

New project takes aim at heart of air quality, health issue

A study by ORNL and partners might help explain whether there is a relationship between inhalation of small particles, reduced heart rate variability and death.

While there is evidence to suggest that breathing air containing particulate matter can cause problems for people with decreased heart rate variability, no one has done a definitive study to examine whether there is a direct link between the two. Roger Jenkins of the Chemical Sciences Division hopes to address the situation with a two-year study involving 40 participants who will be exposed to three commonly encountered indoor air pollutants.

"Understanding the relationship between heart rate variability and particle exposure could help explain increased mortality associated with inhalation of small particles," Jenkins said. "We hope this will be a first step toward learning how heart rate variability changes as we move through many environments during the course of a day."

Heart rate variability refers to the beat-to-beat alterations in heart rate on a micro-second time scale. As people age, this micro-chaos tends to diminish, and there is evidence linking this condition to sudden

death for people who have had previous heart attacks.

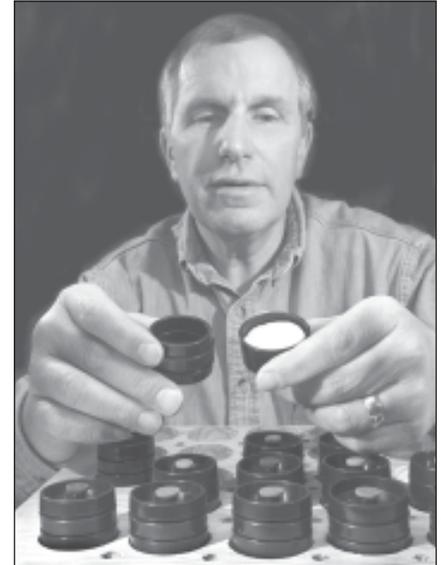
The study by ORNL and the University of Kentucky will address what Jenkins describes as a major flaw in previous studies that typically measure outdoor particulate concentrations. Most people, however, spend the majority of their time indoors, Jenkins noted.

"The big challenge — and the only way to get a real handle on the problem — is to simultaneously measure heart rate variability, respiration and particulate concentrations," said Jenkins, who has published several papers about real-world exposures to environmental tobacco smoke.

While ORNL has vast experience in sampling and studying exposures to environmental tobacco smoke, researchers at the University of Kentucky's Center for Biomedical Engineering provide expertise in the cardio-respiratory interface and measurement techniques.

Researchers will expose subjects to cooking oil fumes, environmental tobacco smoke and wood smoke intermittently for three hours on three separate occasions. "The exposures will average out to the levels of indoor air particles

(See HEART, page 5)



Curtis Boles

Roger Jenkins is involved in a new study to try to explain whether there is a relationship between inhalation of small particles—including those in tobacco and wood smoke—and reduced heart rate variability and death.

ATLC members accept new five-year contract

Members of the Atomic Trades and Labor Council on June 26 ratified a new five-year labor agreement with UT-Battelle. The vote accepting the company's offer followed a unanimous recommendation to accept the proposal by the ATLC's 33-member negotiating committee.

That recommendation came just as the old contract expired, at 4 p.m. on Tuesday, June 22, with the rank-and-file members' vote set for the following Saturday.

Lab Director Jeff Wadsworth, who was in Washington on June 22 testifying before a Senate subcommittee on supercomputing, nevertheless monitored the negotiations right up to the committee's recommendation.

"The new agreement with our bargaining unit staff members helps to set the stage for a period of unmatched growth and productivity for the laboratory," Wadsworth said. "The bargaining unit employees' contribution to the ORNL science mission is vital. We appreciate all the parties who worked so hard on this agreement."

Negotiation discussions included the

ATLC's recognition of UT-Battelle's ability to negotiate future contracts with the union separately. DOE contractors negotiated this and previous contracts with the union jointly.

The agreement comes with a \$1,500-per-employee signing bonus and pay raises scaled over the five-year contract period at 4.5 percent for the first year, 4 percent for the second and third years, 3.5 percent for the fourth year and 3 percent for the fifth year.

A 30-year cap and 47-percent maximum were removed from the pension plan formula. That change essentially restores full pension formula credit to employees who have 30 or more years of service. Under the old contract, pension multiplier credit for years of service was reduced after 30 years of service. Also, retirement benefits to surviving spouses increase under the new contract.

Following a national trend, bargaining unit employees agreed to share a larger portion of medical benefits costs. Those increases, from 12 percent currently, will be phased over three years to 15 percent in 2004, 18 percent in 2005 and 20 percent in 2006. ORNL salaried

employees' medical benefits cost share increased to 20 percent on January 1, 2004.

"One of the largest contributors to the laboratory's costs has been the dramatic growth in the cost of medical benefits. This is happening at businesses and institutions all over the country, not just at ORNL," said Human Resources Director Darryl Boykins. "The increased employee share is one of several avenues we are taking to cope with these costs."

The new agreement includes changes to short-term disability policies. Under the new plan, 100-percent payment levels continue; however, the payments will follow a three-day unpaid waiting period for nonoccupational injuries and illnesses. The three-day period would be waived if the employee is admitted to a hospital or receives day surgery during those first three days, or if the disability period exceeds 15 scheduled work days.

