope, Bi-213, is a direct descendent of ORNL-stored U-233. A better headline for this article might have been, "Lifesaving Resource." Thanks for discussing the status and potential of Bi-213.

Jack Young, Guest Scientist

New Staff Members

ORNL is growing. This new feature lists new employees at the Lab. Welcome all.

Thomas Maier (Wigner Fellow), Computer Science & Mathematics
William Manuel, Laboratory Protection
George Ehlers, Spallation Neutron Source
Kevin Blackwell, Facilities & Operations
Jane Howe, Metals & Ceramics
Yury Osetskiy, CMSD
Forrest Spears, Engineering
Wilma Stewart, Logistical Services
Sheng Peng, SNS
Brent Albertsen, Operational Safety Services
Michael Baker, Research Reactors

Service Anniversaries

April

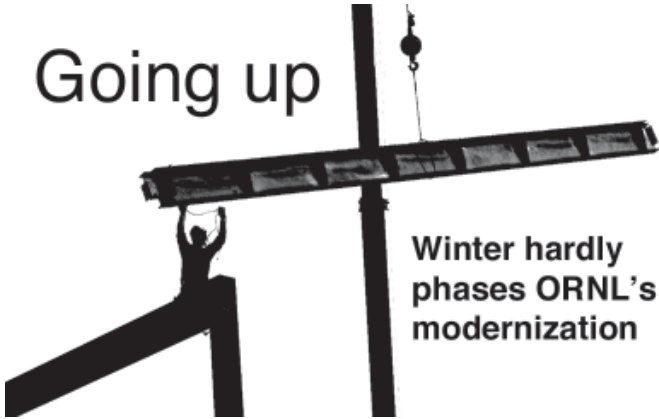
35 years: Pat M. Love, Engineering Science & Technology

30 years: W. H. Brooks and Don L. Rhodes, Craft Resources; Rick J. Forbes, Infrastructure Planning; James J. Jernigan, Networking & Computing Technologies

25 years: Bruce C. Cranmore, Luke L. Jackson, Vickie G. Langley and Clarence L. Young, Craft Resources; Norberto Domingo, C. K. Rice, John P. Stovall and Robert J. Warmack, Engineering Science & Technology; Norty Payne, Fabrication & Site Services; W. K. Roy, Environmental Sciences; Darrell W. Simmons, Nuclear Science & Technology; Karen P. Simonson, Metals & Ceramics

20 years: Thomas M. Alderson, Laboratory Protection; Jim Blencoe, Chemical Sciences; Felix C. Difilippo, Nuclear Science & Technology; Marion F. Henry, Jr., Networking & Computing Technologies; Sheria W. Johnson, HR & Diversity Programs Directorate; C. G. Lewis, Audit & Management Advisory Services; Doug Smelcer, Networking & Computing Technologies

Going up



Winter hardly phases ORNL's modernization



ORNL's new facilities continue to take shape. The privately funded facilities' "main street" is shown above. At left is the new Mouse House on the campus's west side. Below is the framework for the Spallation Neutron Source's administration building on Chestnut Ridge. Below left, electricians wire the SNS site.



Photos by Jim Richmond



ornl reporter

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