

SCIENCE

ORNL marks completion of solar-assisted EV charging stations

With 125 solar-assisted electric vehicle charging stations to be built from Knoxville to Memphis, Tennessee is poised to lead the nation with an electric vehicle demonstration project led by the Department of Energy and industry partners.

At a recent ceremony at ORNL, industry and Lab officials celebrated the completion of 25 solar-assisted electric vehicle charging stations. These join six Electric Power Research Institute stations that were completed in Knoxville earlier this year. The remaining 94 stations are scheduled to be finished by the spring of 2012.

As a demonstration project, these charging stations will provide valuable information about station performance, customer charging preferences, component reliability and the impact on the electric grid. In Tennessee, solar-assisted charging

stations will be installed at Nissan North America in Smyrna and Franklin, Knoxville, the University of Tennessee, Nashville, Memphis and Chattanooga.

Officials expect the visibility of this project to have a promotional effect that encourages consumers to purchase or lease electric vehicles, which will reduce demand for gasoline and reduce greenhouse gas emissions.

“This project is a part of a long-term effort to bring electric vehicle infrastructure to reality,” said Lee Slezak, a program manager within DOE’s Office of Energy Efficiency and Renewable Energy. Slezak noted that Tennessee is the only state in the Southeast selected to participate in this nationwide endeavor.

Of the \$99.8 million awarded nationally through the American Recovery and Reinvestment Act to Ecotality North America, ORNL received \$6.8 million. Last year this DOE Vehicle Demonstration and Vehicle Infrastructure Evaluation project was awarded an additional \$15 million, and with the partner match the total value of the project is about \$230 million.

In Tennessee, some of the 2535 planned charging stations will be located along Interstates 24, 75 and 40. The units are being supplied by Ecotality North America.

While ORNL is home to experts in transportation, solar, grid, materials for battery storage and power electronics, partners, including the Tennessee Valley Authority and EPRI, bring to the table diverse capabilities that strengthen the team. Other regional partners include the Knoxville Utilities Board, the state of Tennessee, several cities and Nissan, whose Leaf became available in the U.S. late last year.

“Nissan applauds Oak Ridge National Laboratory for its leadership in the development of solar-assisted charging for electric vehicles,” said Tracy Woodard, director of government affairs for Nissan North America.

In Tennessee, buyers of electric vehicles are eligible for a \$2,500 rebate from the state and a \$7,500 federal tax credit.

—Ron Walli 



(From left) Katie Southworth, state of Tennessee; Tracy Woodard, Nissan; Thomas Zacharia, ORNL.

Table of Contents

ORNL marks completion of solar-assisted EV charging stations	1
Public tour has attracted thousands thanks to volunteer guides.	2
ORNL rifle sighting system uses sensors to score bull’s-eye	3
Club ORNL events.	3
Neutrons provide first sub-nanoscale snapshots of Huntington’s disease protein	4
Wellness	5
Treasures from the archives	6
Thom’s thoughts	7
Bird watching goes high-tech.	8

Public tour has attracted thousands thanks to volunteer guides



Oak Ridge Public Tour guide Dick Riordan, right, greets a tour participant about to board the bus while fellow tour guide Janet Swift looks on.

The Department of Energy's summertime Oak Ridge public tour has become a popular tourist attraction for visitors from near and far.

Much of the credit for the tour's success goes to volunteers from the Friends of ORNL, who have conducted most of the tours since the program began in 1995.

"Our volunteer tour guides have been able to express the Oak Ridge message – from both a historical and scientific standpoint – and that is a message our visitors appreciate," said Lissa Clarke of the American Museum of Science and Energy, who coordinates the tour at the front end each weekday during the summer. "A lot of people who come to the museum gain a better understanding of Oak Ridge – past and present – after they've been touring for three hours. Our volunteer guides make that happen."

The 2011 tours, which began June 6, run Monday through Friday through Sept. 2. The tour starts and ends at the American Museum of Science and Energy, running from noon until 3 p.m.

Along the way, there are stops at the Y-12 New Hope Visitors Center and the lobby of the Spallation Neutron

Source, plus a visit to the newly refurbished Graphite Reactor museum area. After a drive along Perimeter Road around the East Tennessee Technology Park, the ORNL bus returns to the museum.

