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THE MONONGAHELA PACKET

Historical Bulletin for the Lower Mon Project

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BRINGING YOU UP TO DATE ON THE LOWER MON PROJECT

We have accomplished some exciting aspects of our Lower Mon Project to modernize Locks and Dams 2, 3, and 4 on the Monongahela River in Allegheny, Washington, and Westmoreland Counties in southwestern Pennsylvania. Our plans to utilize an innovative in-the-wet construction process to construct new Braddock Dam at Locks 2 have been proceeding successfully. In July 2001, the huge 16,700 ton Segment 1 was towed about 29 miles from the construction basin at Leetsdale and up the Ohio River to the point of conjunction of the three rivers at Pittsburgh and then up the Monongahela River to an outfitting pier at Duquesne. Here it received further outfitting until December 2001 when it was set down on its foundation at Braddock. The 9,600 ton Segment 2, also constructed at the Leetsdale Casting Basin, was successfully transported from Leetsdale to Duquesne on February 27, 2002. Its setdown is projected to occur in May 2002. Current Lock and Dam 2 at Braddock, completed in 1905, is one of the oldest three locks and dams currently operating along the Monongahela navigational waterway. Since these three locks and dams experience the highest volume of river traffic in the system, their modernization is essential to safe and economical river transportation in the region. Completion of the new Braddock Dam will be an important milestone in our Lower Mon Project that will create one of the most efficient waterways in the world.



Crowd Watches Braddock Dam Segment 1 Towed to Duquesne

Update on Cultural Resource Studies Connected with the Project

We present Newsletter No. 7 in our series of updates of recent cultural resources studies undertaken as part of our activities in compliance with Section 106 of the National Historic Preservation Act. As a

Federal Agency, we are responsible for taking into consideration the effect our projects may have on properties included in or eligible for the National Register of Historic Places. We are committed as part of our mission to the protection of our Nation's cultural resources for present and future generations. This newsletter brings you the most recent of our efforts in this regard. We welcome your comments and feedback.

CONTINUING Historic American Engineering Record DOCUMENTATION.



Braddock Dam Segment 1 Floats Past Pittsburgh on Monongahela River

Although the ongoing, innovative construction of the new Braddock Dam is not "historic" by definition, the staff of both the District and the National Park Service view documentation of this construction project as important to the historic record of the navigation system. As a result, we agreed to add photographic and written documentation of the Braddock Dam

construction process to the HAER documentation package for the Monongahela River Navigation System. Periodically, we have taken large format black and white photographs of the dam construction sequence. These include segment construction in the casting basin, transport of Segment 1 to the Duquesne outfitting pier, preparation for and set-down of Segment 1 onto the foundation at Locks 2, and most recently (February 27, 2002) transport of Segment 2 to the outfitting pier. Future activities will include set-down of Segment 2 on its foundation, completion of the gate piers, and installation of the gates. This photographic record will eventually accompany a written description of the innovative construction process. The placement of these materials into the National Park Service's HAER collection at the Library of Congress will insure its preservation and availability for use by future generations of engineers and historians interested in researching significant advances in inland waterways engineering.



THE ARCHAEOLOGICAL SITE AT LEETSDALE

A major archaeological site, located along the floodplain of the Ohio River at Leetsdale, Pennsylvania, was discovered prior to construction during Phase 1 archaeological investigations to identify any cultural resources at the 30-acre area leased for the fabrication of the two segments of new Braddock Dam. Designated by the Commonwealth of Pennsylvania as archaeological site 36AL480, the site was deemed eligible for listing on the National Register of Historic Places. This is the official list of properties recognized by the Federal Government as worthy of preservation for their local, state, or national significance in American history, architecture, archaeology, engineering, or culture. Criterion D, used to define eligibility, states an archaeological site must have the potential to yield information important in history and prehistory. Site 36AL480 is eligible for its potential to add significant information to our current understanding of historic and prehistoric occupations in the upper Ohio River valley region.

The Phase 1 cultural resources identification studies revealed both historic and prehistoric archaeological components at the site. An historic brick factory overlaid a portion of the prehistoric component of the site. Early investigation of the prehistoric component revealed a number of occupations beneath the surface both vertically and horizontally across the site ranging from Middle Archaic to Early Woodland time periods. These occupation levels had been sealed by periodic flood deposits during high water episodes occurring along the floodplain.

