

UNEARTHING A HOTBED

MYTHIC SITE WITNESSED A CHANGING WAY OF LIFE IN AMERICA

One of the Civil War's most mythic and hotly contested places has been the focus of a three-year archeological investigation, now entering its final stages. Part of the historic federal armory at Harpers Ferry National Historical Park—long inaccessible to research—has been excavated, examined, and documented. Though only a small portion of a large factory complex, it offers an unprecedented opportunity to see how the facility—an early harbinger of a new way of life in America—operated. Researchers are beginning to analyze the more than 28,000 artifacts recovered, with a report to follow.

development in the industry. A host of private concerns sprouted up on nearby Virginus Island—a sawmill, flourmill, machine shop, two cotton mills, a tannery, and an iron foundry. Two railroads and the Chesapeake & Ohio Canal converged on Harpers Ferry, fueling a boom.



Near left: Archeological site with the train station in the background. Far left: Molded clay tobacco pipe, made in the mid-late 19th century, excavated outside the smith and forging shop. The fluted design was common. Right: Idyllic scene of Harpers Ferry, showing the armory, painted around 1835.

But all was not happy. “Former craftsmen were now just machine tenders,” says project archeologist Andrew Lee, their pastoral existence ruled by timeclocks. The management changes, including the appointment of a military superintendent in the 1840s, sparked a long period of unrest, punctuated by a strike. One worker became a local folk hero after assassinating the superintendent. Secession debates brought more stress to the border community, and prosperity ended with the onset of the Civil War.

In 2001 the National Park Service acquired a six-acre tract from the B&O Railroad, whose embankment had obscured much of the armory. The investigation focused on remains that hadn't been covered up, of a warehouse built in 1841 and a smith and forging shop, once the largest structure, built in 1845.

The property was the site of the armory engine house, later known as “John Brown's Fort,” where the abolitionist and his followers barricaded themselves during their raid. Archeologists also set out to discover the location of a 100-foot-long warehouse associated with the ferry run by Robert Harper. The project has answered long-standing questions about the exact locations of the workshops, what their dimensions were, and how well they are preserved today, facts not previously known due to contradictions in the historical record.

George Washington, a local landowner looking to spur development, sited the armory here against the counsel of his advisors, says Stephen Potter, NPS regional archeologist. In 1799, what was once called “an abominable little village” was transformed into a government-backed industrial center. Hundreds of thousands of pistols, rifles, and muskets came out of Harpers Ferry, whose facility was crowded with a workforce that at times numbered 400.

Making firearms was a craft passed down through generations. Early on at Harpers Ferry, gunsmiths met their quotas, then went home. Technology changed that. The war department contracted New England inventor John H. Hall to build workshops equipped with the latest precision machinery, pioneering the use of interchangeable parts for weapons. Hall's straight cutter, an early version of the modern milling machine, was a major

In 1859, John Brown and his band seized the armory, intending to arm a guerrilla force in the Blue Ridge Mountains, a warning of the seismic shock to come. Less than 24 hours after Virginia seceded in April 1861, Confederate militia advanced on Harpers Ferry. The federal garrison, outnumbered and with no reinforcements on the way, retreated to Maryland across the Potomac, setting fire to the armory. While much was destroyed, the Confederates rescued some of the machinery and tools, which were sent south.



RIGHT MARYLAND HISTORICAL SOCIETY, LEFT DAVID ANDREWS/NPS



ALL PHOTOS THIS SPREAD HARPER'S FERRY NHP

Left: Bird's eye view of the excavation. Left below: The smith and forging shop, ca. 1886. Right below: Part of the excavation.

DUE TO ITS STRATEGIC LOCATION AT THE HEAD OF THE SHENANDOAH Valley—and the presence of the canal and railroad—Harpers Ferry was a coveted prize, possessing one of the few water passageways through the Blue Ridge. Whoever controlled the town controlled the railroad, and the B&O was a critical transportation corridor.

