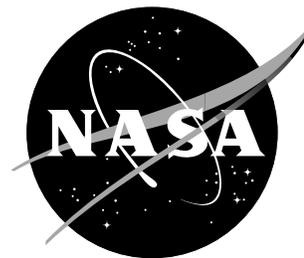


NewsRelease



National Aeronautics and
Space Administration

Langley Research Center
Hampton, Virginia 23681-0001

Marny Skora
Langley Research Center
(757) 864-6121 (757-344-6111 mobile)
m.m.skora@larc.nasa.gov

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Paula Neely
Association for the Preservation of Virginia Antiquities
(804) 781-0116 (804-240-9722 mobile)
pneely@erols.com

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TWENTY-FIRST CENTURY TECHNOLOGY APPLIED TO 17TH CENTURY FINDS

NASA helps unravel early colonial mystery

The Agency that is generally focused upward is helping archeologists identify findings from deep within a 17th century well at Jamestown, the first permanent English settlement in the New World.

NASA Langley high-tech X-ray equipment gave conservators from the Association for the Preservation of Virginia Antiquities (APVA) a peek inside rusted masses of concreted material pulled out of the 14-foot-deep well that may date between 1609 and 1620.

Charles H. Greenhalgh, Jr., NASA senior quality assurance specialist working in nondestructive evaluation (NDE), produced the X-rays. On a typical day, Greenhalgh interprets radiographic film of Langley's high-pressure air systems using established codes, standards and specification. He performs inspections on items ranging from wind tunnel fan blades to developmental composite fabrications that may be used on future aircraft. Greenhalgh employed this expertise to help solve the mystery of what was encased in the 400-year-old clumps.

"What's really there is often so much different from what the mass looks like, that it's easy to make the wrong guess," said Greenhalgh. The first clump of brick, clay and rusted iron X-rayed was thought to be a small cannon, known as a "murderer." Two sets of X-rays later, each peering a little deeper, revealed a wrought iron funnel-shaped object, that might be the nozzle to a bellows.

The advantage of NASA's high-powered NDE machine is that it reveals the density of the object, not just the shape. This allows conservators to better identify the object, determine the condition of the artifact, decide if it is worth conserving and select what type of treatment to apply – electrolysis or air abrasion.

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"We are pleased to be able to share with the APVA the resources that NASA and Langley offer the nation to ensure that America maintains its aerospace leadership," said S. Stewart Harris, Jr., deputy director for Fabrication Technology in Langley's Systems Engineering Competency.

Elizabeth S. Kostein, APVA executive director, said, "We are grateful for NASA's high-tech assistance with the Jamestown Rediscovery archaeological project. These artifacts are truly remarkable discoveries, and NASA's ability to help identify and analyze them is an invaluable resource that will help us learn more about the first settlers at America's birthplace."

About 50 items were X-rayed, including tools, a gun barrel, and several pieces of body armor.

Probably the most exciting item identified was a matchlock, a type of firearm. A popular and inexpensive weapon, a matchlock was ignited by a burning matchcord that was mechanically lowered, by pulling the trigger, into the pan. However, the soldier had to keep the match burning constantly so that he would have a ready source of flame to fire the weapon. A major drawback, the flame made the soldier a visible target at night, was difficult to keep lighted in inclement weather, and produced a pungent odor that would alert the enemy.

"Items found at the bottom of the well were probably dropped or thrown into it during the time that it was in use," said APVA conservator Michael Lavin. "We are finding items that are well preserved because they were immersed in the wet environment."

Items from the well – and about 450,000 other artifacts excavated since the Jamestown Rediscovery project at the site of James Fort began in 1994 -- are helping archeologists learn more about early colonial times. Through these finds APVA researchers hope to understand more about the design and strategic military positioning of James Fort, attempts at trade and industry, relationships with the Virginia Indians, how the settlers adapted to their new environment, as well as how they lived and died.

Finding and identifying the objects, though, is just the beginning of the conservation process. The items x-rayed at NASA's Langley Research Center in one day may take a year's work before they can be displayed in Jamestown.

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Photographs and video are available to support this story.

Broadcast media organizations are invited to take a b-roll feed via satellite from NASA TV Friday, October 25, during the NASA Video File, which runs at noon, 3 p.m. and 6 p.m. EST daily. NASA TV is broadcast on GE-2, transponder 9C, C-Band, located at 85 degrees West longitude. The frequency is 3880.0 MHz. Polarization is vertical and audio is monaural at 6.8 MHz.

Videotape is also available by contacting Gary Banziger at 757-864-1590.

For a preview of still images and video, go to:
http://oea.larc.nasa.gov/news_rels/2002/02-082.html

For more information about Jamestown Rediscovery, go to <http://www.apva.org>.