The new collective bargaining agreement will be in effect until June 22, 2009.—*Bill Cabage*

Personal Health Assistance Program available July 1

New benefit can help you manage your health condition

ORNL Benefits announces the July 1 launch of the Personal Health Assistance Program, a new disease management benefit for employees, pre-65 retirees and family members enrolled in the CIGNA Open Access and Option 1 health care plans. The program will be extended to current Option 2 participants beginning January 1, 2005.

UT-Battelle and BWXT Y-12 have contracted with Matria Healthcare, a leading health education and support company, to provide these services. Under the program, the Optum Nurse Line provides Open Access and Option 1 plan participants and family members with access to the services of an experienced registered nurse 24 hours a day, seven days a week.

One-on-one support is provided to eligible participants with the conditions of asthma, cancer, cardiac arterial disease (CAD), chronic obstructive pulmonary disease (COPD), congestive heart failure (CHF), diabetes and lower back pain. Pregnancy also is included, with a pregnancy management program for support during pregnancy and the first few weeks of parenting.

The program is offered at no cost to participants and their dependents. UT-Battelle is shouldering the cost as part of the overall strategy to reduce health care costs for the company and employees. By investing in employees and their health and well-being, the company expects to avoid future costs associated with the disabling complications of chronic disease. The cost of health care directly impacts every covered employee and the lab's overhead rate, organizations' charge-out rates, and ultimately the ability to bring new work to ORNL.

What is disease management?

Chronic illness affects more than one third

of working-age Americans and accounts for 75 percent of the nation's annual health care costs. Many disease complications can be prevented if patients become active participants in controlling and managing their diseases through lifestyle changes and compliance with treatment protocols, and if physicians perform necessary tests and prescribe appropriate medications.

Disease management has become an important part of many employers' strategies for improving the health of their employees and lowering health care costs. DM programs help patients with chronic illness avoid or minimize complications by focusing on education, prevention, compliance with well-accepted treatment protocols and wellness. They empower the patient to take a more active role in his or her health care. The theory behind DM is simple but compelling: If patients become active participants in controlling and managing their diseases, they may have fewer hospitalizations and fewer days of lost work time. Improved health adds to the patient's quality of life and reduces costs for employee and employer.

At ORNL, disease management is one of four components that make up the Integrated Health Care Management Program. This is a long-term strategy to coordinate health care programs, reduce or prevent the incidence of disease, control costs for employees and the company, educate employees about health and wellness, and provide ways for employees to become more involved in their health and well-being. The health care and disability programs are in place; the DM launch represents a yearlong effort to bring this program on board.

Program information has appeared in several articles and was featured in last year's

Open Enrollment Guide. After disease management, the final component to be implemented will be a new wellness program. The new wellness coordinator is developing an action plan for bringing a comprehensive wellness program to ORNL.

How does the Personal Health Assistance Program work?

The PHAP offers a personalized support system to help eligible participants and family members with diagnosed chronic conditions manage these conditions effectively. UT-Battelle is launching the Matria program because it is often difficult for busy employees or family members to manage all the medications, treatments, directives and precautions that are part of a plan of care.

The program makes registered nurses, health educators, pharmacists and dieticians available—24 hours a day—to answer questions about a condition, explain medications, help you communicate effectively with your physician, identify complications or help support a physician's course of treatment.

Matria's PHAP includes:

- Personal health consultants – Employees, pre-65 retirees and family members enjoy 24/7 phone access to clinical specialists who can answer questions about a health condition, explain medications or identify contraindications from multiple medications.
- Plan of care – Matria helps employees look at their complete health picture—existing conditions, diet, exercise, lifestyle, medications and diagnostics—in developing a plan of care. The goal is to help the employee stay proactive in managing a doctor's course of treatment. Registered nurses also may contact the employee to answer questions, chart progress and provide support.
- Integrated approach – In the event of multiple conditions, Matria helps participants identify conflicting courses of treatment from different doctors.
- Education – The program gives employees online access to the latest medical findings and literature—personally tailored for individual needs.

There are no out-of-pocket costs or any impacts to an employee's regular health benefits. This company-sponsored program is designed to support the plan of treatment prescribed by a personal physician. Privacy guidelines are strictly followed, and no personal health information is shared with your employer.

Matria and Optum will mail program and contact information to participants in the next few weeks. For information about Matria Healthcare, visit Matria.com.



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Lab Notes

years. Liane Russell was unable to attend but wrote a statement for the event saying, "The ribbon is being cut today, but the mice already have begun to do their work inside. May they be fruitful, and may all the people who work here for a long time to come be as happy as Bill and I were in the mouse house that preceded this one."

Lab helped host Reagan in ET

Although the late Ronald Reagan never visited ORNL, the laboratory served as co-host for a 1985 program he attended in Knoxville on early technology transfer activities in East Tennessee.

"Teaming Up for Economic Growth" was a collaborative effort between ORNL and the University of Tennessee. Former Lab Director Herman Postma was among the area leaders who briefed the president.

