

Paleoethnobotanical Remains from Newtown, Ohio: An Exploration of the Environmental Context of Plant Uses at the Newtown Fire Station Site

Katie Clontz & Dr. David Lentz, University of Cincinnati

Abstract

This research is focused on botanical remains from the late Hopewell and Woodland time period, around the 5th century A.D. from Newtown, Ohio. Many burial graves as well as artifacts of domestic debris were recovered, including flint, pottery, bone, numerous fragments of hardwood charcoal, and some plant species thought to be domesticated. This research sought to identify all the plant remains excavated from the Newtown Fire Station archaeological site, uncovered during the construction of a porch addition to the firehouse. These remains were identified using an electron microscope and organized by taxa, weighed, and photographed. After the remains were examined for identification purposes, they were studied for environmental context. Among the remains found were several fruit, nut, crop, and hardwood species. These preserved and charred remains serve as botanical evidence for the reconstruction of survival strategies of the past Newtown inhabitants, as well as diets and other domestic plant uses.

Project Location



Significance

- Very early "Late Woodland" (Newtown phase) occupation
- Depth, density, and homogenous nature of domestic debris and plant remains suggests an 'in-situ' protracted occupation, perhaps a village (Genheimer, 2006).
- Relatively few sites from this time period are known in southwest Ohio, although nearby Sand Ridge and Turpin share some aspects (Genheimer, 2006).
- This research gives insight into the cultural context and environmental modifications practiced by the Woodland inhabitants of Newtown.

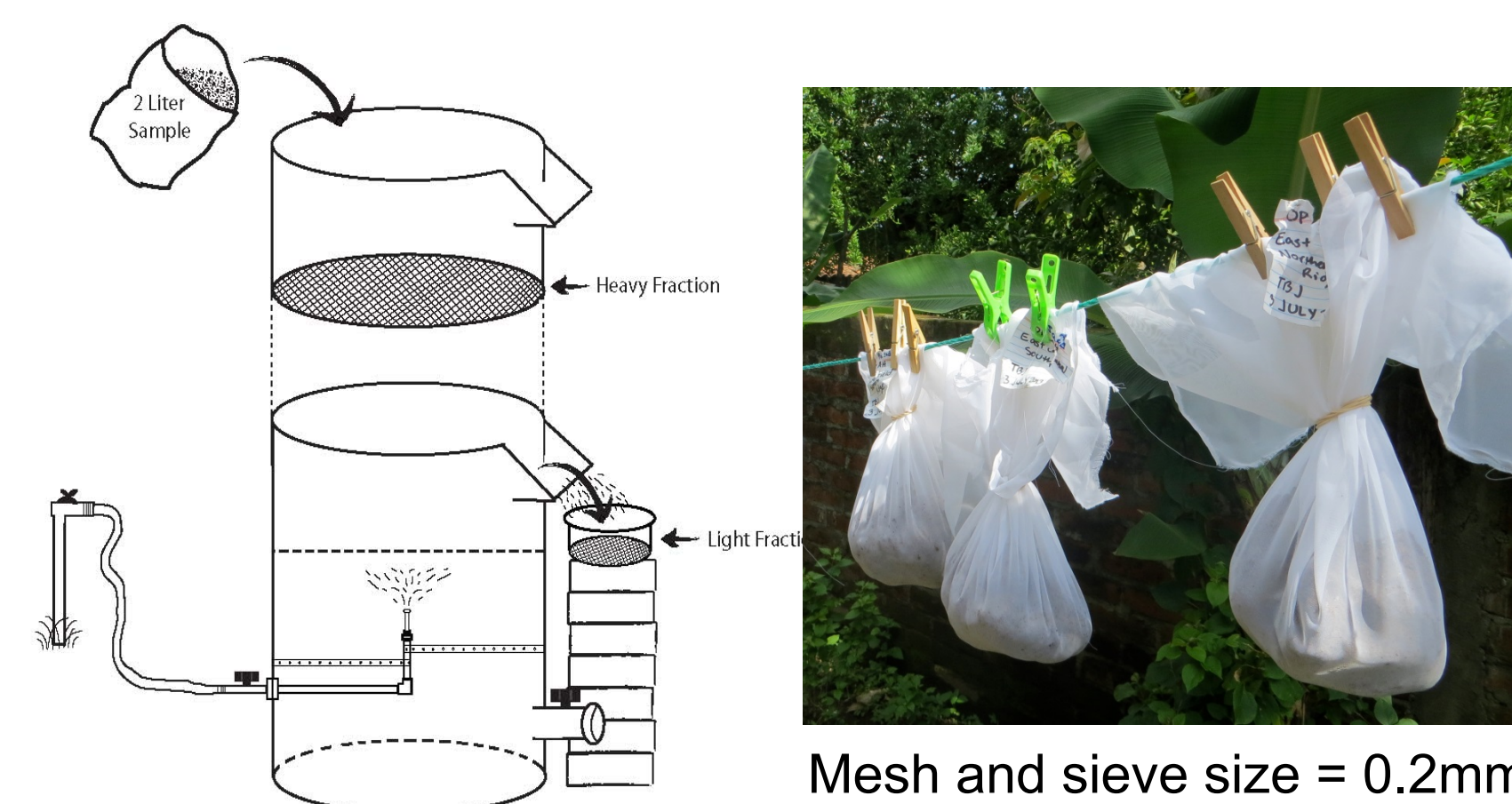
Methods

Sampling Strategy

Plant remains were carefully placed in containers by the excavators as soon as possible when encountered at the site.