ORNL retiree Marilyn McLaughlin was the Lab's tour coordinator in 1995 when she came up with a pilot project for a public tour around Oak Ridge's DOE facilities. It quickly went from a pilot project to a permanent fixture.

During the 16-year history of the public tour, close to 25,000 participants, representing all 50 states, have ridden the bus. Prior to Sept. 11, 2001, the tour was open to everyone, including non-U.S. citizens, and close to 40 nations were represented during the first six years of the tour. Security regulations now permit only U.S. citizens to participate.

The tour volunteers are coordinated by Dick Riordan, an ORNL retiree who continues to stay active in many different Oak Ridge activities.

"Most of our tour guides worked for the Lab at one time or another, and being a tour guide enables them to remain a part of the Lab," explains Riordan. "I think what is so special about what we provide is that the guides have six decades of service combined, and each of us comes from a slightly different perspective with regard to the story we tell. Even though we are retired, most of us have tried to keep up with the many different and changing activities and accomplishments taking place at ORNL. We try to convey that message during our tours."

Katy Brown, president of the Oak Ridge Convention and Visitors Bureau, says the volunteer tour guides have been great ambassadors for Oak Ridge.

"We find that many of our visitors from around the country come because they've heard great things about the hospitality and the historical significance of Oak Ridge, and that includes very positive feedback from people who have taken the public tour," Brown says. "The Tennessee Department of Tourism sets up several tours for travel writers each year. The writers travel to different locations in the state, but they especially look forward to Oak Ridge and what the public tour has to offer. The volunteers have made the public tour an important state tourist attraction."

In addition to Dick Riordan, other volunteer guides scheduled to work this summer are Joe McGrory, David McVicker, Art Mitchell, Jack Russell, Hal Smith, Steve Spooner, Steve Stow, Janet Swift, Benny Houser, Bill Yee and Alex Zucker. 🌿

The guides are looking for more retiree volunteers to join them in sharing the Oak Ridge story. If you are interested in becoming a public tour guide, contact ORNL tour coordinator Fred Strohl at 574-4165 (strohlhf@ornl.gov).

Reporter is published for retirees of ORNL, which is managed by UT-Battelle for the U.S. Department of Energy.

Deborah Barnes
Editor
(865)576-0470
barnesds@ornl.gov

Bill Cabage
Contributing Editor
(865)574-4399
cabagewh@ornl.gov

Cindy Johnson
Design and Layout

ORNL rifle sighting system uses sensors to score bull's-eye

Crosshairs automatically adjust for conditions in real time

Military and police marksmen could see their rifle sights catch up with the 21st century with a fiber-optic, laser-based sensor system that automatically corrects for even tiny barrel disruptions.

The system, developed by a team led by ORNL's Slobodan Rajic, precisely measures the deflection of the barrel relative to the sight and then electronically makes the necessary corrections. The lifesaving results are lethal.

"For military snipers, missing the target could allow high-profile terrorists to escape," Rajic said. "For police marksmen, missing the kidnapper could endanger the lives of hostages and then pose subsequent danger to police officers and the public."

The Reticle Compensating Rifle Barrel Reference Sensor takes the guesswork out of shooting by shifting the burden of knowing the relative position between the barrel and the weapon sight axes from the shooter to an electronic sensor. The system precisely measures the deflection of the barrel relative to the sight and then electronically realigns the moving reticle, or crosshairs, with the true position of the barrel, or bore axis.

"When a weapon is sighted in, the aim point and bullet point of impact coincide," Rajic said. "However, in the field, anything that comes into contact with the barrel can cause perturbation of the barrel and induce errors."

With modern high-caliber rifles boasting ranges of up to two miles, even very small barrel disruptions can cause a shooter to miss by a wide margin. That makes this technology indispensable from a marksman's perspective, Rajic said.

From a technological standpoint, the approach is straightforward.

The typical barrel of a high-power rifle has exterior grooves, called flutes, to reduce

weight and create more surface area to enable the barrel to cool faster. The barrel heats up as a result of the hot expanding gases in the barrel and the friction from the bullets that are propelled by these hot gases along a helical path inside the barrel.