The challenge to the District's Lower Mon Project team was to create a plan that would maximize the recovery of valuable archaeological data from the site while proceeding with the scheduled construction timetable. The innovative "in the wet" construction method being employed by the District for Braddock Dam had factored in seasonal schedules and water levels which needed to be met for launch and transport of the dam segments. In addition, the 16-foot below ground surface depth and 12-acre extent of the archaeological site, plus budget factors and safety factors concerning archaeologists or volunteers on site during construction, all presented challenges that had to be surmounted by the archaeologists and engineers.

As a result of that planning, three different areas (Area 1, Area 2, and Area 3) within the site were set aside and fenced off for archaeological investigations, including the historic Harmony brickworks component in Area 1. No similar site has been excavated during modern times in the Upper Ohio Valley and the goal of the archaeology at 36AL 480 is to gain new and important information covering the last 8000 years of cultural history in the region.

The overlying historic archaeological component was excavated first. This was an historic brick factory once owned and operated by the Harmony Society, whose former community at Economy is now preserved and interpreted by the Pennsylvania Historical and Museum Commission at Old Economy Village. The fieldwork for that portion was initiated in Fall 2000 and completed in Spring 2001.

Excavations in Area 3 for the prehistoric portion of the site began in late Spring 2001. The archaeologists contracted by the District have encountered at least four separate occupations up to this point, falling between the dates of about 4000 BC – 100 BC. It appears that generations of Native Americans have returned to use this location over a period of several hundred years for short visits of a day or several weeks. We are able ascertain this by looking at the tools, garbage, fire pits, etc. that they left behind.



Prehistoric Hearth Feature

One of the District's goals for this study is to share information through a variety of means with other researchers and the public. Volunteers excavated part of the site under the supervision of qualified archaeologists. It provided a rare opportunity for members of the public to learn first hand on an important site how archaeology is accomplished and the value of such studies. During the 2001 excavations, publicity in the news media alerted the interested public about the presence and importance of the site and of opportunities to volunteer at the site. Also during the 2001 excavations, a web-cam

overlooking the construction site was updated hourly and gave the internet community a chance to view the ongoing archaeological excavations. Additionally, our web site, www.lrp.usace.army.mil, offered background information on findings concerning the historic and prehistoric elements of the site. A news article in the Beaver County Times on Sunday, August 5, 2001 described the archaeological efforts taking place at Leetsdale. WTAE TV, Channel 4 Pittsburgh, covered the archaeological excavations on their evening news for Tuesday, August 7, 2001. Public television station WQED in Pittsburgh featured the archaeological excavations at Leetsdale in an article for their "On Q" news magazine in the Fall 2001.