Harpers Ferry was a flashpoint throughout the war, at times a refugee camp for African Americans escaping slavery. A surprise raid by Stonewall Jackson captured thousands of Union troops and a large cache of supplies. The town changed hands eight times, and by 1865 was in ruins. The government abandoned its holdings and floods, scavenging, and the effects of time erased a good part of the armory.

system—including a cast-iron hydrant dating to the 1850s. The artifacts span the site's entire history, encompassing the Native American presence. They include rifle parts, tools, china commemorating the founding of the B&O Railroad, Civil War items, and an apothecary's weight for measuring doses of medicine. Industrial waste—slag and coal—is present, too. "We've also found clothing buttons and beautiful bone-handled toothbrushes," says Mia Parsons, the National Park Service archeologist who oversaw the work. The project offers a wealth of opportunities to learn more about the factory way of life that took root here.

THE PICTURE WILL BECOME CLEARER AS ARTIFACT ANALYSIS, NOW IN THE early stages, progresses. But the clues are tantalizing. While no dia-



THE ARTIFACTS SPAN THE SITE'S ENTIRE HISTORY, ENCOMPASSING THE NATIVE AMERICAN PRESENCE. THEY INCLUDE RIFLE PARTS, TOOLS, CHINA COMMEMORATING THE FOUNDING OF THE B&O RAILROAD, CIVIL WAR ITEMS, AND AN APOTHECARY'S WEIGHT FOR MEASURING DOSES OF MEDICINE. INDUSTRIAL WASTE—SLAG AND COAL—IS PRESENT, TOO.

During an 1894 track realignment, the B&O covered much of the site with an earth and rubble embankment. Some years later, to draw tourists, the railroad planted shrubs, trees, and flowers, with outlines on the ground to show where the buildings had been and signs to explain the history. In 1931, when the train station moved upstream, an enlargement of the embankment further obscured the armory.

Congress designated Harpers Ferry a national monument in 1944, but by that time, the grounds were completely overgrown, the site largely unchanged until the park acquired it five years ago.

IN THE FIRST SEASON OF WORK, LEE SAYS, ARCHEOLOGISTS FOCUSED ON getting an overall picture, locating the corners of buildings, entranceways, and streets. The park's rich collection of historic maps and photographs was invaluable. Archeologists uncovered large blocks of the two buildings, gaining orientation by finding the intersections of foundation walls. They also examined the stratigraphy, complicated by the large amounts of fill.

In the second season, they explored the interior spaces, including the floor of the inspector's office in the smith and forging shop, made of brick laid in a herringbone pattern. The archeologists found a brick-lined trench designed to exhaust smoke from the forges, a flue to supply air to them, and a fire suppression

grams or photos of the work stations survive, archeologists now know the floor patterns, a potential clue to what went on inside the buildings. "We know where the armorers and forges stood," says Parsons, "but it's hard to tell at this point what the working conditions were." Once analysis is complete, archeologists hope to have a better understanding of working conditions and manufacturing technology.

The trench in the floor of the smith and forging shop—which had been a warehouse during the campaign of Union general Sheridan—contained a wealth of artifacts "in the best condition of any we've seen," says archeologist Michelle Hammer, including soldiers' accoutrements, unfired ammunition, and numerous pharmaceutical bottles. The pristine condition may be because they were never used. "It's a time capsule," says Hammer. At project's end, after the site is mapped using GIS, it will likely be backfilled to aid preservation. Park planners are working on interpretive displays with the archeologists, who hope to expand exploration to the remains of workshops upstream.

For more information, contact Mia Parsons, email mia_parsons@nps.gov. Also visit the website of Harpers Ferry National Historical Park at www.nps.gov/hafe.