With the ORNL technology, glass optical fibers are placed inside the flutes. These flutes are either produced by the barrel manufacturer or subsequently retrofit. The sensor system contains a laser diode that sends a signal beam into the optical fibers parallel to the bore axis of the barrel.

"The optical fibers are designed to split the laser beam twice, sending one beam along the top of the rifle barrel and another light beam along the side of the barrel," Rajic said. "Thus, we can measure both the vertical and horizontal barrel deflection."

Through a combination of algorithms, optics and additional sensor inputs, the system can take into account distance and

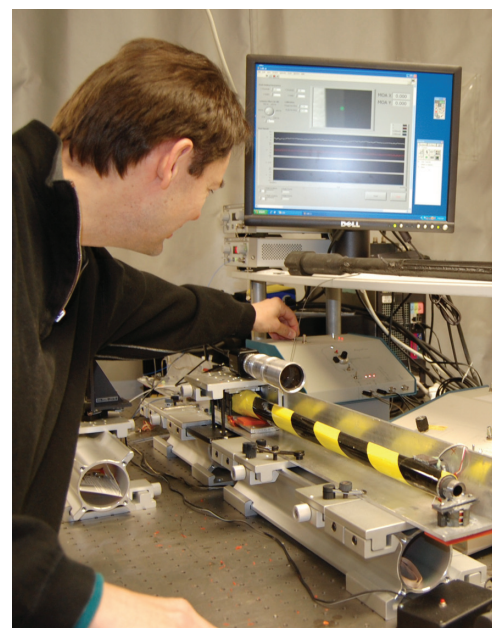
other factors affecting the bullet trajectory. Ultimately the shooter is left with crosshairs that automatically adjust for conditions in real time.

In the end, the resolution of ORNL's Reticle Compensating

Rifle Barrel Reference Sensor is 250 times better than that of traditional reticles, which can normally be manually adjusted by ¼ minute of angle whereas the ORNL sensor can sense angular displacement and shift the reticle by 1/1000th of a minute of angle, Rajic said.

Rajic and colleagues are also developing a laser-based bullet tracking system to give the shooter even better odds of succeeding by providing specific information about the bullet flight path. Other developers of the technology are Panos Datskos, Troy Marla and Bill Lawrence.—*Ron Walli* 🌿

"For military snipers, missing the target could allow high-profile terrorists to escape."



A laboratory prototype of ORNL's Reticle Compensating Rifle Barrel Reference Sensor allows Slobodan Rajic to fine-tune the technology.

Club ORNL events

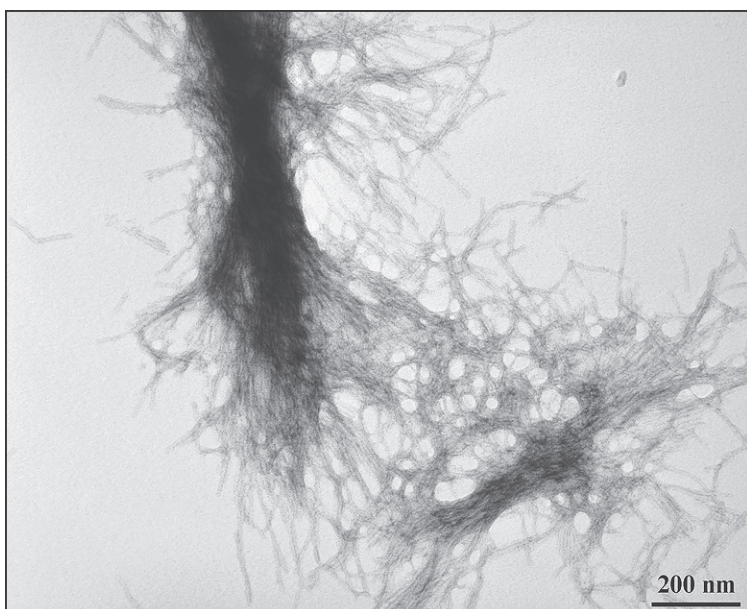
Get the details and latest news online via <https://info.ornl.gov/sites/clubornl>. Request an XCAMS account, which will allow you to participate in these events or contact Lara James at 865-576-3753 or jamesla@ornl.gov.

