

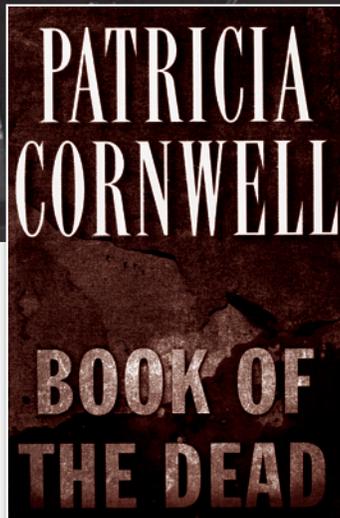
CRIME- SOLVING microscope

“For more than 20 years,” Cornwell said, “I’ve been researching scientific techniques and instruments here and abroad, and I’ve never seen anything as stunning as the LC-SEM at Y-12.”

Patricia Cornwell begins chapter 19 of her new novel, *Book of the Dead*, in a location unknown to most of the world. “Y-12 National Security Complex. Scarpetta stops her rental car at a checkpoint in the midst of concrete blast barriers and fences topped with razor wire.” In *The New York Times* #1 best-seller, Cornwell’s crime-solving forensic pathologist, Kay Scarpetta, uses Y-12’s Large-Chamber Scanning Electron Microscope to find crucial information that helps solve the crime.

Y-12’s LC-SEM is one of the largest chamber scanning electron microscopes in the world—large enough to accommodate an entire V6 engine block. It also has more analytical equipment than any other SEM, with applications in failure analysis, research and development and quality analysis. Magnification goes to 200,000 power, with 10-nanometer resolution—which is about 10,000 times smaller than the thickness of a human hair.

Cornwell toured Y-12 earlier in 2007, and Steve Dekanich, senior staff engineer, said, See CRIME, pg. 3



Standing in front of the Large-Chamber Scanning Electron Microscope, from left to right, are Jaret Frafjord of Quality Assurance, best-selling author Patricia Cornwell, Steve Dekanich of Quality Assurance and Martin Klein, the president of VisiTec, maker of the LC-SEM.



This year’s tour of the Florence Crittendon Agency brought back 18-year-old memories to Barbara Byrum, Legal’s United Way coordinator.

When she took Y-12’s tour of United Way agencies back in 1989, she went to the Florence Crittendon Agency, which provides a home, schooling and counseling to pregnant minors. She next visited

See BOY, pg. 2

Full steam ahead for new Y-12 steam plant

The Steam Plant Life Extension Project received good news when the National Nuclear Security Administration gave the okay to begin design and construction of a new steam plant, after a major change in scope.

Remarkably, the move to build a completely new facility instead of upgrading the current 54-year-old plant will save about \$27 million for the project. Some of the savings can be attributed to selection of a site outside the protected area, which simplifies construction requirements and allows for more efficient operation and maintenance.

The site is adjacent to Y-12's first steam plant, which was retired in the mid-1950s. When selected as the new construction site, the area contained three buildings that were scheduled for removal. In late FY 2007 the buildings were demolished, and foundation slabs were removed by the Infrastructure Reduction Project in preparation for reuse. The original steam piping distribution system still in operation will also be reused—another cost avoidance.

Both design and construction of the facility will be managed by one subcontractor, according to Robert Spurling, the project manager. "The design-build approach is particularly suited to this project," he said. "Most of the systems and components can be bought off the shelf." The new plant will use natural-gas-fired package boilers with new burner technology instead of coal, creating much cleaner emissions.

Tony Schneider, the project engineer, anticipates that the cost for natural gas to operate the facility will be offset to some extent by lower maintenance costs associated with a new facility and more efficient use of operating personnel.

Construction is expected to begin in the fourth quarter of FY 2008 and be completed by mid-January 2010.



Tony Schneider (left) and Roscoe Wilson, steam plant utility engineer, at the new construction site, which was cleared of debris in late FY 2007 as part of Infrastructure Reduction activities.