SWEET TRANSFORMATION

CAMBRIDGE CANDY COMPLEX SWITCHES FROM SWEETS TO SCIENCE

From the 240-foot-long laboratory to the inlaid stone double helix winding through the lobby's French limestone flooring, the Novartis research facility in Cambridge, Massachusetts, exudes the idea of pure science. But because of its successful renovation—and sugary past—to many the place is pure sweetness.



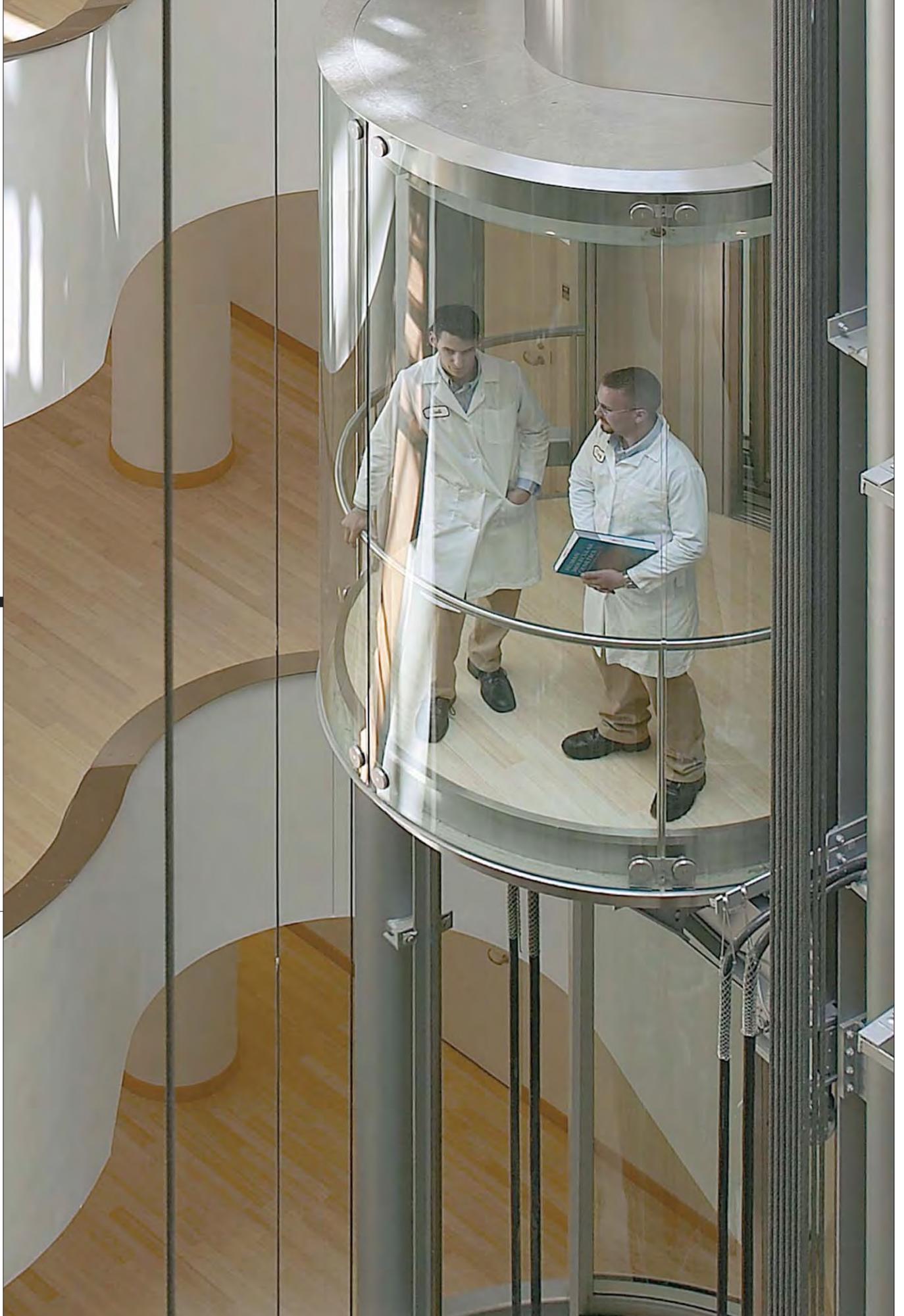
Far left: The Necco factory in its early days. Near left: The water tower, striped with candy wafers, before the redesign.