July TBD	Wahoo Ziplining
July 30	The Lost Sea
August 5	Chicago
August 27	White Water Rafting



Would you like to receive *Reporter* sooner by e-mail instead of waiting for snail mail? If so, please send your e-mail address to ornlreporter@ornl.gov.

Neutrons provide first sub-nanoscale snapshots of Huntington's disease protein



Transmission electron microscopy demonstrates the fibrillar nature of huntingtin aggregates. (Image courtesy of C. Stanley, T. Perevozchikova, V. Berthelie, University of Tennessee)

Researchers at ORNL and the University of Tennessee Medical Center have for the first time successfully characterized the earliest structural formation of the disease type of the protein that causes Huntington's disease. The incurable, hereditary neurological disorder is always fatal and affects one in 10,000 Americans.

Huntington's disease is caused by a renegade protein, "huntingtin," that destroys neurons in areas of the brain concerned with the emotions, intellect and movement. All humans have the normal huntingtin protein, which is known to be essential to human life, although its true biological functions remain unclear.

Christopher Stanley, a Shull Fellow in the Neutron Scattering Science Division at ORNL, and Valerie Berthelie, a UT Graduate School of Medicine researcher who studies protein folding and misfolding in Huntington's, have used Bio-SANS, a small-angle neutron scattering instrument at the High Flux Isotope Reactor, to explore the earliest aggregate species of the protein that are believed to be the most toxic.

In research published in *Biophysical Journal*, Stanley and Berthelie were able to determine the size — from the earliest small, spherical precursor species composed of two (dimers) and three (trimers) peptides — along the aggregation pathway to the development of the resulting, later-stage fibrils. They were also able to see inside the later-stage fibrils and determine their internal structure, which provides additional insight into how the peptides aggregate.

"Bio-SANS is a great instrument for taking time-resolved snapshots. You can look at how this stuff changes as a function of time and catch the structures early," Stanley said. "When you study several of these types of systems with different glutamines or different conditions, you begin to learn more and more about the nature of these aggregates and how they begin forming."

Normal huntingtin contains a region of 10 to 20 glutamine amino acids in succession. However, the DNA of Huntington's disease patients encodes for 37 or more glutamines, causing instability in huntingtin fragments that contain this abnormally long glutamine repeat. Consequentially, the mutant protein fragment cannot be degraded normally and instead forms deposits of fibrils in neurons.

Those deposits, or clumps, were originally seen as the cause of the brain devastation that occurs with Huntington's. More recently, researchers think the clumping may actually be a kind of biological housecleaning—an attempt by the brain cells to clean out these toxic proteins from places where they are destructive. Stanley and Berthelie set out to learn through neutron scattering what the toxic proteins are and when and where they occur.

SANS was able to distinguish the small peptide aggregates in the sample solution from the rapidly forming and growing larger aggregates that are simultaneously present. In separate experiments, they were able to monitor the disappearance of the single peptides, as well as the formation of the mature fibrils.

Now that the structures are known, the hope is to develop drugs that can counteract the toxic properties in the early stages, or dissuade them from taking the path to toxicity. "The next step would be to take drug molecules and see how they can interact and affect these structures," Stanley said.

For now, the researchers believe Bio-SANS will be useful in the further study of Huntington's disease aggregates and applicable for the study of other protein aggregation processes, such as those involved in Alzheimer's and Parkinson's diseases.

"That is the future hope. Right now, we feel we are making a positive contribution toward that goal," Stanley said.—*Agatha Bardeel* 🌱

"Bio-SANS is a great instrument for taking time-resolved snapshots. You can look at how this stuff changes as a function of time and catch the structures early."

Comic relief

From the sounds of the chanting crowd, you would never guess this was a health lecture. But at the most recent ORNL wellness seminar, the topic was no laughing matter...or was it?

ORNL exercise physiologist Kathryn Pittman began her talk by leading the audience in a round of laughing exercises. The majority of the us felt silly at first – after all, we were at work. However, after a few minutes, we couldn't help laughing out loud. Is laughter really the best medicine? While definitive research is by no means conclusive, researchers agree that laughter certainly can't hurt. Some say it really does have a number of physical and mental health benefits.