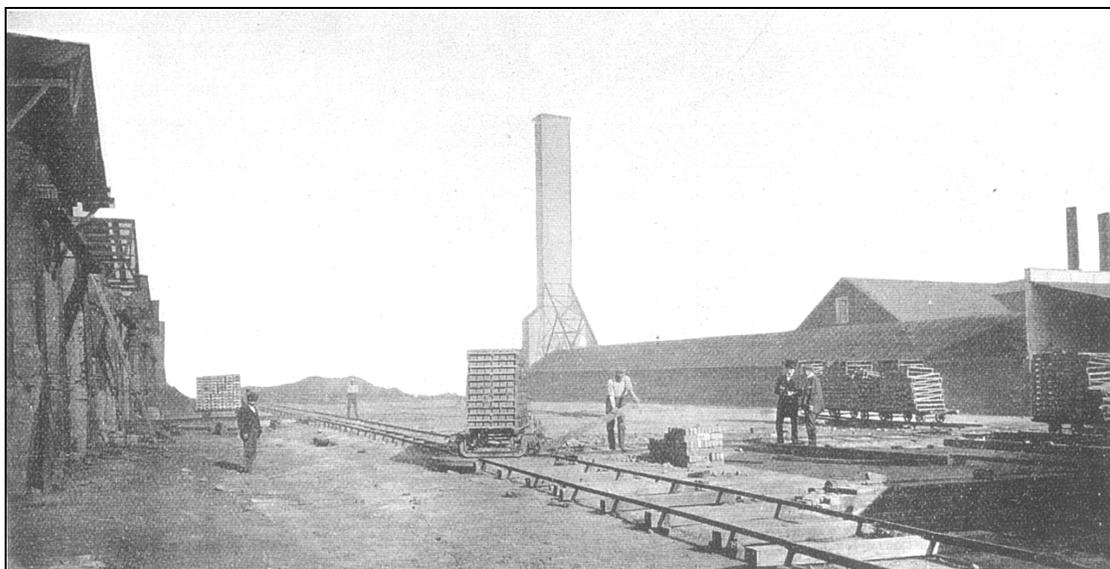


Volunteers Excavating at Archaeology Site at Leetsdale

To further enhance our effort to obtain maximum information about this important site, we called upon specialists in related fields. We engaged geomorphologists to analyze stream flow characteristics and frequency of flooding over time since understanding soil development is important to our interpretation of the site. Knowledge of the environment at the time of each occupation is important in understanding human activities occurring there so we engaged palynologists to study pollen information and ethnobotanists to identify nuts, seeds, wood species and other macrobotanical remains in order to help reconstruct the past environment. A lithic usewear analyst will examine stone tools under a high power microscope to identify the type of material they cut (plant, bone, etc.) in order to determine the types of activities that were occurring at the site.

THE HISTORIC HARMONY BRICKWORKS COMPONENT

The historic component of 36AL480 dates from circa 1850 – 1910. It includes the remains of two brick factories. Hugh Bevington, a former ship captain, developed a small brick factory there. Later the Harmony Society purchased the land and built a large commercial brick plant there. This religious separatist group was instrumental in the industrial development of the Upper Ohio River valley.



Harmony Brickworks ca. 1898

Historic archaeology involves a combination of documentary research, excavation, and analysis in order to more fully interpret the site's past and establish its significance within the scheme of local, regional, national, even international history. Our document research was able to provide background information on brick manufacturing, the economics of brick production, the Harmonist history of involvement in the brick manufactory, and it raised the questions for which our fieldwork might provide answers. Research confirmed that historically, as it is today, a favorable location is important to industry. The brick factory was located close to a clay source on the bank of the Ohio River. There was a source of fuel available from gas wells located nearby owned by the Harmony Society. The factory was located close to rail, river, and road transportation. Skilled workers from other brick manufactories that had been located in the area provided an available workforce. And the Harmony Society's connections provided a customer base. However, the location also had a major drawback. At least part of the factory suffered flood damage nearly every year. The costly delays and repairs resulting from floods meant that this factory was rarely profitable.



Hot air vent system under brick drying room floor

Our archaeological fieldwork at the brick factory uncovered changes in drying room technology, an important aspect of commercial brick making. It documented the construction methods of the brick making kilns (7 kilns were examined). We found remains of five large rectangular up-draft kilns and two smaller kilns that were fired periodically as bricks were molded, dried, stacked, and fired. Fieldwork preliminary findings revealed two variants of updraft kiln construction. Some kilns exhibited an interesting double "inner" and "outer" wall

design which suggested an air circulation refinement more characteristic of sophisticated downdraft type kilns. The kilns appear to have been fired with a combination of gas in the initial stages followed by coal in the final stages of the firing process. Although this achieved a desirable deep red color brick, the unusual process may have been a result of an inadequate supply of gas.

Brick Factory Excavations: Upper center is interior of small kiln; center are two fireboxes; foreground is exterior of kiln.



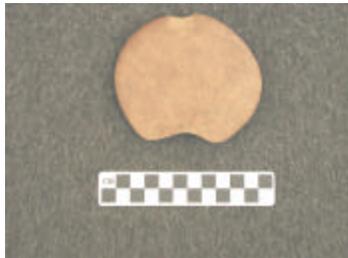
THE PREHISTORIC NATIVE AMERICAN COMPONENT

The District is only part way through prehistoric excavations at 36AL480 but the year 2001 fieldwork session already has greatly expanded our knowledge of the past, even though the final analyses and report for the 2001 excavations will not be completed before late 2002. A major gap in the history of the Ohio Valley may lose some of its mystery as a result of our archaeological work being conducted at the Leetsdale site. We expect to gain information about cultural changes in the area over the last 8,000 years of human history. We uncovered evidence that during the Early Woodland Period (1,000 BC-200 AD) a network of interaction existed between peoples at the site and those to the east and west. We found pottery sherds typical to southwestern Pennsylvania, fragments of bowls made of steatite, a soft stone found in the Piedmont of eastern Pennsylvania and Maryland, and pieces of pottery vessels more closely affiliated with central Ohio valley cultures. We found evidence that people came to the site for a specialized but yet unknown purpose. This was evidenced by the discovery of seven stone knives of a type rarely found in southwestern Pennsylvania. Our finding this type of tool in a Transitional Archaic period site (1700–1100 BC) can be used to date other sites where these tools have also been recovered. From Late Archaic occupations (4000-1700 BC), we found that people were coming to the site to collect stone to make tools; we even found a small pit where they buried handfuls of waste material generated by the tool making process. Archaeologists excavating at Leetsdale during 2001 encountered at least four distinct occupations dating between 4000-100 BC as evidenced by tools, garbage, fire pit, etc. Based on the varying depths of these remains it appears that generations of inhabitants returned to this same location over a period of several hundred years.