THE TANKS OF CORN SYRUP AND CHOCOLATE MAY BE LONG GONE, BUT THE six-story structure was once home to the New England Confectionery Company—Necco—birthplace to millions of those famous conversation hearts and other classic candies such as Sky Bars, Clark Bars, and Necco Wafers. That is, before the 3.3 acre site underwent a \$175 million transformation into the research headquarters for Basel, Switzerland-based Novartis Institutes for BioMedical Research, after Necco relocated to nearby Revere.

Jeffrey Lockwood, executive director of communications at the drug giant, says the decision to move into the 500,000-square-foot building, right next to MIT, was a no-brainer. “It’s the old adage of location, location, location—we’re now in the biotech center of the universe,” says Lockwood. Converting the structure from a manufacturing plant, built in 1927, to a state-of-the-art lab wasn’t the easiest of renovations. Modern medical research is a lot more complex than candy-making.

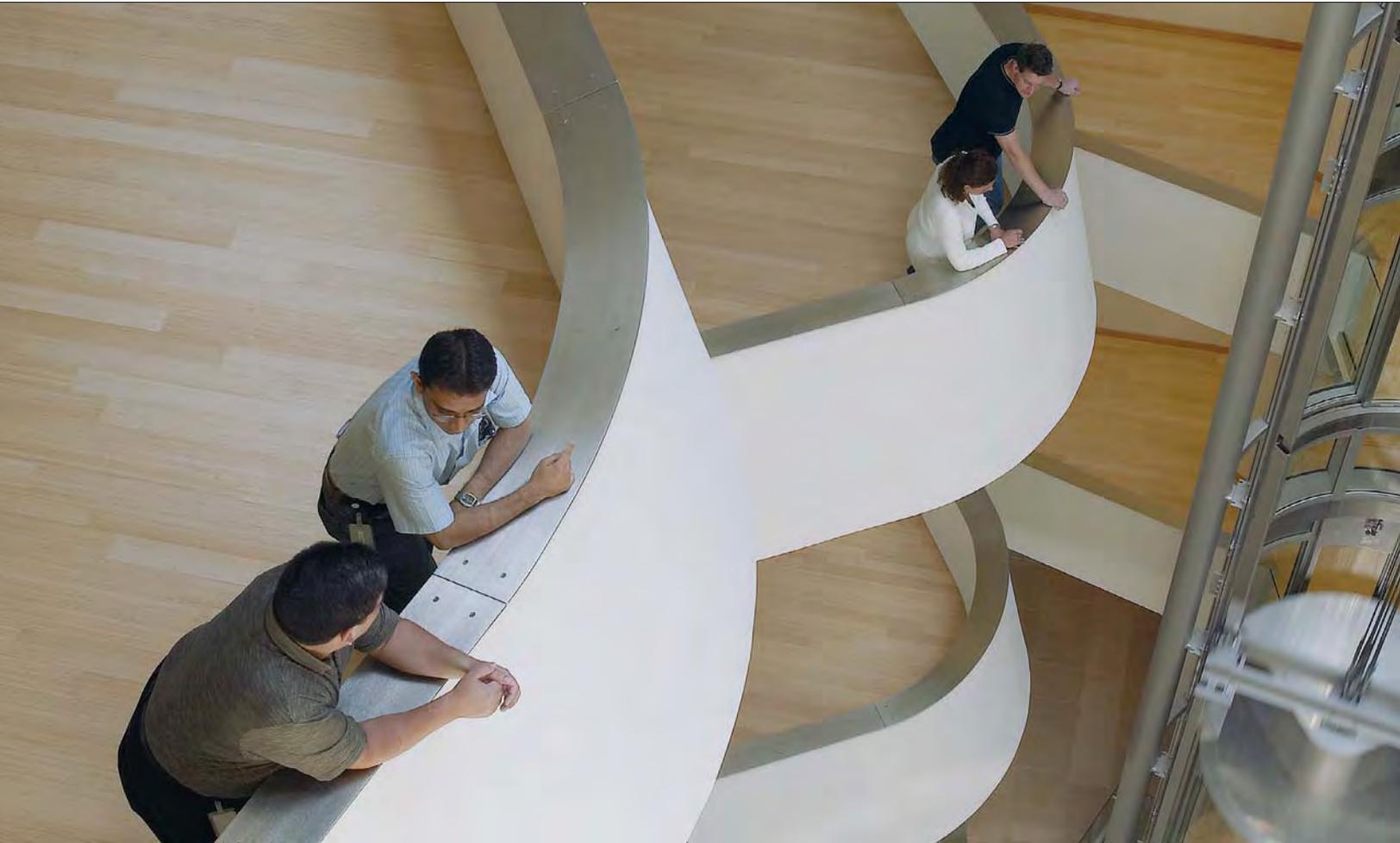
“Turning a candy factory into a very high-tech lab requires an enormous increase in mechanical equipment,” adds Scott Simpson, principal and CEO at Stubbins Associates, the architectural firm that redesigned the interior. But because it was large enough for 700 employees, and because of the prime location, the company was up for the challenge. Federal preservation tax incentives played a role in the motivation. Because of the incentives program—administered by the National Park Service and the IRS in partnership with state historic preservation offices—the landmark building was eligible for up to 20 percent of the total cost in tax credit savings. To qualify for the credits, buildings must be income-producing, and the work must be approved by the National Park Service as meeting the rehabilitation standards set by the Secretary of the Interior.