A good hearty laugh relaxes the body, leaving muscles less tense for up to 45 minutes. It boosts infection-fighting antibodies, thus improving our resistance to disease. Laughter triggers endorphins, (natural feel-good chemicals) and temporarily relieves pain. As an added bonus, a good chuckle improves the function of blood vessels, increases blood flow and protects against heart attacks and certain cardiovascular problems.

But before you pick up that piece of chocolate and laugh it off, keep this in mind: A researcher from Vanderbilt University measured the number of calories expended by laughing and found that 10-15 minutes of laughter burns only 50 calories. At that rate, it would

require about 12 hours of concentrated laughter to burn off 1 measly pound.

Nevertheless, even if laughter's not like a trip to the gym, consider the mental health benefits of laughter. Getting a case of the giggles adds joy and zest to life, eases anxiety and fear, relieves stress, and improves mood. Consider this: Have you ever been able to stay sad or anxious while laughing? Laughter shifts perspective and allows a person to see a situation in a less stressful light.

While the research is inconclusive in terms of actual physical health benefits, one thing is true: Laughing with others is more powerful than laughing alone. Sharing a funny story with a friend strengthens bonds, enhances camaraderie and helps diffuse conflict. It allows us to let go of defensiveness, release inhibitions, and freely express true emotions.

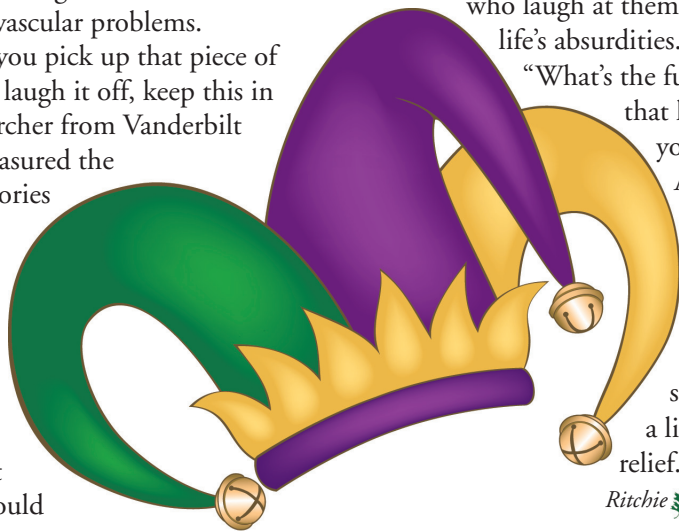
Still doubtful? Maybe you're taking yourself a bit too seriously. Try to smile more, and you might see it's contagious. Count your blessings when you are feeling sad. Spend time with playful people

who laugh at themselves and life's absurdities. Ask people, "What's the funniest thing that happened to you today?"

And most importantly, keep things in perspective.

The next time you are stressed, try a little comic relief.—Stephanie

Ritchie 🌿



Blue Cheese Scallion Biscuits

(A great accent to any dish that could use a hint of blue cheese)

- 2-¼ cups all purpose flour
- 2-½ teaspoons baking powder
- 2 teaspoons sugar
- ¾ teaspoon baking soda
- 1 teaspoon salt
- 6 tablespoons (¾ of a stick) cold, unsalted butter cut into ½-inch cubes
- 1-½ cups crumbled blue cheese
- 4 scallions, finely chopped
- 1 cup well-shaken buttermilk

Preheat oven to 450 degrees. Line a baking sheet with parchment.

Whisk together flour, baking powder, sugar, baking soda and salt in a large bowl. Use a pastry cutter or your hands to blend in the butter until the mixture resembles a coarse meal. Stir in blue cheese and scallions. Add buttermilk and stir until just combined.

Drop dough in 12 equal portions about 2 inches apart onto prepared baking sheet. Bake in the middle of the oven until golden, 16 to 20 minutes.

Makes 12 biscuits

In looking for a recipe suitable for an article on the benefits of laughter, we at Reporter decided the best way to proceed would be to google...what else?...Recipes for Laughter, and we found a whole blog on the subject (www.recipesforlaughter.com).