According to an *Energy Systems News* account of the event, Postma presented information about interactions between the Oak Ridge facilities and UT. He also talked about the ORNL-developed artificial hip joint with a nitrogen ion-implanted titanium surface to prevent deterioration. President Reagan—known for old-age jokes that he often told on himself—was impressed and amused to hear that the ion-implant treatment could extend the lifetime of the device to up to 1,000 years.

New Bethel Church gets spruce-up

The sounds of roofing, carpentry and modern restoration processes are being heard at the historic New Bethel Baptist Church (top right), located about a half mile east of ORNL's main campus. The church served the Bethel community from 1851 until 1942,



New Bethel Baptist Church

when the area was taken over by the federal government to make way for Manhattan Project facilities. The current church building, constructed in 1924, is being repaired and restored by UT-Battelle.

"This church was a fixture for many Roane and Anderson County residents, and we are pleased to be able to assist in its restoration," said Brenda Hackworth, manager of Community Outreach Programs. She said the renovations include a new roof, reinforcement and leveling of the floor, installation of a dehumidifier and implementation of a pest-control program. Painting of the facility will begin soon, she added.

Many of the repairs were completed in time for spring reunion activities at the church.

Neutron science pioneer dies

Ralph Moon, a retired corporate fellow who laid much of the groundwork for ORNL's current thrust in neutron science, died May 31 after a long illness. He was a member of the then-Solid State Division for many years. Moon came to ORNL and the division's neutron scattering program in the early 1960s. In addition to his internationally respected research activities, he served as a group leader, section head and acting division director.

"His pioneering research and innovative contributions to the development of neutron scattering techniques and instrumentation were world class, and he was a major factor in establishing the outstanding international reputation of this program. He also played a key role in early efforts to establish support for a new high-intensity neutron scattering facility which is currently paying big dividends," said Condensed Matter Sciences Division Director John Cooke.

Fun festival seeks volunteers

Following on last year's very successful event, ORNL will again hold an International Festival in support of the ORNL United Way campaign. The festival, which showcases ethnic and cultural heritages of ORNL staff members, is planned for lunchtime on Sept. 22. It will feature slide shows and photo displays; demonstrations of arts, crafts, dance, music and customs; and food preparation.

The planning committee has identified the following countries/cultures as being represented among the lab's multi-cultural population and is looking for volunteers to help with these committees: African American, Appalachian/Southern, Asian, Eastern European, Haitian, Hispanic, United Kingdom, Native American, Indian, Italian and Canadian. Volunteers also are being sought to chair and serve on committees for additional countries/cultures.

Admission to the festival will be by ticket. Discounted general admission tickets will be sold before the festival, and tickets also will be available the day of the event. All proceeds will go to the 2004 ORNL United Way Campaign. If you would like to volunteer, please contact Susie Kuliasha (574-4411 or kuliashajs@ornl.gov).

'May the mice be fruitful . . .'

ORNL began the latest chapter in its rich history of genetics research with the dedication of the William L. and Liane B. Russell Laboratory for Comparative and Functional Genomics.

Officials at the ceremony praised the new mouse house's airlocks, sterilization, high-tech air filtration and other measures that enable the 1,400 mutant mouse strains developed over decades in ORNL's Mouse Genetics and Genomics Program to be shared with other labs.

The genomics lab is a tribute to Bill and Liane Russell, the husband-and-wife team that pioneered genetic research at ORNL for nearly 50



Cutting the ribbon at the Russell Lab were, from left, Reinhold Mann, ORNL associate director for Biological & Environmental Sciences; DOE-ORO Manager Gerald Boyd; U.S. Rep. Zach Wamp; ORNL Director Jeff Wadsworth; and Marv Frazier, director of DOE's Health Effects & Life Sciences Division.

Spring is season of diversity in lab programming

In recent weeks, interested ORNL staff members could watch a martial arts demonstration, learn about women mentoring women, nosh on delicious food and hear from one of the highest-ranking Asian Pacific American appointees in government.

Organizers of the Asian Pacific American Heritage and Women's History month observances have provided outstanding opportunities for employees to learn about different cultures and generally enjoy the diversity of the ORNL community.

The APA Heritage celebration in the Environmental Sciences Lobby featured lots of food, crafts, performances and costumes.

Featured speaker later in the month was Margaret Chu, director of the U.S. Office of Civilian Radioactive Waste Management. Her presentation, "First Generation: Breaking the Barriers," offered her perspective as an Asian Pacific American but also included suggestions of value to anyone seeking success.