Right: Scientists move from floor to floor in candy-dispenser-shaped elevators.



RIGHT JEFF GOLDBERG/ESTO, LEFT NIECCO

BELOW JEFF GOLDBERG/ESTO, RIGHT NECCO



THE RENOVATION GOT OFF TO A SLIGHTLY STICKY START BECAUSE OF ALL THE SUGAR RESIDUE BUILT UP ON THE FLOORS AND WALLS OVER THE YEARS. SO THE FIRST STEP WAS TO CLEAN EVERY INCH. “THE BUILDING SMELLED VERY SWEET INSIDE,” SIMPSON SAYS.

The renovation got off to a slightly sticky start because of all the sugar residue built up on the floors and walls over the years. So the first step was to clean every inch. “The building smelled very sweet inside,” Simpson says.

AND NO WONDER—IT HAD BEEN MAKING CANDY FOR OVER 70 YEARS. F.C. Lutze, an engineer at Lockwood, Greene & Co., designed the brick and limestone-clad structure in 1925, possibly influenced by designs shown at the Paris Exposition des Arts Decoratifs, held that same year. And when it opened two years later, Cambridge and the surrounding area was a candy mecca, with 32 confectioneries already inside the city. The Fanny Farmer and Squirrel

Brand candy companies were just a few of Necco’s neighbors. Today, a factory a block away still produces some popular chocolate treats, including Junior Mints and Tootsie Rolls, but the region’s once thriving candy industry started dissipating in the 1950s, to be replaced by other industries like biotechnology.

Ed Tsoi, senior principal of Tsoi/Kobus & Associates, Inc., the firm in charge of renovating the building’s exterior, says that thanks to its modern-style construction—the structure was “one of the first reinforced concrete structures”—the masonry was in excellent shape. Because the tax program requires as much preservation as possible, Tsoi says they spent a lot of time with the



Left above: Novartis employees peer out into the six-story atrium. Above: The signature Necco sign.

