

### Discovers original Corbit-Sharp house colors By Carol Child Correspondent

atherine Matsen is a chemistry history detective. Using new scientific analysis, the Winterthur conservation scientist's investigative technique matched the colors of Odessa's historic Corbit-Sharp house to the original colors, right down through 234 years to the bare-bones wood. These colors are dramatically different from the colors thought when the last study was done in the late 1970s-early 1980s.

Matsen has been the Associate Scientist at the Winterthur Scientific Research and Analysis Laboratory since 2003.

The Corbit-Sharp house has been closed since January 2008 for major restoration. The Historic Odessa Foundation marks the grand re-opening of the house and the unveiling of the



Courtesy photo

original colors on November 28, with the start of the 2008 Christmas in Odessa tour, William Corbit himself hosting Ms Jane Austen during "A Jane Austen Christmas," the 2008 tour theme exhibited in the historic home.



The Philadelphia-style Georgian house, built by William Corbit, a tanner, and the town's leading citizen, was designed by prominent Philadelphia architect Samuel Sloane and finished in 1774. It is one of the most magnificent and significant Colonial houses in the United States. It is a National Historic Landmark and was listed on the National Park Service Network to Freedom in the spring of 2008.

The home stayed in the Corbit family until 1938 when H. Rodney Sharp Sr. bought and restored it. After his death in 1968, his family donated it to Winterthur. When Winterthur experienced a budget shortfall after 9/11, the grandchildren of H. Rodney Sharp formed the Historic Odessa Foundation in 2005 and Winterthur transferred the Corbit-Sharp house and its five other historic Odessa properties to the new nonprofit foundation, continuing the stewardship.

Deborah Buckson, Historic Odessa Foundation executive director, says in an email, "It is our job as historians and preservationists to preserve and protect our cultural heritage and to be as accurate in the preservation and restoration of our national treasures as we possibly can. It is therefore most important to research, record, and document every change made to a historic property so that future historians and preservationists, with new science and technologies available to them, can pick-up where we have left off."

Catherine Matsen picked up where her parents left off. It doesn't take a sleuth to discover that the environment in which

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she was raised colored her career choice in hues of science and historic preservation. She grew up in the historic Middletown farmhouse her parents bought in 1974, and then restored and appointed with antiques. The house is on the National Historic Register. Catherine and her two older sisters sometimes helped, re-glazing and repainting, but mostly observed. "They developed an appreciation for what it takes to restore something," says Catherine's father, David Matsen, a retired civil engineer. Catherine's parents, David and Allison, are members of the Middletown Historical Society and long have held an interest in historic preservation. The Middletown farmhouse was their third restoration project.

David Matsen grew up in a 1726 Pennsylvania brick and stone farmhouse which his parents continually restored and remodeled. His younger brother lives there now. His older brother lives in a Colonial brick house in New Jersey.

The influence rubbed off, too, on Catherine's oldest sister, Susan Maynard, who got her master's degree in business administration from the University of Delaware and was able to forge her interest in history and old things into her occupation as a manager at the Hagley Museum. Middle sister, Laura Moyer, is a social worker placing people with disabilities in jobs in the community. Catherine's mother, Allison Matsen, retired four years ago from teaching languages -- German, Spanish and French -- at the University of Delaware, and St. **Continued on page 74** 

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# Detective...

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Mark's and Middletown high schools.

Deborah Buckson has known Catherine Matsen and her family for a long time. "Allison used to bring her students to the Historic Houses of Odessa when I was Curator of Education at Odessa under Winterthur," says Buckson. Allison is a Winterthur guide and a docent for the Historic Odessa Foundation. Winterthur transferred Buckson to the main campus about 1998 as Director of Programs and Events. She resigned from that position to return to Odessa in 2005 to head up the new Historic Odessa Foundation.

Catherine Matsen graduated from Middletown High School in 1993, then earned her Bachelor of Arts degree in chemistry from Bryn Mawr College in 1997. She chose a liberal arts college, Bryn Mawr, to keep her career options open. Bryn Mawr has joint programs with other schools and Matsen considered being an engineer or architect. "I had always liked math," she says. But when she took chemistry in her freshman year, she loved it, and decided to major in chemistry, which happily combined physics and math. She wanted to learn how chemistry applied in daily life. She loved lab work – observations and analysis of the reactions, how substances changed form and color, using her hands -- "Like cooking," she says – and incorporating all those aspects from start to finish. She enjoyed the challenge and not being dominated by male competition at the all girls' school. "While there is competition at Bryn Mawr, you are competing with yourself," she says.

"Catherine was always a good student," says David Matsen. "She was especially focused on doing a good job and expected it of herself."

After graduating from Bryn Mawr, Catherine worked three years for the DuPont Company as a pharmaceutical lab technician. "But she knew there was more," her dad says. While at DuPont she began hearing more about architectural conservation and historic preservation, which, she learned, had a huge chemistry and analysis component. "Design and beauty are less important to me than the chemical analysis of the material composition and use," Matsen says.

She began working on her Master of Science degree in historic preservation at the University of Pennsylvania in 2001, but after she applied and before she had heard of her acceptance, by chance she was introduced to Jan Carlson, now deceased, who was the head scientist at Winterthur. Carlson told her there was a full-time, one-year internship open at Winterthur as a laboratory analyst in the Conservation Department. Matsen jumped at the opportunity, delaying beginning at Penn a year.

Matsen received her master's degree from the University of Pennsylvania in 2003. While pursuing her master's, she held internships at an architectural paint conservation project **Continued on page 76** 

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at Drayton Hall (a 1738-42 National Trust Historic site in Charleston, S.C.) and at the architectural research department at Colonial Williamsburg.