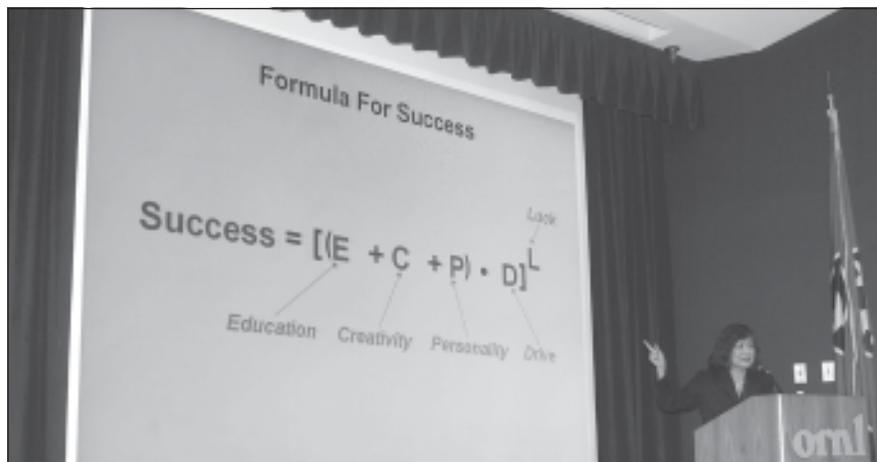
Chu is a native of Taiwan who immigrated to America at the age of 16, speaking little English. After overcoming the language barrier and receiving degrees in chemistry and physical chemistry, she joined Sandia National Labs, where a call for "generic" people landed her in the new Department of Nuclear Waste Management. After years of struggling with the knowledge that she "really didn't like chemistry," Chu began work on public policy issues and found her niche.

She spent 21 years at Sandia, where she received the Lockheed Martin Nova Award—the corporation's highest honor. Sen. Pete Dominici, who had worked with Chu on the Waste Isolation Pilot Project, nominated her for her current position. She was confirmed by the Senate in March 2002. As OCRWM director, she heads the U.S. program for disposal of spent nuclear fuel and high-level radioactive waste, with a primary focus on the Yucca Mountain project.

Her advice? Don't let perceived barriers become real ones. Ask questions. Know your strengths and weaknesses. Give others credit.



Jun Xu of the Chemical Sciences Division demonstrated his art



Margaret Chu shares some secrets for success with a Weinberg Auditorium audience.

And one she learned the hard way: Do what you like and what you believe in.

Chu, who admits the Yucca Mountain assignment is one of the most difficult and controversial in government, added a final piece of advice that she lives by: "Control the controllable and try your best to influence the uncontrollable."

The focus was on mentoring this year as ORNL observed Women's History Month with the theme, "Women Inspiring Hope and Possibility."

Wendy Pitts Reeves of Maryville, a Licensed Clinical Social Worker, spoke with employees on the topic "Mentoring: The Power of Women Helping Women."

Reeves, founder of Cove Mountain Counseling, spoke about her experiences and

discussed ideas for possible mentoring programs at the laboratory.

Members of the 2004 Women's History Month Committee are Carolyn Ward, chairperson; Teresa Ferguson; Kim Hinton; Teresa Honeycutt; Debbie Hudak; Debbie Knox; April Lewis, Committee for Women representative; Karen Simonson; Pat Trentham; and Nancy Wright.

Women's History Month activities are sponsored by ORNL EEO/Workforce Diversity. For more information, see http://www.ornl.gov/adm/hr_ornl/whm2004/whmlinks.html.

[Note: In an earlier issue of *Reporter*, an article on the Committee for Women inadvertently omitted mention of the Women's History Month Committee's role in planning and organizing the 2003 WHM program.]

UT-Battelle to give \$2 million for ORHS renovation

UT-Battelle has announced plans to give \$2 million to help renovate Oak Ridge High School if voters approve an August referendum.

ORNL Director and UT-Battelle CEO Jeff Wadsworth said the gift would enable state-of-the-art science laboratories for the school.

Wadsworth said UT-Battelle is making the donation, the largest in the school's history, for two reasons. "First, UT-Battelle wants to help maintain the quality of a science program at Oak Ridge High School that is among the nation's best. Second, an outstanding high school is critical to our efforts to recruit the world's most talented researchers to ORNL."

He emphasized that the gift will not come from funds for research or employee benefits at ORNL. "Our gift is coming from the fee Battelle and the University of Tennessee receive for managing the lab," he said.

Since assuming the management contract at ORNL in April 2000, UT Battelle has provided \$5.5 million to various educational, civic and economic development projects in the Oak Ridge region. Of this total, approximately \$2.2 million have gone to support science education initiatives, including 23

new science laboratories in area schools.

Last August UT-Battelle gave the Board of Education funds to hire a Nashville engineering firm to conduct a study of the high school and provide recommendations for improvements to the school's facilities. Tim Myrick, who directs the lab's \$300 million modernization project, also consulted free of charge with the School Board and City Council. The study determined that while much of the school is structurally sound, several buildings need to be replaced or renovated.

Oak Ridge residents will go to the polls Aug. 5 to vote on a proposed one-half cent sales tax that would be dedicated to renovating the high school. UT-Battelle's \$2 million pledge to the school is contingent upon passage of the referendum.

UT-Battelle's announcement is part of a \$12 million fundraising campaign by the Oak Ridge Public Schools Education Foundation, of which \$8 million would be devoted to the high school renovation project. The City of Oak Ridge plans to use state-issued bonds with corporate and private gifts to provide approximately 30 percent of the school's renovation costs.

Lab, supporters celebrate computing win, JICS dedication

The month of May was truly amazing for ORNL and its computational sciences community.