National Park Service and the Cambridge planning department, in a joint effort to update the structure while keeping the historic integrity intact. Especially tricky were the windows, which had been replaced at some point with glass block. To meet today's energy-efficiency standards, the firm had to find similar aluminum windows that would replicate the original industrial ones. "There was some detective work involved," Tsoi says.

The inside, however—other than the concrete mushroom columns and a section of glass-partitioned offices—looks dramatically different. Everyone seems to agree that the most stunning change is the creation of an amoeba-shaped, six-story atrium,

which turned the dark, somewhat dreary interior into an oasis of light and transparency. And transparency is just what Novartis wanted. "In order to be successful in the biotech industry, it's really a team effort. There needs to be as much interaction and cross-pollination of ideas as possible," Lockwood says.

"It really is the heart of the project and a unique architectural feature," Tsoi says.

ROUND GLASS "BUBBLE" CONFERENCE ROOMS, OPEN-SPACED LABORATORIES, and at least one see-through glass wall in all private offices add to the effect. The circular glass elevators resemble candy dispensers. Lockwood points to the water tower as the signature nod to the past, originally wrapped up as a colorful roll of wafers. Novartis held a competition on how the structure could signify the new purpose. "We wanted to rebrand the tower—and Cambridge—from a candy center to a life science center," he says.

A double helix, one of the 500 ideas that were submitted, is now painted on the tower, sporting the same bright colors in the candy roll. The neighboring 20,000-square-foot power plant building, once used for the factory's boilers, has been converted to a 180-seat auditorium and full-service cafeteria. The main lobby café suggests the sweet past with a wall-sized photograph of Necco employees hard at work.

The transformation, which took only 18 months start to finish, has been recognized with several awards including the 2005 Laboratory of the Year award (in the "Adaptive Reuse" category) and the Business Week/Architectural Record 2007 Award for Design Excellence. And it is indeed worthy of those achievements, says Simpson. "The building is the same basic structure as before and its bones are very much in evidence," he says. "But its whole personality has changed dramatically—into a much lighter and brighter space."

Since it began in 1976, the federal historic preservation tax incentives program has approved tens of thousands of rehabilitation projects, and has served as a leading program in the revitalization of all kinds of historic properties including vacant or under-served schools, churches, and houses. The program has also helped increase the amount of affordable housing in historic buildings for moderate and low-income individuals. Preservationists who are planning to renovate a historic structure, or just want to know more about the program, can log on to the National Park Service technical preservation services website at www.cr.nps.gov/HPS/tps/tax/ for more detailed information.

HOUSE ON THE HILL

AN INSIDE LOOK AT ROBERT E. LEE'S LIFE ALONG THE POTOMAC

When Robert E. Lee's oldest daughter, Mary Custis Lee, left the family estate to visit with friends and family, she would announce her arrival with a calling card, as was the etiquette of the day. And until recently, tourists calling upon Mary's childhood home, Arlington House, could see Mary's silver card case, engraved with her initials. Today, though they can't see it in person—the house, while open during renovation, has its belongings in storage—they can do the next best thing: take a look at a new online exhibit.



Left: Ca. 1855 Colt revolver and bullet mold, part of a gun set given to Lee as a gift from West Point, where he served as commandant. Right: Benjamin J. Lossing's painting of Lee's home, Arlington House, as it looked in 1853.

ABOVE AND ABOVE RIGHT ARHO 123, RIGHT ARHO 2231-2232

THE EXHIBIT, PRODUCED BY ARLINGTON HOUSE STAFF IN ASSOCIATION with the National Park Service museum management program, features over 200 of the site's thousands of objects, some shown inside the house as they looked in Lee's time.

Many artifacts, such as Lee's ca. 1855 Colt revolver—a gift from West Point commemorating his promotion to commandant, a position he held from 1852 to 1855—are from his days as a captain in the U.S. Army. Lee served in the Mexican War (1846-48) before the posting at his alma mater, and later led a contingent that quelled John Brown's raid.