What was the environment like at 3500-2500 BC? A preliminary pollen test at Leetsdale indicates that the site was surrounded by a mixed a hardwood forest with hickory and oak trees dominating. The presence of ragweed (a disturbance plant) may indicate that the occupants of the site had an effect on the local environment by clearing the land of native vegetation. Archaeologists utilize environmental data to understand human activities. Our study to reconstruct the environment at the Leetsdale site was enhanced when we recovered peat from two different soil layers dating to the early Holocene geologic era just after the last ice age. Study of this material will provide answers concerning the local weather and environment during this period of known climatic change.

Have you ever tried to imagine what people were doing in this area 2000 to 3000 years ago? During the Early Woodland Period people in the region began cultivating plants along stream and river valleys.

Doing so kept them close to that particular area and reduced their mobility. It seems they came to the Leetsdale site to fish, collect plants in the wetlands adjacent to the site, and process these supplies before transporting them to their main camp, located elsewhere. There was plenty of evidence that they were resharpening stone tools that they had with them as they processed the fish and plant remains for transportation back to the main camp. We found numerous small fire pits, larger roasting pits, stone tools, waste material from sharpening stone tools (debitage), shell and animal bone fragments, stone weights to hold down fishing nets in the water (net sinkers), steatite (a soft stone) bowl fragments, and pottery sherds.



Netsinker



Nutting stone



Projectile point

OTHER INTERESTING FINDS ON THE LOWER MON PROJECT

Following the successful transport of Segment 1 for new Braddock Dam to its outfitting pier at Duquesne in July 2001, additions were made to the dam segment while at the pier. This work increased its draft from about 11 feet to over 15 feet making it necessary for the District to dredge the navigation channel between Duquesne and Braddock to provide adequate depth to transport the floating segment to its final destination in December 2001. Around river mile 11.7 the District's dredging contractor encountered and removed a small hump near the riverbank consisting of a number of large cut stones and timbers. From an inspection of the timbers and stones, they appear to be remains from the original Locks and Dam 2 built by the Monongahela Navigation Company between 1838 and 1841 or a second lock chamber added landward of the first chamber between 1848-1854. No additional impact on this area is anticipated. We will photograph and record the significant features of the recovered materials for inclusion in our project documentation and we will consider options for interpretive signage of the location and interpretive display of these remains from the first generation of structures that turned a free flowing river into an industrial highway.



Iron spikes from lock



Old lock timbers



Gear from old locks

ANTICIPATING WHAT'S TO COME ON THE LOWER MON PROJECT

As we anticipate the May 2002 set down of Braddock Dam Segment 2, we also anticipate our 2002 fieldwork season at the Leetsdale Archaeological Site. Our plan calls for excavations to begin on the prehistoric remains within Areas 1 and 2 in Spring 2002. Our public outreach will continue with student and volunteer field sessions, continued web site coverage, and future newsletters. Based on work to date, we are in the process of developing a booklet that will explain the results of the historic brick factory excavations to elementary school groups (Grades 3 and 4) visiting nearby Old Economy Village. Our web site includes lesson plans for educators developed by a student of Indiana University of Pennsylvania, the District, and its archaeology interns from the University of Pittsburgh. An educational video produced by the Pennsylvania Archaeological Council using a grant from the Pennsylvania Historical and Museum Commission focused on industrial archaeology in Pennsylvania. This video highlights the brick factory excavations. The 2002 Pennsylvania Archaeology Month Poster will spotlight excavations at archaeology site 36AL480 at Leetsdale. We anticipate fieldwork to be completed at 36AL480 by January 2003 with analysis and report following about a year later.

View our website at www.lrp.usace.army.mil/lmon for additional photographs and information. Project Manager for the Lower Mon Project is Mr. Hank Edwardo at 412-395-7374. Public Affairs Officer for the Pittsburgh District is Mr. Richard Dowling at 412-395-7501.

**U.S. Army Corps of Engineers
1000 Liberty Avenue
Pittsburgh, PA 15222-4186**