Small seeds, difficult to observe visually, were collected and processed using flotation methods.

- An Ankara water flotation system was implemented to process the samples.
- Using the flotation device, each soil sample was submerged in water in order to separate the carbonized plant matter from rocks and soil debris.
- When dry, the plant samples were sorted into individual sample envelopes and labeled, which were then sorted into sample bags containing the batch from each unit and level of excavation.
- The individual samples were then closely inspected under an electron microscope and identified, quantified, and weighed.
- Each sample was carefully analyzed in order to note its physical description, such as vessel arrangement, surface color and texture, and size of the fragment.



Preparation for Microscopy

- Samples were sorted by the unit and level from which they were excavated as well as by taxa and plant part.
- Identity of each specimen was then found or confirmed for certainty after microscope inspection.

Analysis

- Identified remains were analyzed in order to gauge the relative value of certain species. Tentative conclusions were then reached based on analysis results.

Results

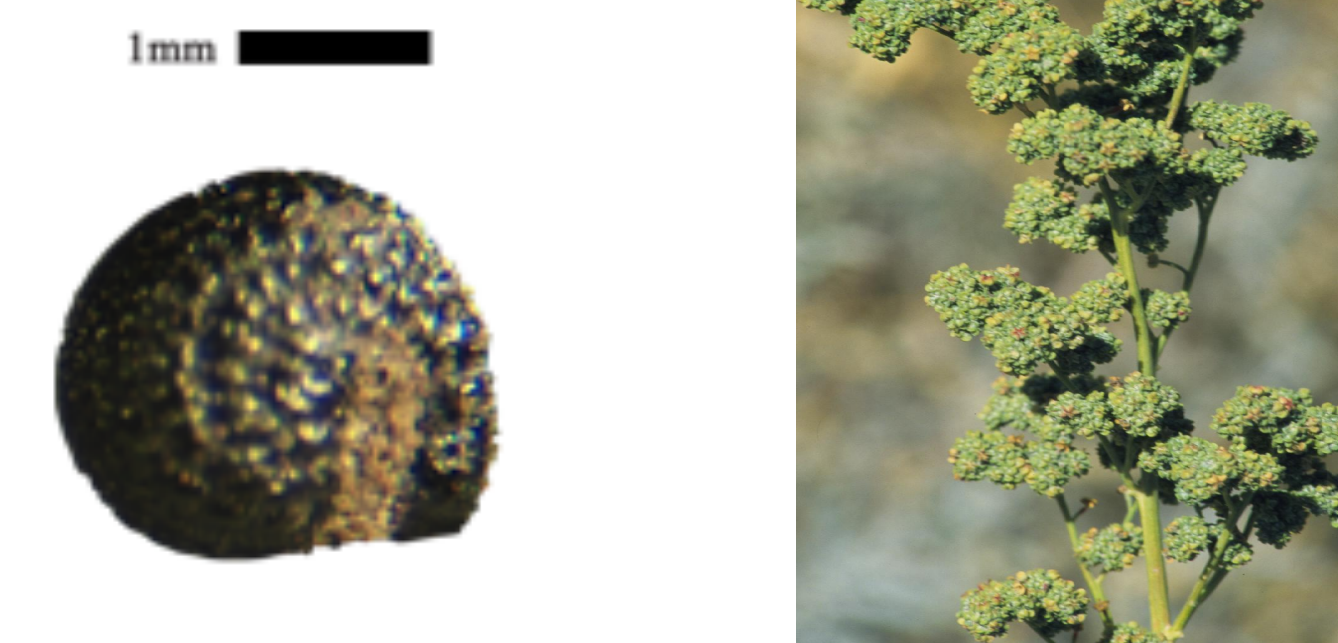
Zea mays: Commonly known as corn or maize, an annual plant in the Poaceae. *Zea mays* originated and was domesticated in Central America about 7,000 years ago. *Zea mays* was most likely used as a food source, with possible significance in ceremonial and cultural ritual (Mt. Pleasant, 2013).