As blogger Alexis Harmon says in explaining what her blog is about, "Invite your friends over to try your creations, and fun and laughter will surely follow." And your friends can take home the extras...if there are any. Friends, laughter, and hot biscuits. It doesn't get much better than that.



THE NEWS

OAK RIDGE NATIONAL LABORATORY

A Publication by and for the ORNL Employees of Carbide and Carbon Chemicals Company, Union Carbide and Carbon Corporation

Vol. 3—No. 47

OAK RIDGE, TENNESSEE

Friday, June 8, 1951

Drs. Law, Johnson Appointed Research Directors of C&CCC

The appointments of Dr. George H. Law as Director of Research, and of Dr. Franklin Johnston as Assistant Director of Research, of Carbide and Carbon Chemicals Company, a Division of Union Carbide and Carbon Corporation, have been announced.

Dr. Law was graduated as a chemical engineer from Lehigh University in 1926, and in 1929 received his Ph. D. from Yale University where he specialized in organic chemistry. He has been employed in the research work of the Company ever since then. In this work he has been active in the development of a large number of new products, especially insecticides, fungicides, and herbicides, and of intermediates used in the pharmaceutical industry. He was also prominent in developing a new process for producing ethylene glycol, the well-known permanent antifreeze.

Dr. Johnston is a graduate of the University of Missouri and received his Ph.D. from Pennsylvania State College in 1933. He also specialized in organic chemistry and also has been employed in the research work of the Company since he completed his graduate studies. Since 1938 he has been a research group leader at the Company's Research Center in South Charleston, West Virginia. Dr. Johnston has been particularly active in the fields of organic acids, plasticizers, and hydrocyanic acid derivatives. Among the latter is acrylonitrile, an important constituent in the Company's new synthetic fiber, *dyne*.

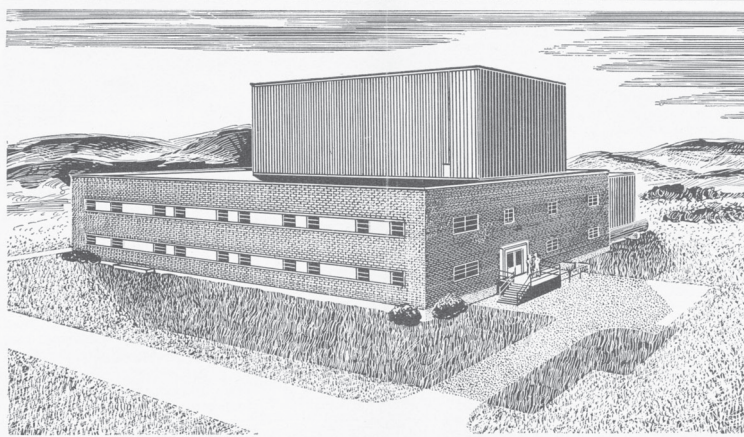
As Director of Research, Dr. Law succeeds Dr. Granville A. Perkins, who was recently named vice-President in charge of Research for Carbide and Carbon Chemicals Company in New York. Dr. Law will also make his headquarters in the Company's New York office but will spend considerable time in South Charleston. Dr. Johnston, who succeeds Dr. Law, will continue to make his headquarters in the South Charleston research laboratory where basic research and development work is being done on synthetic organic chemicals, plastics, and synthetic fibers.



Dr. G. H. Law



Dr. F. Johnston



ARTIST'S CONCEPTION OF WHAT THE NEW HIGH VOLTAGE LABORATORY WILL LOOK LIKE WHEN COMPLETED—The above drawing executed for The News by Artist Glenn Williams of the Health Division is an elaboration of an architect's sketch appearing on a print which had been prepared by The Austin Company. The new building will be located southeast of the Research Laboratory, which is now under construction and about 30 per cent completed. It is expected that the High Voltage Laboratory will be finished and ready for occupancy about the middle of March, 1952.