On May 12, Energy Secretary Spencer Abraham announced the lab's selection to lead a partnership with a goal of building the world's most powerful supercomputer by 2007. The recently opened Center for Computational Sciences at ORNL was believed to be an important factor in the choice by DOE's Office of Science.

On the heels of the big announcement came another reason to celebrate. Dignitaries from state government and the University of Tennessee visited to help dedicate a new \$10 million facility to house the Joint Institute for Computational Sciences (below). The facility establishes a unique partnership between ORNL and the state's flagship university and will improve access to the world's most powerful supercomputers for America's scientists, universities and businesses.

Following Secretary Abraham's announcement, ORNL Director Jeff Wadsworth said the National Leadership Computing Facility proposal is a five-year plan that will pool the partnership's computational resources for a sustained capacity of 50 trillion calculations per second (50 teraflops) and a peak capacity of more than 250 teraflops.

"Our plans are to surpass the world's current fastest supercomputer, Japan's 40-teraflop Earth Simulator, within a year. The new machine will enable breakthrough discoveries in biology, fusion energy, climate prediction, nanoscience and many other fields that will fundamentally change science and its impact across society," Wadsworth said.

Thomas Zacharia, associate laboratory director for Computing and Computational Sciences, said, "In the Center for Computational Sciences, ORNL has gathered the personnel, the infrastructure and the machines needed to provide the foundation for the most important computational science project in American history."

The timetable calls for increasing the capacity of the current ORNL Cray X1 computer to 20 teraflops this year and adding a 20-teraflop Cray Red Storm-based machine in 2005. A key member of the partnership, Argonne National Lab, will install a 5-teraflop IBM Blue Gene computer. Plans call for a 100-teraflop Cray system at Oak Ridge to be added in 2006, with an increase to a total of 250 teraflops in 2007.



Outgoing UT President Joe Johnson (left) shares a light moment with Commissioner of Economic and Community Development Matt Kisber.

Officials at the dedication of the Joint Institute for Computational Sciences were unanimous in their enthusiasm about the bright future facing the laboratory and its partners within the State of Tennessee.

Touting potential economic benefits, Tennessee Commissioner of Economic and Community Development Matt Kisber said the JICS launches "a new era" for ORNL and UT. "It's also an essential step as we position ourselves as a technological leader."

Kisber, who called the relationship between the two institutions and the state a partnership with no precedent, also cited Governor Phil Bredesen's determination to use the JICS facility "to make a difference for Tennessee."

The state-funded facility has 52,000 square feet, including an 80-seat lecture hall and a 1,500-square-foot computer lab. It has more than 9,000 square feet of technology incubator space. JICS will share the facility with the Oak Ridge Center for Advanced Studies.

The joint institute represents a growing partnership among the laboratory, the university and the state.

DOE Oak Ridge Operations Manager Gerald Boyd said the partnership shows that "we are all neighbors in ways we have not been before." He added that DOE officials also felt the excitement of the supercomputer announcement. "We want to do all we can to help ORNL share these resources in the state of Tennessee."

Interim UT President Joe Johnson provided a brief history of the planning process for the JICS, one of three joint institutes the state committed to build if the UT-Battelle partnership was selected to manage ORNL.

"UT-Battelle won the contract, and [then-Governor] Don Sundquist and other officials in Nashville said the state would come forward with funding for the facilities," Johnson explained. "Then we ran into money problems and changed administrations, but Governor Bredesen and other leaders stepped up and met the commitment. We appreciate their

vision, and we're lucky to have them."

Wadsworth also thanked the governor, as well as ORNL's friends at DOE, UT and in the community. "I don't know of any other national lab that enjoys the level of support that we receive from these groups.

"We are now in a wonderful position to combine our resources with our various partners and make computing the foundation for solving science's big challenges," he said. In addition to UT, ORNL's "core" university partners are Duke, Florida State, Georgia Tech, North Carolina State, Virginia and Virginia Tech.

Thom Dunning, UT-ORNL distinguished scientist and JICS director, said the joint institute will work closely with ORNL researchers and others to develop the software needed to take full advantage of the new computer and will use the capabilities to solve pressing scientific problems.

Heart

Continued from page 1

that many of us encounter in our daily lives," said Jenkins, who hopes to accomplish two major goals.

"We should have a far better understanding of the mechanisms that control changes in heart rate variability associated with particulate exposure," Jenkins said. "And we should know what it will take to develop a portable real-time monitor that can simultaneously measure heart rate variability, respiration and airborne particle concentration."

In each year, about 20 non-smokers between 25 and 45 in age with an equal number of men and women will participate in the study. Each participant will undergo a physical exam to rule out risk factors such as diabetes, systemic hypertension, and respiratory and heart abnormalities.

The Oak Ridge Sitewide Institutional Review Board has granted approval to use human subjects and the associated research project protocol. Each exposure cycle will last less than three hours, and actual exposures to the test aerosols likely will be less than one hour. Maximum concentrations of smoke and fumes will be lower than those allowed by the Occupational Safety and Health Administration for workers for eight hours.