Though most people associate the general exclusively with the Civil War, this exhibit examines a more carefree time of his life, when he spent three decades here with his wife, Mary Anna Randolph Custis, great-granddaughter of Martha Washington. "The house really challenges visitors to reexamine Lee as a person," says Matthew Penrod, supervisory park ranger at the site. Witness to many happy occasions including Lee's marriage and the birth of six of their seven children, the estate was much loved by the entire fam-

ily. Agnes, another of Lee's four daughters, once wrote that "Arlington with its commanding views, fine old trees, and luxuriant woods can favorably compare with any home I've seen!" The Greek Revival house—now surrounded by Arlington National Cemetery—looks out on Washington, DC from a breathtaking perch on the Virginia side of the Potomac.

The exhibit also examines the lives of two other families linked to the site. When Martha Washington died, her grandson—George Washington Parke Custis—had hoped to buy Mount Vernon, but it went to a nephew instead. So Custis started construction on Arlington House. Deeply influenced by the president, who was a father figure, Custis dubbed his new home "Mount Washington" and furnished it with as many items from Mount Vernon as he could. A reflection of the adoration he felt for Washington, the exhibit includes many of the first president's everyday belongings, such as his tent bags and silverware box.

The original 1,100-acre plot on which the house sits, which has long since dwindled to around 19 acres because of the cemetery and other



B. J. Lossing 1843

Burlington House



development, looks out on Washington with John F. Kennedy's gravesite and the eternal flame notched into the hillside immediately below. The late president remarked while visiting the site that he "could stay here forever."

ROBERT E. LEE, HIMSELF A DISTANT RELATION OF CUSTIS AS WELL AS THE childhood sweetheart of his future wife, moved into the house after their wedding in 1831, where his Custis in-laws continued to live until their deaths. Although both Lee and his family left the house at various times because of his military commitments elsewhere, they did not permanently move out until 1861, right after the start of the war. Lee left the house forever on April 22, to join the Confederacy, two days after writing his resignation to the U.S. Army and vowing his loyalty to Virginia. "Though

returned years later, sometimes anonymously. Descendants of relatives, friends, and former slaves also returned artifacts. Still, Mary Troy, curator at Arlington House, says there is "still a lot out there," which the staff hopes to eventually re-acquire.

THE ARTIFACTS ARE A CLEAR WINDOW INTO THE HARDSHIPS OF 19TH CENTURY life. The candlesticks, snuffer, and crystal two-light candelabrum make it easy to picture the house shrouded in darkness after the sun went down, and while the Lees lived very comfortably, such contrivances as the ca. 1790 foot stove, the brass bedwarmer, and several chamber pots are all reminders of the lack of today's modern conveniences.

Several items document the lives of African Americans at Arlington House. Custis owned more than 60 slaves, who were freed within

Left: The writing chair where Lee is thought to have written his resignation. Near right: Ca. 1820 cellarette for storing and serving liquor. Far right: Globe made by the Cary Brothers of England.



opposed to secession and a deprecating war, I could take no part in the invasion of the Southern States," he wrote to Secretary Francis Blair, in response to Lincoln's offer of command over the Union forces.

No doubt Lee's loyalties were conflicted. He loved his West Point memorabilia so much that in 1855 he had one of the parlors at Arlington House redecorated to remind him of his beloved academy (including the Colt revolver, engraved with his initials, which came in a wood case with a brass bullet mold). But the most famous object of all is his mahogany writing chair, where it is believed he wrote his resignation letter.