Construction Work On High Voltage Laboratory Begun

Southeast of the new Research Laboratory Building 4500, preliminary grading and some foundation work has been completed for the erection of High Voltage Laboratory Building 18 which, it is estimated, should be finished about a year from now. In it will be installed ORNL's three high voltage accelerators—the five million volt and two and a half million volt Van de Graaff generators, and the 600 kilovolt (six-tenths of a million volts) Cockcroft-Walton accelerator. They are now being used in other locations, the 2 million electron volts Van de Graaff and the Cockcroft-Walton in Building 2011 and the 5 Mev Van de Graaff at Y-12.

Besides the particle accelerators, the building will house the many other facilities and items of equipment necessary to a high voltage laboratory, according to Dr. W. M. Good, one of the physicists actively participating in the program. These items include energy analyzers, detection instruments for various types of reaction particles such as neutrons, gamma rays, and so forth. Target equipment and target preparation facilities will be included as well as equipment enabling the technical staff to keep the machines up to date and operating.

Forty-Five Students Selected to Attend School of Reactor Technology at ORNL

The Committee on Admissions to the Oak Ridge School of Reactor Technology has announced the names of 45 students selected to attend the 1951-52 session under the recent graduate category as student-employees of the Oak Ridge National Laboratory. The School has been expanded to permit a larger enrollment for the 1951-52 session. Announcement was made earlier of the 33 students who will attend the School under sponsorship of government agencies, Atomic Energy Commission contractors, or other industrial organizations.

The Oak Ridge School of Reactor Technology, which was established at Oak Ridge National Laboratory by the Atomic Energy Commission, provides a new source of experienced reactor development program by training who will join various government and regular employees at the end of the supplements the training of the professional in the highly specialized field of reactor technology to enable them to participate, through the expanding field of atomic energy.

Seventh Savings Plan Forms Made Available

Applications and deduction authorization cards for the UCC Seventh Savings Plan which starts July 1 are now being distributed through division representatives at the Laboratory to all employees with one or more years of Company service. Applications for weekly and hourly paid employees will be available starting July 1.

Carbide Camera Club To See Special Color Movie

Members of the Carbide Camera Club will take a "picture tour" of Tennessee's vacation land at the June monthly meeting set for 7:30 o'clock next Tuesday night when they will be entertained by Mr. H. M. Scott of the Standard Oil Company's Knoxville office who will show color movies of the State's picturesque spots.

Also pictures will be judged in the black and white competition of Oak Ridge scenic spots. The meeting will take place as usual in the club's North Portal headquarters at Y-12. Dark room custodian for June is Frank Gordon.

Mrs. Larson To Demonstrate Flower Arrangements

Flower arrangements will be demonstrated by Mrs. C. E. Larson at the monthly meeting of the ORNL Wives' Club at 8 p. m. Monday, June 11, on the west porch of Ridge Hall. Wives of all ORNL and Y-12 personnel are invited and guests are welcome.

Sixty years ago this month Taken from *The ORNL News* for June 1951

- Union Carbide and Carbon Corporation, under a newly modified contract now covers continuous operation of the ORNL, Y-12 facilities, and operation of K-25, K-27, K-29 and K-31 gaseous diffusion plants. June 1st began the forty-first month of continuous operation of ORNL by Union Carbide.
- The Oak Ridge School of Reactor Technology, established at ORNL by the AEC, has expanded to allow for a larger enrollment for the 1951-1952 sessions.
- ORNL's atomic energy research program is felt vividly at UT. The cooperation and mutual respect that mark these relationships go back to 1942. It is reflected in ORNL's list of more than 80 shipments of radioactive isotopes to UT since 1948.
- Dr. Weinberg speaks to the Institute of Radio Engineers at New York City. His subject: "What is Nuclear Engineering" as it pertains to the objectives for the country's nuclear energy effort. He points out that we ought to seek an alternative large-scale energy source, such as uranium fission, to take over when coal and oil run out.—prepared by ORNL History Room volunteers

From the Lab Director

I recently joined other proud ORNL owners of Nissan Leaf electric vehicles (EVs) in driving to work and plugging in for the first time. Currently there are only a few of us EV owners parking at the solar charging stations in the North Hill Parking Lot. Years from now I hope to see the parking lot filled with EVs from a variety of car companies as the transportation sector moves away from fossil fuels and toward cleaner energy. In the meantime, I'm proud that the Lab and its partners in the EV Project, including TVA, Nissan, ECOtality, and DOE, are in the forefront of this important transition. I intend to drive my EV to the Lab daily, although with my oldest son approaching the magic age of 16, I may have to hedge that bet.