BOY cont. from pg. 1

Child and Family Services, which handled the agency's adoptions. "We'd been trying to adopt from overseas, and I was surprised to learn that we could adopt from Child and Family Services," said Barbara.

Barbara and her husband, John Byrum of Y-12's Facilities, Infrastructure and Services, put in their application, and about six months later the phone rang at 7 a.m. "It was a social worker saying, 'We've got a little boy for you!'" said Barbara. "He was in a foster home up on a mountain top near Asheville, N.C. He was snowed in, and we had to wait for the weather to break to get to him. Even then we had to change cars three times to get up the mountain on bad roads."

After a day with the baby, the Byrums knew they wanted to adopt him. "We couldn't actually claim him until several weeks later," said Barbara. "All that time I was counting the days—five days until we get our baby. Four days until we get our baby."

Eighteen years later, their son Brandon is a senior at Oak Ridge High School, majoring in media studies.

"I've worked with United Way ever since," said Barbara.

UNITED WAY

- Construction workers have increased their participation by 40 percent.
- The dollar amount is up 13 percent from last year to more than \$700,000.
- New leadership gives total 47.



November 2007



Gloria Mencer (left) presents Susana Navarro-Valenti with a certificate of achievement for her company being the first graduate of Y-12's Mentor-Protégé Program.

Pomp and circumstance for one Y-12 protégé

No mortarboards were tossed at this graduation, but it was a meaningful event nonetheless when Navarro Research and Engineering graduated from the Y-12 National Security Complex's Mentor-Protégé Program in October.

"We feel graduation is the beginning of a new stage in our relationship with Y-12," said Navarro president Susana Navarro-Valenti. "Participating in the Mentor-Protégé Program helped us strengthen our existing relationship."

Navarro, a small, disadvantaged, woman-owned business, is the first of Y-12's 20 protégés (that includes 15 businesses and 5 historically black colleges and universities) to graduate from the program.

Ken Keith of Engineering was one of Navarro's mentors and speaks highly of the experience. "It was very interesting and offered a chance to see some of the inner workings of a young, new company and share in its energy and excitement around its activities."

Both mentor and protégé agree the program is a win-win for all involved. "We benefited because of all the support we received from Y-12. At the same time, Y-12 benefited from our services and the many successes we have achieved jointly," Navarro-Valenti said.

Keith agreed. "Y-12 helped Navarro expand its experience base, which obviously benefits the protégé as it sets them up for future business opportunities, but Y-12 benefited as well. The experience gained allows Navarro to be another competitor on our contracting efforts, promoting additional healthy competition."

Y-12 is the company's primary client in Oak Ridge; Navarro works with Environment, Safety and Health and Engineering.

Productivity improvement in action

How much time does it take to transcribe thousands of numbers per month and then enter them into a computer system?

That's a question a Dismantlement team won't have to answer anymore. The team recently piloted the use of bar-code scanners, similar to those used at local stores, for data entry in the production area.

The bar-code scanner is connected to a computer and brings together in real time the work being done and the input of data for that work. The scanners increase efficiency and accuracy, thus improving productivity.

Eliminating the transcription of information means that resources will be freed up to do more value-added work versus correcting errors. It allows the project to "effectively utilize resources," said Bill Satterfield, who worked with the team that put the scanners into practice. In fact, the productivity improvement idea is contagious because the scanners are also being deployed elsewhere, and the demand for them is growing.

Annette Zeek, a Y-12 supervisor, said, "We feel that the implementation of scanning bar codes has had a great effect in improving our efficiency and in reducing the number of data entry errors."

Introduction of the real-time data entry scanners required employee involvement with collaboration between operators and customers. Michael Mattmann, a process engineer, noted, "Deploying scanners in the operating area has been challenging, but it will pay dividends."

This Lean* project provides a mistake-proof tool that automates a once tedious process. It took teamwork to make it happen, and now that the scanners have been tested, the improvement in productivity will continue to increase.