Researchers will collect physiological response data during the experiments, and participants will provide information about other exposures they encounter as part of their routines. All information will be kept confidential.

If the study shows sufficient reason to believe there are cardio-pulmonary responses to exposures to airborne contaminants, Jenkins hopes for a follow-up project to develop instrumentation that can be worn by participants under real-world exposure conditions.—Ron Walli



Oak Ridge National Laboratory

Summer Science Camp participants get lots of answers

Have you ever wondered how children can turn out looking nothing like their parents?

Just ask ORNL's Summer Science Camp students and they can tell you the answer.

It's all in the genes.

Campers spent a morning learning how children can possess traits such as hair and eye color that are different from those of their parents based on which genes are selected. By mixing up paper strips with the alleles (variant forms of the same gene) of two identical parents, students were able to simulate the random gene selection and create the "Reebop" children using marshmallows, pins and toothpicks.

"We try to expose the students to a lot of different things," said camp instructor Kris Light. "Some things—like genetics—they probably won't get until high school."

The purpose of the camp—now in its 15th year—is to interest students in learning about science, with the hope that they will pursue careers in scientific fields. This year, ORNL sponsored two one-week Summer Science Camps in June for elementary and middle school students at the historic Freels Bend cabin site on DOE's Oak Ridge Reservation.

Most of the participants (rising fifth, sixth and seventh graders) are from the Oak Ridge area, with some traveling from as far away as Virginia and North Carolina. Campers spent the week studying a wide variety of science fields.

"On the first day, we talk to them about their interests," camp instructor Christina Wright said. "Some of them say bugs, others paleontology, and some robotics. We try to give them enough variety so that they can see how subjects are connected."

One way the students experienced the interconnectedness of science was to spend time in five habitats: trees, ground, water, field and buildings. Each morning the students became science explorers, teaming to see how many "finds" they could make of the evidence of an animal or the animal itself. Finds ranged from deer beds in a field to spider webs in the 200-year-old Freels Bend cabin.

"Each 'share out' period they bring in their jars," Wright said. "By the end of the week, we see which group has the most finds."

Hands-on activities also provided a way for students to see science as fun rather than just a textbook lesson. Activities included making fossils from shells and plaster; making UV bracelets that change color in the sun; and testing mealworms for their reaction to variables such as vinegar, wind and water. After testing the mealworms, students were able to take their new "pets" home in Petri dishes. Their first responsibility, though, was to decide and prepare what the mealworms would feast on before they go through metamorphosis and change into beetles.

"One of the worms is eating 'Mealworm Fiesta,' and the other is eating 'Mealworm

Delight,'" explained 12-year-old camper Katrina Shaw. "Mealworm Fiesta is crunched-up Tostitos, Rice Krispies, saltines and bran, and Mealworm Delight is Cheerios, oatmeal, bran, Triscuits, Wheat Thins, corn meal and grits."

Guest speakers gave students a first-hand view of what it's like to work in a particular field. They included forensic scientist Arpad Vass, wildlife rehabilitator and veterinarian Marcella Cranford, and Oak Ridge City Police Officer Tony Ruff with his drug dog Quinton.

The speakers provided students several unusual opportunities, including chances to touch human bones collected from a crime scene and to see a red-tailed hawk that had been rescued from the wild. In addition to touring the UT Arboretum and ORNL's Aquatic Ecology Laboratory and a robotics lab, students also "rode" a simulated stationary rollercoaster at ORNL's Science Exploratorium.

Field explorations, hands-on activities and learning from professionals are all parts of the camp experience. For Light, Wright and instructor Renee Kelley, one of the most



Science camp students become acquainted with an opossum, one of veterinarian Marcella Cranford's furry friends.

Curtis Boies

rewarding aspects is seeing the students catch on to the science lessons they present.

"It feels so good when the things you've taught them all week start coming together," Light said.

By making the lessons "come together," the instructors hope that the camp experience will increase the students' interest in science, not just for a week, but for the rest of their lives.—Amy Merrick

[Amy Merrick is a Communications and Community Outreach intern from the University of Tennessee's science writing program.]

Service Anniversaries

30 years: Connie L. Begovich, Business & Information Services Dir.; Jane C. Parrott, Communications & Community Outreach Dir.; Dennis J. Strickler, Computational Sciences & Engineering; H. R. Kerchner, Condensed Matter Sciences; Peggy P. DePorter, Alfred Hendricks, Robert G. Johnson, Steve M. McCown and W. F. Waters, Craft Resources; Steven Kent Fischer and Donald P. Hutchinson, Engineering Science & Technology; Albert Lynn Herrell, Environmental Protection & Waste Services; Jim M. Hackworth, Jr., Facilities Development; Martin Yeung Kay Peng, Fusion Energy; William E. Eldridge, Laboratory Protection; Edward C. Hatfield and Judith F. McKinney, Metals & Ceramics; Michael Eugene Littleton and Kenton Wilson, Nonreactor Nuclear Facilities; Janice W. Arwood, Dennis E. Benker, Richard L. Faulkner, Richard A. Lillie, Paul Allen Taylor and John A. White, Nuclear Science & Technology; James B. Roberto, Physical Sciences Directorate; Albert D. Devaney, Research Reactors

25 years: Debra F. Dickerson and Brenda F.

