Investigating Plant Distributions at a Multi-Component Occupation and Burial Site in South Central New York

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Site Review and Research Goals

This paper presents the results of analyzing macrobotanical remains recovered from the Engelbert site, a multicomponent occupation and burial site in south-central New York. The site was located on a gravel knoll along the Susquehanna River, in Tioga County, New York (Elliott and Lipe 1970). After the site was discovered during gravel removal in 1967, professional archaeologists and volunteers were allowed two summers to conduct salvage operations. The site contained artifacts and features from Late Archaic, Late Woodland, protohistoric Susquehannock, and historic Euroamerican occupations. Despite the salvage conditions, archaeologists and volunteers were able to excavate approximately 600 features, including storage pits, hearths, postmolds, and over 150 burials. The collected materials are being curated by Binghamton's Public Archaeology Facility and the New York State Museum, and much of the material will be repatriated pending ongoing NAGPRA consultations with Native American groups.

In this research, soil and vegetal samples collected from Late Woodland (A.D. 1150-1450) and Susquehannock features (c. A.D. 1500-1550) were processed, analyzed, and compared both synchronically and diachronically in order to see if certain plants were deposited in burials more often than non-burials. The observed differences were then examined in relation to the roles of plants in mortuary practices and other realms beyond subsistence.

Research Methods

An initial inventory of the Engelbert collections indicated that there were 146 samples of vegetal materials and 227 soil samples. A grant from the Robert E. Funk Memorial Archaeology Foundation provided funding for professional macrobotanical analysis of the remains of fourteen soil samples, seven of which came from burial features and seven from non-burial features. These samples were not randomly selected, but rather chosen based upon the detail of their proveniences, as well as whether the features had contained diagnostic artifacts indicating temporal affiliation. These initial samples were all selected from features dating to the Late Woodland period (with most dating approximately A.D. 1150 to 1450 [Dunbar and Ruhl 1974]).

Once selected, the larger soil samples were processed using a Flote-Tech flotation machine while the smaller samples were processed using a pitcher and sieve. All of the floated botanical remains of the fourteen samples were then submitted to Nancy Asch Sidell, an archaeobotanical consultant, who identified and tabulated the remains.

To account for differing soil volumes between samples, the botanical counts were later standardized by dividing the counts by the total volume of soil for each feature type. Figures 1 and 2 (separated for better representation of the quantitative differences) illustrate how many specimens of a particular plant were found per liter of soil.

Noticeable differences can be seen in the hickory, maize, and white oak distributions. Hickory nut fragments had a higher count in the non-burials, while hickory wood was higher in the burials. White oak wood was observed only in non-burial features. The maize patterning was even more pronounced with there clearly being a higher count of carbonized maize kernels per liter of soil in the non-burials.

Figure 3 illustrates the number of features in which each plant species was identified. This was done to show that some counts were higher because of intra-feature concentrations of seeds rather than an inter-feature recurring pattern. For example, the hickory nut difference that was apparent in Figure 1 may now seem less significant because hickory nut fragments were found in an equal number of burial and non-burial features. The differential distribution of maize kernels is also somewhat lessened in Figure 3, although there is still a difference. In contrast, hickory wood had both a higher count and higher presence in burial features. White oak wood also had a higher count and presence, but in non-burial features. Neither the hickory nor white oak wood distributions were spatially clustered at the site where one disposal activity may have accounted for all of the occurrences.

It is possible that the higher amounts of burned corn, white oak wood, acorn nut, and other seeds observed in non-burials mean that Late Woodland people disposed of hearth refuse in these features more often than burials. The data also raise questions about the significance of hickory and white oak wood. However, these differences indicate little in regards to the use of plants in Late Woodland mortuary practices, except perhaps that burials may have been spared refuse slightly more often than non-burials.

These results did not fit well with regional archaeological and ethnographic accounts. This research had been partially inspired by William Ritchie's (1954) account of excavations at the historic Seneca Dutch Hollow site in Livingston County, New York. Like Engelbert, this site also contained storage, refuse, and burial features. In several of the Dutch Hollow burials, Ritchie (1954:28) noted the presence of "compact masses of berry seeds," or what he thought were probably "berry cakes." Historic ethnographic

accounts also frequently note the inclusion of food remains in burials. Since Asch Sidell, the archaeobotanical consultant, did not count most uncarbonized remains recovered from the Engelbert site, including *Rubus* spp., (or raspberry, blackberry, and other bramble fruits), and because these plants would likely constitute food offerings like those noted by Ritchie, it was decided that additional botanical analysis be done.

This second stage of analysis was an expansion of the first in that it compared more Late Woodland samples, but it was narrowly focused on a few botanical remains (nut, maize, *Amaranthus/Chenpodium* spp, *Rubus* spp., hackberry, elderberry, pin cherry, plum, and bean). An additional thirty Late Woodland features, equally divided between burial and non-burial contexts, were randomly selected and all of their soil samples were processed and examined. The count per liter of soil comparisons shown in Figure 4 illustrate only the *Rubus* remains because maize, nut, and *Amaranthus*/*Chenopodium* remains were only noted for presence, and the only other species positively identified, elderberry, was represented by only one seed in each of the two feature types.