Fabaceae

Desmodium sp.:

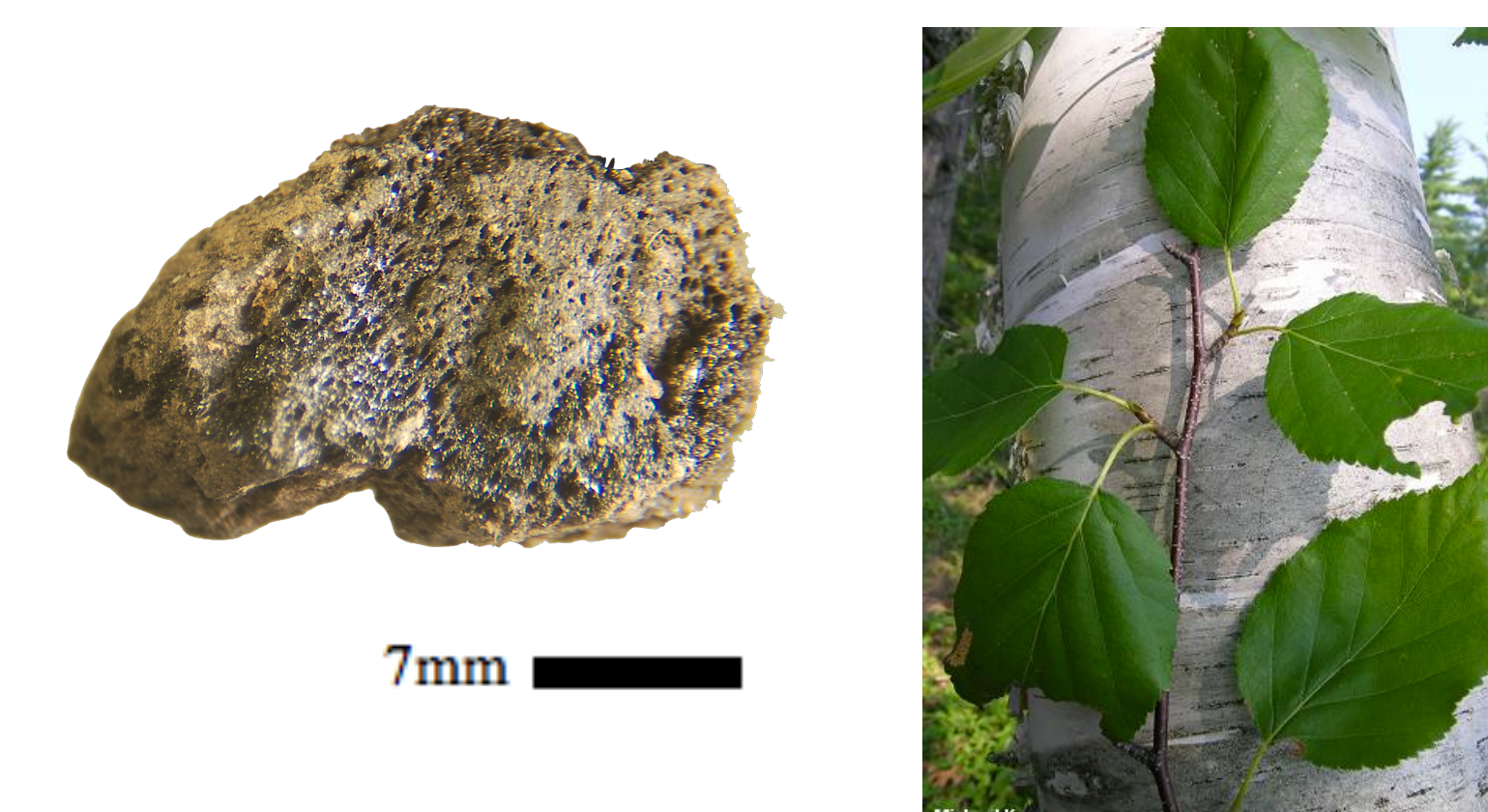
A leguminous plant, most likely used as a food source for the Newtown inhabitants.



Chenopodium berlandieri: An annual herb in the goosefoot family, domesticated in the mid to late Woodland period for the fruit or pseudocereal, similar to the closely-related quinoa (Smith, 1984).



Juglans nigra: Black walnut. A deciduous tree of the Juglandaceae family. The fruit and walnut likely supplemented the diet of Woodland people. The wood of the tree may have served as fuel or building material.



Betula, spp.: Commonly known as birch. The charcoaled wood from these trees was likely used for fuel or construction purposes.



Ulmus fulva: Commonly known as "Slippery Elm". This species could have served as a source of fuel or construction for the Newtown inhabitants. There is also evidence of mucilage and the powdery inner bark produced by this species being used for medicinal purposes by native peoples of North America, though the exact location and discovery of this use is uncertain (Ehrlich, 2014).

Conclusions

Paleoethnobotanical remains found at the Newtown Fire Station site were well-preserved and diverse specimens, including many herbaceous as well as woody species. Among the species excavated were a number of fruit, nut, crop, and hardwood species. The *Chenopodium berlandieri* seeds found are particularly significant, as it is a known domesticated species. Its presence at the Newtown site indicates that the inhabitants most likely cultivated this species as a food source. A large amount of hardwood charcoal was also found at the site, most likely used as fuel for fires for cooking, warmth, and making ceramic pottery. It is likely that the wood species used as fuel were also used for construction purposes, and these species give insights to what types of forests were present in Southwest Ohio during the Woodland period. The distribution and types of both domestic debris and botanical remains excavated imply that the Newtown site was a settled village. These findings give a more complete understanding of how the Newtown inhabitants utilized and modified their environments.

Acknowledgements

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