Robertson, Communications & Community Outreach Dir.; Vickie E. Lynch, Computational Sciences & Engineering; Howard D. Haynes, Matthew B. Scudiere and Stephen Fulton Smith, Engineering Science & Technology; James Milton Holladay, Logistical Services; Ralph L. Martin, Metals & Ceramics; Gregory Dean Campbell, Nonreactor Nuclear Facilities; Sheila Y. Finch, Willis P. Poore III, Michael R. Uzzle and Raymond James Vedder, Nuclear Science & Technology; Judy N. Whiteside, Physics; Rebecca B. Kendall, Quality Services; Richard A. Brown, SNS Site Services Office

20 years: Jamie P. Payne, Communications & Community Outreach Dir.; Dollie J. Neal, Craft Resources; Karen Sue Harber, Engineering Science & Technology; Jacqueline W. Williams, Laboratory Protection; Sherry M. Abercrombie, Nuclear Science & Technology; Myint Thein, Operational Safety Services; Lisa K. Brown, Prime Contract Administration; Tony C. Hendricks, Quality Services; Bob Bryant, Records, Training, & SBMS Services

UT-Battelle scholar, other 'ORNL superlatives' named

Wesley Nicholas Alvaro has received the 2004 UT-Battelle Scholarship, worth up to \$16,000.

Alvaro, a member of the Lenoir City High School Class of 2004, will attend the University of Tennessee this fall. He plans to study computer science and mathematics.

UT-Battelle Scholarships are competitive awards presented annually to the child of an ORNL employee. The scholarship is awarded in \$4,000 annual increments over a four-year period to an outstanding graduating high school senior who plans to study science, mathematics or engineering at UT.

"The UT-Battelle Scholarships encourage the brightest students in the area to pursue studies at the University of Tennessee that could result in a career in science at ORNL," said ORNL Director Jeff Wadsworth. "We are very pleased to present Wes with this scholarship."

Alvaro has placed on Lenoir City High School's "A" honor roll for four years, with recognition by the National Society of High School Scholars. The recent graduate has been National Honor Society president and was active in the Leo Club, Mu Alpha Theta and Fellowship of Christian Athletes.

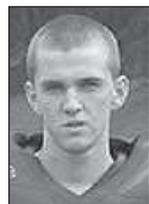
Alvaro is the son of Nick and Debbie Alvaro of Lenoir City. His mother is a member of the Networking & Computing Technologies Division.

Other ORNL parents are justifiably proud of their 2004 "senior superlatives" and scholarship winners. Here is information they submitted.

Jessica Baxter, daughter of Jim (Facilities Management) and Jeanne Baxter, was valedictorian of Clinton High School. She was president of the National Honor Society, secretary of the Key Club and vice president of Students Against Drunk Driving. Jessica received University and Valedictorian scholarships from UT, where she plans to major in pre-professional programs with a concentration in pre-med.



Baxter



Horwedel

Danny Horwedel, 2004 Senior Class president at Oak Ridge High School, will attend Louisiana Tech on a football scholarship as a place kicker and punter. He is the son of Jim and Betsy

Horwedel (Nuclear Science & Technology and Environmental Sciences divisions,



ORNL Director Jeff Wadsworth congratulates UT-Battelle scholarship winner Wesley Alvaro and his mother, Debbie.

respectively). Danny also received an ORHS football scholarship for academics. He is a member of the National Honor Society, an AP scholar, and a gold medal winner in physics at the 2002 regional Science Olympiad. Other football honors include being selected as PrepXtra Placekicker, All-Region Placekicker and All-State Placekicker.

Kasey Kohring, daughter of Mark Kohring of the Operational Safety Services Division, graduated cum laude from Lipscomb University in May.

Brandon Langley, son of Russell (Business Systems Division) and Paula B. Langley, was valedictorian of the 2004 graduating class at Midway High School. He was president of the student council and senior class.



Langley

Brandon received the senior math, science, English and American history awards and was the Volunteer Boys' State delegate. He will attend UT and has received the Volunteer and Alumni scholarships.

Brianne Lankford was 2004 valedictorian of Oliver Springs High School. Her parents are Trish Lankford of the Life Sciences Division and Roger Lankford of Bechtel Jacobs.

Brian Lester was 2004 valedictorian of Wartburg Central High School, where he was a Presidential Scholar, Beta Club treasurer and member of Who's Who Among American High School Students. Brian, son of Lisa Lester (Facilities Management) and Gary Lester, plans to attend UT.



Lester

Kelly Leanna Rosenbaum was 2004 salutatorian of Harriman High School, where she was a Volunteer Girls' State delegate and dance team captain. Kelly, the daughter of Larry (Networking & Computing Technologies) and Susan Rosenbaum, will attend UT and has received the Volunteer and Alumni scholarships.