Mrs. Lee stayed on for another month, hurriedly packing and moving what possessions she could, before the Union soldiers arrived on May 24. While she saved many heirlooms, Union soldiers and curious passers-by carried off a lot. During several periods before the war department claimed the house in 1925, it was wide open. Many of the items—such as Mary Custis Lee's wooden toilet and sewing box, adorned with her initials—were stolen, then

five years following his death in 1857, as stipulated in his will. Visitors to the site can see the quarters of Selina Gray, who attended the house, located in an outbuilding directly behind it. While furnished with period pieces that illustrate how a house servant was sometimes the lucky recipient of throwaway items, it is also shockingly small for a family of eight. An archeological excavation of the ground underneath the brick-floored room revealed fragments of Cincinnati ware, originally brought to the house from Mount Vernon, and assorted pieces of china.

Preparing food—probably following the recipes of Lee's godmother Mary Randolph, who wrote the first American cookbook—was one of the main chores of Selina Gray and other house slaves. Many of the family's kitchenwares are featured in the exhibit. Several serving pieces, such as the Rococo revival sauceboat and the Sheffield silver plated salt dishes, are adorned with the Lee family crest—a squirrel burying an acorn. The squirrel, preparing for the long winter months ahead, is symbolic of the family's motto: "*Ne Incautus Futuri*," or "Not Unmindful of the Future."

Education, for both the Lee children and the family's enslaved African Americans, was extremely important to Mrs. Lee and her mother. There is plenty of evidence of that in the several teaching implements, including a book set used by Mrs. Lee during her own childhood, an "arithmeticon" chart with black dots used for teaching the children math, and a Cary globe dating to 1800. Some say the globe, currently stored on the property, has the distinction of having "never left the house," but that likely isn't true. According to Troy, there are references to it having left for conservation in the 1920s when the house was first turned into a museum, but "it is the one item that has been here the longest," she says. "It was wedged up around the rafters in the attic and somehow missed by every-



Above: Mary Custis Lee's silver calling card case. **Above right:** Sheffield silver salt dishes adorned with the Lee crest. **Right:** Sauceboat also bearing the signature squirrel and acorn.

one." With its peeling brown gauze skin and faded lettering around a wooden calendar ring, Troy says the globe will probably be removed again for further treatment.

The family belongings that have been returned to the house over the years evoke the sense of what it must have been like to live on a southern plantation, and many items such as the chess set and imported paint box suggest a comfortable existence. Horse riding, painting, and music were all family hobbies, as was entertaining guests. The Lees hosted several notable figures including President Franklin Pierce, Sam Houston, and author Lydia Sigourney. But the serenity of the property—and its future—were to be shattered by the war.

IN 1864, WHEN MRS. LEE, SUFFERING FROM DEBILITATING RHEUMATOID arthritis, was unable to pay taxes on the house in person, the federal government confiscated the estate, officially designating 200

acres as Arlington National Cemetery. After a lawsuit, the estate was returned to Lee's oldest son, who sold it back to the government. Army officials used the house and grounds until the 1900s, when it was first restored by the war department. The property was transferred to the National Park Service in 1934.

The restoration, the first in 80 years, will include a climate control system to protect the thousands of antiques from factors such as heat and humidity. "The idea is to treat the house itself as an artifact," Penrod says, adding that an additional goal is to make the site more interactive for its almost half a million annual visitors. "We want to allow people to walk into the rooms, and also have an area with computers where they can learn more," he says.



Though the house will be empty for the next three years, in addition to the online exhibit there are a number of evocative items on display at a small on-site museum. They include a lock of Lee's hair, along with hair from his favorite horse, Traveller, and a silver cup from one of Mr. Custis' annual sheep shearing contests. Penrod emphasizes that it's important for people to see Arlington House as more than just a furniture museum. "When you look at the objects," he says, "you realize it's not just the family's stuff, but a way of life."

The Arlington House exhibit can be accessed through the website of the National Park Service museum management program, at www.cr.nps.gov/museum/exhibits/arho. In addition to the artifact photos, viewers can call up a wealth of biographical information on Robert E. Lee through such features as a family tree and a timeline of significant events. "Teaching with Museum Collections" lesson plans, developed by the program, are also posted, as are family recipes such as "Sally Lunn" and "Owendaw Cornbread."

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