She worked at the Corbit-Sharp House in two phases. The first phase was between June 2002 and June 2003 as work for her master's thesis, titled: "The Corbit-Sharp House at Odessa, Delaware: Finishes Analysis and Interpretation of Four Interior Rooms." She chose only four rooms for her thesis as a manageable project to complete within the year. "Debbie Buckson then asked me to continue and complete analysis of the remaining interior rooms which I was very happy to do and wanted to be involved with because of my previous work," Matsen says. She completed the remaining rooms of the house in 2006-2007 as a Winterthur research project.

"I was aware of Catherine's master's thesis, in which she made a paint study of several rooms in the Corbit-Sharp House," says Buckson. "Her research and analysis were excellent and I felt she had academic ownership of the project. When we began to work on the Corbit-Sharp House preservation project, knowing Catherine was a Winterthur conservator I called her to see if she was interested in completing the paint study of the interior rooms and if she would have time in her



busy schedule. She not only graciously agreed but she also donated her time and expertise to the project for which the staff and Board of Directors of the Historic Odessa Foundation are very, very grateful."

David Matsen says that Catherine's successful achievements stem from guidance from her parents and from her own good sense. "What every student should be thinking of is how to include his or her interests and make a decent living. You can do it if you think about it long enough," he says.

Now Catherine Matsen applies her expertise to guiding other students. She helped Bryn Mawr at college fairs in Kent County, Del., served on an alumna career panel at Bryn Mawr for students majoring in science, and has given outreach talks to American Chemical Society groups in Delaware and New Jersey with colleague Chris Petersen, a Catherine Matsen

she teaches in the second-year science cur- drawing room. riculum for the Winterthur/University of Delaware master's program in art conservation in the Scientific Research and Analysis Laboratory. These U.D. courses enable students to gain hands-on experience in various techniques.



Photo courtesy Steve Pulinka sampling

Matsen and her husband, Dr. Bob Simpson, from Chapel Hill, N.C., a research chemist, have no children and live in the city of Wilmington in a 1920s house. "And yes! - I have analyzed the exterior paints as well as the paints and clear finishes

> on original interior architectural woodwork," Matsen says.

> Matsen has no plans to work on any other historic houses in Odessa because the Foundation received a grant to hire a paint analyst for the other buildings.

> "We could not have anyone as gualified or as much fun to work with as Catherine Matsen but unfortunately for us she is employed as a full-time conservator at Winterthur," says Deborah Buckson." As paint analysis is a very time consuming and comprehensive process we consider ourselves more than fortunate to have had as much of her professional time as we have!"

retired DuPont chemist and eight-year vol- paint from the chair rail of the For their other buildings they have used unteer at the Winterthur lab. Additionally, Corbit-Sharp House second floor Catherine Masek, a historic preservationist specializing in paint analysis from Annapolis,

Md. They heard about Masek through Preservation Delaware. "She has studied a number of other buildings in the state, including I believe, Dickenson Plantation. The vast majority of Continued on Page 79



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our preservation efforts have been funded through grants from various charitable foundations," Buckson says.

Catherine Matsen asserts that when deciding on a topic for her master's thesis, she was certain she wanted to do interior architectural paint analysis and chose the Corbit-Sharp House because of its importance to Delaware architecture and history and its importance to her. "I always had a fond recollection of the house because my parents would take our family to the Fourth of July fireworks held near the Corbit-Sharp House. You would bring picnic blankets, sit on the front lawn, and watch the fireworks. I had visited the house many times over the years and was quite familiar with it when I chose it as the topic of my thesis." Also, she says, "I was the same age when I was doing the paint analysis for my thesis, 27, as William Corbit was when he began to build his house in Odessa."

Walk back off Main Street in Odessa through the old trees to the front of the Corbit-Sharp House and the view from the house opens stunningly before you, running down across the green lawn through the little copses of trees to the silver Appoquinimink meandering though the golden marsh below. You might imagine yourself momentarily as William Corbit standing there, turning to Samuel Sloane and saying, "Let's put the house here."

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# Catherine Matsen Explains New Scientific Historic Paint Matching Analysis Process

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Catherine Matsen, a Winterthur conservator, matched the colors of Odessa's historic Corbit-Sharp House to the original paint colors, using new scientific analysis. She explains the process:

The old method of analysis was simply a scrape test, scraping down the layers, Matsen says.

By the new method, using a surgeon's scalpel, she cuts into and through the paint layers down to the wood, using extremely small samples, retaining the paint. She tests the paint in a polyester resin that is in a small one-half-inch square tube – a cube. First, she puts the paint samples into a tube half filled with solid resin. Next, she fills the remainder of the tube with liquid resin and lets the liquid harden for several hours. When the liquid is dry and solid, she cuts the cube so it exposes a cross section of the paint layers. She cuts off the excess resin to the surface of the paint, and then polishes that surface until it is glassy smooth. Then she places that cube under a very high-powered microscope – 125 up to 250 times magnification.

The microscope takes a picture of what she is looking at – in visible light. Matsen has taken multiple samples from throughout the room so she is not missing any layers, making sure the adhesion is very strong and continuous between the paint and the wood substrate, to the disturbed wood fibers.



Photo by Robert Simpson Catherine Matsen

"Then you look at particle size," she says. "In really old paint the pigments are hand ground. There are very thin layers, a few microns thin, of primer, finish coat and glazes on the paint. These cannot be seen with the naked eye. Under ultra-violet light many parts of the paint can be seen that cannot be seen under visible light. They auto-fluoresce."