Austin Shaver graduated summa cum laude from the University of Tennessee with a 4.0 GPA. Austin, son of Sarah Shaver in

Records, Training and SBMS Services, will enter law school at UT in August. Austin was a student senator and a member of Mortar Board, Phi Eta Sigma and Golden Key Honors Society. He has been awarded the Adidas Partners in Sports Scholarship for 2003-04 and 2004-05. Austin is a Neyland Scholar and a member of the Honors Program.



Shaver



Smith

Grant Smith, son of Cyrus Smith (Computational Sciences & Engineering) and Jan Henley, was 2004 valedictorian at Webb School of Knoxville. He was a member of the Cum Laude Society and Honor Committee and was swim team captain. Grant received the John W. Green Award for Scholarship and the S. J. Chapman Award for Leadership, Scholarship and Integrity. He plans to attend Duke University.

New staff members

Susan Donnelly, Audit and Assessment Directorate
 Alicia Arnold, Marcus Jones and Joe Looney, Business & Information Services Directorate
 Frank DeNap and Robert Records, Computational Sciences & Engineering
 Christian Engelmann, Computer Science & Mathematics
 Victoria Bowers, Angela Galyon and Jamie Seeber, Craft Resources
 Patrick Candler and Bryan Hilson, Engineering Science & Technology
 Dennis Davis and Regina Overton-Barnes, Health Services
 David King, Laboratory Protection
 Frederick Baker, Jason Braden, Chad Duty and Roger Jaramillo, Metals & Ceramics
 Tammy Claiborne and William Groening, National Security Directorate
 Kathryn Kinney, Nonreactor Nuclear Facilities
 Claudio Gariazzo and Jennifer Ladd-Lively, Nuclear Science & Technology
 David Price, Physical Sciences Directorate
 Cathleen Hargreaves and Benjamin McMurry, Records, Training & SBMS Services
 Terry Evans, Donald Kincaid, Kathy Lett, Keith Napier, Benjamin Rothrock, Matthew Smith and Patrick Tobin, Research Reactors
 Erica Baldwin, Kay-Uwe Kasemir and Benjamin Sanchez, SNS Accelerator Systems
 Robert Connatser and Leonard Dial, SNS Experimental Facilities

Ridge, Bredesen, Petersen praise ORNL capabilities

The technological capabilities of ORNL were praised by Homeland Security Secretary Tom Ridge, Gov. Phil Bredesen and incoming University of Tennessee President John Petersen during the Tennessee Valley Corridor Summit in Knoxville and Oak Ridge.

Ridge told an audience of more than 800 during the keynote address at the Knoxville Convention Center that ORNL plays an important role in the future internal security of the United States.

"ORNL is working with others across the country to pull together the technology we must have to meet our homeland security needs," Ridge said. "We are looking for innovative science and technology to lead the way to make you more secure."

The former Pennsylvania governor praised the mission of the Tennessee Valley Corridor—of which ORNL is a driving force—and its talent and ability to develop new technology. He added that the importance of research taking place in this region is similar to the vital work that occurred in East Tennessee during the Manhattan Project.

Bredesen told summit attendees that UT-Battelle offers a prime example of how a collaborative effort can develop homeland security technology. Noting ORNL's many joint partnerships, along with the opening of the Joint Institute for Computational Science and the additional high-performance computing capabilities on the horizon, the governor said the laboratory's best days may be ahead.

"There's no way to tell what important spin-offs may result in 10 years," Bredesen said. "We may look back and see this as a watershed event."



Lynn Freemy

Homeland Security Secretary Tom Ridge

Petersen, who became UT president July 1, said the university's partnership with ORNL is important to both institutions and to the region.

"I want to emphasize how highly the university appreciates its partnership with ORNL," Petersen said during the session held at Pollard Auditorium in Oak Ridge. "It is a special relationship that brings opportunities and an excellent example and focus for others in the region to follow."

During the summit, ORNL and TVA announced a partnership that will allow researchers and scientists at colleges and universities across the Tennessee Valley to connect to ORNL's supercomputer center to further strategic collaborations, enhance academic excellence and leverage economic impact.

TVA has a fiber telecommunications

network throughout the valley that will enable area institutions to link directly to the National Center for Computational Sciences at ORNL and to other major national research and education networks. The network is aimed at providing superior research resources to foster education and technology development, grow new business ventures and assist in developing the valley economy.

UT and Vanderbilt University are scheduled to gain access to the National Center for Computational Sciences through a Knoxville-Oak Ridge-Nashville connection later this year. This represents a substantial increase over the communications link currently available. Previously, ORNL provided UT Chattanooga access to the facilities. A meeting will be held this fall with prospective institutions that are close to the fiber network to discuss how they might take advantage of this new opportunity.—Fred Strohl

Deductions for medical premiums resume in July

ORNL's medical premium holiday, which began in January, ended in June. Many have asked exactly when the payroll deduction for medical premiums will resume. For employees paid weekly, deductions begin with the July 8 check. For monthly paid employees, the deduction will appear on the July 26 pay stub.

To view the rates, refer to the Premiums section of the ORNL Benefits Website, http://home.ornl.gov/directorates/human_resources/Benefits/Premiums.shtml. Remember, if you elected a pre-tax deduction of your premium, your tax withholdings also will change.



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