Another new feature for the Lab is the multilevel parking facility next to the nearly completed Chemical & Materials Sciences Building. It's a hit, apparently, as spaces are filling up before the sun is very high. The parking facility is part of an effort to ease a long-standing parking crunch, particularly on the east campus.

Meanwhile, the Chemical & Materials Sciences Building is almost ready for move-in, and several researchers have expressed their eagerness to start working in their brand new facility. We also have tenants now on the fourth floor of the Computational Sciences Building addition, and White Oak Avenue has reopened to vehicle and pedestrian traffic.

Congratulations to our Office of Science Early Career Research Program award recipients, Gonzalo Alvarez-Campot, Nina Balke, and Ezekial Unterberg. They are among 67 researchers selected for these awards, which bring funding of up to \$2.5 million over five years. They competed in a pool of 1150 submissions, so this is quite an achievement.

I met recently with a delegation from the Øresund Materials Innovation Community that represents 18 organizations engaged in building the European Spallation Source, and MAX IV, a new synchrotron radiation facility in Lund, Sweden.

In addition, I recently returned to Dalhousie University in Halifax, Nova Scotia, to accept an honorary degree from my alma mater. While there, I had the privilege of giving the convocation address to the spring graduates of the Faculties of Science and Graduate Studies and attended the awards ceremony for physics students.

In mid-May the Tennessee Valley Corridor Summit was held in Chattanooga, where I was a featured panelist for a session titled "Growing the Talent We Need for Tomorrow's Jobs." There were also warm words for our friend Gerald Boyd, the recently retired DOE Oak Ridge Office manager who has been a valuable supporter and advocate of the Laboratory's modernization campaign.

The start of summer means the influx of summer students at the Lab. I've asked our hosts and mentors to take the time to ensure that students are well briefed on our procedures for working safely. We recently celebrated the completion of 7 million safe work hours at ORNL, with no days lost to injury since September 2010. Congratulations to Lab staff for extending a record of consecutive safe work hours.



“Congratulations to Lab staff for extending a record of consecutive safe work hours.”



Several hundred staff members gathered on the quad for ice cream to celebrate the completion of 7 million safe work hours.



Thom plugs his new Nissan Leaf into the charging station for the first time, while Environmental Sciences Division's Kathy Huzcko, a fellow EV owner, looks on.

Thomas Mason



Oak Ridge National Laboratory
Reporter
 P.O. Box 2008
 Oak Ridge, TN 37831-6266

PRSR STD
 U.S. Postage
 PAID
 Permit # 37
 Powell, TN

Bird watching goes high-tech

Ornithology joined forces with high-performance computing to support a new report on bird habitat released by the Secretary of the Interior Ken Salazar and Agriculture Under Secretary Harris Sherman.

The “State of the Birds” report relied on lab staff who helped analyze more than 600,000 bird observations collected and logged in Cornell University’s eBird database by citizen birders. The report evaluates the distribution of birds on nearly 850 million acres of public land and will be used to set policy agendas for governmental and non-governmental conservation efforts.

Through the National Science Foundation’s DataONE (Observation Network for Earth) project, ORNL team members helped integrate volunteer-collected eBird observations with environmental data from land use databases and remote satellite sensing data from the NASA-funded Distributed Active Archive Center at ORNL. With access to NSF’s TeraGrid, a collaborative collection of eleven high-performance computing centers, the team was able to calculate bird migration maps with unprecedented detail and accuracy.

“Maps of this detail are useful in making land use and other policy decisions that affect habitat for important species,” said John Cobb, who leads the ORNL Resource Provider effort for the TeraGrid.

While this year’s report focused on the relationship between land use and bird habitat, Cobb says future plans include conducting multi-year analyses to better understand how bird migration patterns vary over time, perhaps providing indicators of climate change.

ORNL collaborators include Robert Cook and Suresh Santhana Vannan from the Environmental Sciences Division, Bruce Wilson from the Information Technology Services Division, and Line Pouchard and Cobb from the Computer Science and Mathematics Division. 🌿