**Lean is a business approach based on the goal of eliminating waste and improving productivity. It was pioneered and perfected by Toyota, and it complements 6 Sigma.*

CRIME cont. from pg. 1

"She was very quick to pick up on the LC-SEM's capabilities." Systems engineer Jaret Frafjord added, "She took notes on the sights, sounds and smells in the lab and asked very perceptive questions. She was an amazing person to work with."

"For more than 20 years," Cornwell said, "I've been researching scientific techniques and instruments here and abroad, and I've never seen anything as stunning as the LC-SEM at Y-12."

This is not Cornwell's first use of East Tennessee's unique crime-solving capabilities. Her novel *The Body Farm* spotlighted the University of Tennessee's Anthropological Research Facility, where bodies decompose under varying conditions to provide critical data for forensic studies.

Cornwell took some poetic license in *Book of the Dead* by changing the building location of the LC-SEM. But her descriptions of the huge microscope—"dampening pillars the diameter of trees," "the air dryer vents in a huge, heartfelt sigh that sounds like a whale"—are precisely as awe-inspiring as the microscope itself.



ES&H EXPO



What You Do Counts, Make It Personal

Sung to the tune of Johnny Cash's "Folsom Prison Blues," Environment, Safety and Health's Sam Easterling wrote and performed this song at the ES&H Expo's opening ceremony.

I hear that change a coming
 It's rolling round the bend—
 Y-12 ain't changed like this
 Since, I don't know when—
 Two new buildings, productive and versatile
 What You Do Counts, Make It Personal!

My boss said we're moving
 We're going over there—
 Pack your ten boxes,
 And your ergonomic chair—
 The future is coming, all aboard this train
 I hear that whistle blowing, and it sounds like change.

Transformation is coming
 All aboard this train—
 Bringing new ideas
 And strategic change—
 H E U M F and U P F too
 Safety, security, for the red, white, and blue.

I hear that change a coming
 It's rolling round the bend—
 Y-12 ain't changed like this
 Since, I don't know when—
 Two new buildings, productive and versatile
 What You Do Counts, Make It Personal!



Y-12 National Security Complex employees and retirees, community citizens and leaders from various walks of life attended the seventh annual BWXT Y-12 Environment, Safety and Health Expo Oct. 24 at the New Hope Center.

This year's Expo theme, "What you do counts—Make it personal," encouraged attendees to make environmental stewardship, safety and health a personal focus of daily decisions and routines. The Expo provided information, equipment, supplies and success stories that promoted environment, safety and health responsibilities at home and at work.

This year's award-winning booths were (listed in first-place and second-place order): Best in Show: Safeguards and Security/Emergency Services and Occupational Health Services; Best Interactive: Behavior-Based Safety and Transformation (Uranium Processing Facility, Projects and ES&H); Best Visual Presentation: Radiological Control and Environmental Compliance; Best Safety-Related: Occupational Health Services and National Security Programs; and Most Useful Information: Safeguards and Security/Emergency Services and Civil Engineering.



BWXTymes

“I THINK ...”

“ The ES&H Expo is great! I really like the idea of getting my flu shot at the event. I also enjoyed the kickoff ceremony, wellness exhibitors and Robin Wilhoit's presentation on breast cancer.”
Hazel Arnwine
Document and Property Management

“ I liked the take-home information. It's a reminder that safety should be with you all the time.”
Robert Monleon
Construction

“ This year's ES&H Expo is even bigger and better. I liked the more diverse exhibits and the opportunity to showcase the New Hope Center.”
Steve Jones
Atomic Trades and Labor Council

“ I worked the booth in the children's activity area. The cookie table was fun and busy! Having events like this helps keep you in touch with the community.”
Krissy Knight
Continuous Safety Performance Improvement

“ The Expo is a wonderful event. I look forward to bringing my wife and kids every year. We all need to be more conscious of our actions and how they affect our environment, safety and health.”
Bo Jackson
Product Certification

Building 9731 contributes to Stable Isotope Program

The Building 9731 calutrons, two alpha units and two beta units were used first to work out the design changes to be implemented in the remaining calutrons in the major calutron buildings at Y-12.

More can be said about these amazing calutrons in Building 9731 during their use after the war. When the calutrons were removed from all of Y-12 buildings except Beta 3, four units in 9731 remained operational. It was here Y-12 turned to the next challenge—separating isotopes of elements other than uranium.

The first material to be separated other than uranium was copper. This activity took place in the fall of 1945 and started the Stable Isotope Program. In a letter to Manhattan Engineer District's A. V. Peterson, E. P. Wigner of Clinton Laboratories said, "... In our opinion the work now being done at the Y-12 Plant is and promises to continue to be scientifically one of the most important proj-

ects now underway in the country ... and soon will be more important on every count than the uranium isotope separation."

The 9731 Beta calutrons made a significant contribution to the Stable Isotope Program that produced the genesis of the medical radioisotopes used for diagnosis and treatment of a variety of diseases. By 1959, the demand for stable isotopes was so great, Beta 3 was brought into service to increase the production quantities of stable isotopes.

Do you have a historic story about Y-12 to share? Contact Ray Smith (srd; 576-7781) with suggestions for future stories.



Follow the paper trail

What stretches from the New Hope Center to Clingmans Dome in the Smokies? Ask Greg Livengood, Barbara Byrum, DeAnna Gardner, Karel Moylan and Abby Muller and they'll likely respond: "A lot of work!" Theoretically, if you take the 407,815 pages the group processed as part of Freedom of Information Act/Privacy Act and Energy Employees Occupational Illness Compensation Program Act, or EEOICPA, requests for information and place the paper end to end, you'd span a distance of roughly 70 miles.

FOIA establishes the public's right to request records from federal government agencies. The five-member FOIA/Privacy Act team works closely with other Y-12 organizations to process requests quickly and efficiently.

"We process all requests with the same degree of protection and rigor," said Muller.

"Information has to be protected to make sure it only gets into the hands of people who have a right to it," added Livengood.

The Recognition Continues:

WINNERS OF PHOTO CONTEST

For the next few months, this feature will highlight the 30 honorable mention photograph winners of the Y-12 photo contest. Photos are shown in no particular order. (Correction: Bob Slaughter's photo in the October *BWXTymes* should have been titled "Middle Prong of Little River.")

Far left: "Spring Creek," a photo taken in infrared mode, was taken in Cumberland Gap, Tenn., by Dean Shipley of Engineering. Second from left: "Fountains at Night" was taken in Knoxville, Tenn., at the World's Fair Site by James Pugh of Information Technology. Bottom right: "Autumn Walk," taken in Mountain City, Tenn., was shot by Dennis Shekinah, father of Engineering's Elijah Shekinah. Top right: "Sunset at Concord" was taken at Concord Park in Farragut, Tenn., by Darrin Mann of Analytical Chemistry.



Security Improvements Project receives CD-1 approval

In early October, the Security Improvements Project, known as "SIP," received official Critical Decision-1 approval from the National Nuclear Security Administration Headquarters.

SIP is one of many components of Y-12's transformation to provide a safe and secure uranium storage capability. The project implements a comprehensive system to manage and integrate Y-12 intrusion detection, alarm monitoring and access control systems.

At the heart of SIP is the Argus system. As Safeguards and Security's Dexter Beard explained, "In Greek mythology, Argus was described as 'having the hundred eyes/all watching and on duty round his head/save two which took in turn their sleep and rest.' As the heart of the future security system at Y-12, Argus will constantly watch over the Complex with hundreds of 'eyes,' provid-

ing information necessary for the protection of the national assets contained therein."

Beard continued, "Unlike the Argus of Greek mythology, Y-12's Argus system will provide a modern, upgradeable system able to change with technological improvements and respond to ever changing threat assessments."

Y-12 Site Office Federal Project Director Dale E. Christenson said, "Obtaining CD-1 approval is a significant accomplishment for Y-12 and is the result of more than two years of dedicated work by the SIP team in a changing security environment. The approval represents the commitment of NNSA Program Executives to move forward with this project and confidence in Y-12 in being able to execute the work."

Y-12 adapts Code Blue

When you hear the words "code blue" at a hospital, you know it's a call to begin CPR immediately. At Y-12, however, Code Blue is not a medical emergency. It is a system for managing a situation that adversely impacts schedule. During a Y-12 Code Blue, work resources are available 24/7 until the situation is resolved.

Existing Y-12 processes and procedures remain in place during a Code Blue. However, each organization determines its strategy for handling the situation and assigning personnel.

The division manager who implements a Code Blue names a re-

sponse team leader. The team is then selected by the functional areas responsible for addressing and resolving the problem.

If the situation is very serious, a "one call" policy may be implemented. Code Blue directs the response team to call the direct provider of resources. If the resource provider cannot supply the response needed, the next call is to the division manager for quick resolution.

Darrel Kohlhorst, senior vice president and chief operating officer, said, "Code Blue is an effective way of pulling together resources to make a big difference quickly."

What you do counts



Pamela Skinner

For Senior Benefits Specialist Pamela Skinner of Human Capital, there is deep satisfaction in finding hope for Y-12 employees and retirees. "The most satisfying part of my job is helping them resolve problems regarding their benefits," said Skinner. "I am here to assist and give employees a better understanding of what to do to get the most from their benefits."

Skinner recalls one employee whose husband had been killed in an auto accident. "She didn't have life insurance on him," she said. "But we discovered that she was enrolled in our special accident coverage with the family plan. He was covered under that." Skinner helped the employee file a claim, which was approved. The proceeds were paid within a month.

Skinner said the most challenging part of her job is keeping up with changes to the plans. "Also, sometimes we have to do research to find the answers," she said. When a retiree and his wife contacted her about a substantial claim the hospital said had not been paid, Skinner followed up until she discovered the prob-

lem. The insurance company had paid the wrong hospital.

Skinner's determination to help employees find hope, often in times of stress, supports BWXT Y-12's policy of providing not only excellent benefits, but benefits support as well.

Her passion for people extends beyond the job to her hobbies, which include spending quality time with her family and working with youth in her church. Skinner also likes to shop and exercise.

If you have questions about your benefits, contact the OneCall Service Center at 574-1500.



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P.O. Box 2009
Oak Ridge, TN 37831-8245

Managing Editor

Melissa Leinart
865-574-1621 (6ml)

Associate Editors

Amy Alley
Heidi Spurling
Layout
Lisa Harris

Contributors

Campbell Cloar
Joy Evans
Kathy Fahey
Jamie Loveday
Brett Pate
Gail Powell
Cindy Robinson
Ray Smith
Donna Watson
Lisa Xiques

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Be an angel for an angel

Help a child in need this holiday; visit <http://home1.y12.doe.gov/angel> to learn how.

Ferguson first woman to reach 50 years of service

Dwight D. Eisenhower was president, the Soviet Union had launched *Sputnik*, "Leave It to Beaver" premiered on CBS and Donna Ferguson went to work at Y-12. The year was 1957. Ferguson had just returned from Texas with her family, needed a job and heard that Union Carbide was the place to work. Fifty years later, she has made history as the first woman to mark her golden anniversary at Y-12. Ferguson started out as an IBM keypunch operator and is currently a product configuration management lead, holding several positions in between.

"I'm so glad to reach 50 years," said Ferguson. "I have enjoyed every minute of it. Work keeps me going.

"I really appreciate what Y-12 has done all these years in support of our country and our military," said Ferguson. "As an employee, I feel I had a part in contributing to this success.

"My customers are good to me, treat me like family," she said. "You become close working hand-in-hand. During trying times, you can always depend on your coworkers for support with their giving and loving hearts. Y-12 has been a world-class place to work."

When not at work, Ferguson enjoys reading and spending time with her son and grandsons. She also is a huge supporter of our military and our veterans, often participating in planning Veteran's Day activities and ceremonies.



Donna Ferguson: "I'm proud to serve God and my country. At the moment I haven't made any plans to retire. For now I'm enjoying my work."