Figure 4 shows that burials had higher counts of both uncarbonized and carbonized *Rubus* seeds per liter of soil processed. However, the presence frequencies in Figure 5 suggest that the higher counts may not in fact indicate *Rubus* materials were intentionally placed in burials because they were only found in four out of the fifteen burial features. Also, we can see that carbonized *Rubus* seeds actually had higher presence frequencies in non-burial features.

The higher counts of some seeds in the Late Woodland burials could possibly represent seed clusters that were in fact food offerings, and it is also possible that the burials did not contain as much botanical-rich refuse, but once again the overall counts

and presence frequencies observed in this analysis do not definitively indicate particular uses of plants as part of Late Woodland mortuary practices.

A final, third stage of analysis was conducted to see whether the Susquehannock burials at the Engelbert site reflected historic uses of plants in mortuary practices. The Susquehannock component was represented by only a cluster of burials containing diagnostic shell-tempered pottery, glass beads, historic copper artifacts, and bone combs. No comparison of burial to non-burial features from this time period was possible due to the lack of non-burial features. However, comparisons were made between the Late Woodland and Susquehannock burials and it was in these comparisons that a significant difference in plant distributions could be seen.

Figures 6 and 7 (separated for better representation of the quantitative differences) show the counts of positively identified seeds found per liter of soil in the burials in each of the two components. The most noticeable difference is that the Susquehannock burials had more uncarbonized *Rubus* seeds per liter of soil than did the Late Woodland features, while hackberry and elderberry also show slight differences. Then looking at Figure 8, we see that the Susquehannock burials were less likely to contain carbonized nut and maize remains, most of which were probably refuse. The figure also shows that these burials had a higher presence of uncarbonized *Rubus*, hackberry, and elderberry remains. Some of these berry seeds even came directly from pots associated with buried individuals, making it very likely that they were intentionally placed.

The observed differential distributions and seed contexts may be interpreted as evidence of plants playing important roles in Susquehannock mortuary practices as food offerings for the deceased. However, before such an interpretation can be made it is

necessary to consider all of the other factors that may have also created differential distributions.

Considerations for Interpretation

According to John O'Shea (1984), there are several ways to examine mortuary remains. The plant remains found in the Engelbert features could have been deposited accidentally, intentionally, or coincidentally. By accidental deposition I refer to any activity done by non-human or modern human actions that caused botanical remains to be deposited into features. For instance, if features were left open, seeds could have been added or removed through wind, water, and other natural processes. Rodents may have also removed or added some botanical remains. Other seeds may have been incorporated during excavation and collection.

Patterns in plant assemblages could also have been created by features being open at different times of the year. Any resulting differences in seed assemblages would be interesting in relation to pit use, but would also make it difficult to assess whether or not seeds found in burials had any relation to intentional mortuary practices.

Factors of preservation may also explain some of the differences, or lack of differences, observed. It is possible that the lack of difference between Late Woodland burials and non-burials can be explained by the decomposition of organic remains that had been distributed differently. The longer time available for Late Woodland plant remains to decompose may also explain why there was a difference seen between the Late Woodland and Susquehannock burial remains.

Some of the observed differences may also have been caused by excavator bias. Burials at the Engelbert site, and the Susquehannock burials in particular, were excavated

and documented more carefully than non-burial features, making it possible that the excavators noticed and collected botanical deposits more often from these features.

Finally, there is the potential for interpretational bias. Comparisons were made between burial and non-burial features, assuming that plants found more often in the burials were likely associated with mortuary practices. However, non-burial features may have been just as likely to contain plant remains from preparing mortuary feasts.

With so many alternative explanations and caveats of interpretation, it is impossible to state with *certainty* that the distributions observed were caused by plants having roles in Susquehannock mortuary practices. However, this particular interpretation is supported by regional archaeological and ethnographic data also showing a shift in mortuary practices towards the end of the Late Woodland.

Combined Data and a Likely Interpretation

The lack of difference between Late Woodland burial and non-burial plant assemblages at the Engelbert site appears to parallel regional archaeological trends, in that the majority of Late Woodland burials were not differentiated with funerary offerings, including plants (Ritchie 1936:56, 1980:296). This is in contrast to later historic Iroquois and Susquehannock burial practices that did place an emphasis on provisioning the deceased. These historically documented practices lend support to the conclusion that the *Rubus* and other fruit remains found in the Susquehannock burials at the Engelbert site were playing important new roles in mortuary practices, particularly as food offerings.

Susquehannock and early historic Iroquois burials frequently contained the remains of funerary offerings including pots, kettles, animal bones, combs, metal ornaments, and seeds (Cadzow 1936, Wray et al. 1987). As mentioned, excavation at the

Dutch Hollow site showed that some burials contained evidence of possible "berry cakes" (Ritchie 1954). *Rubus*, squash, plum, cherry, and nut remains have also been found in burials at historic Seneca sites in west-central New York (Wray et al. 1987).

A variety of ethnohistoric sources documenting Iroquoian burial practices also noted that foods were frequently interred with the deceased, including soups, corn bread, meat, or fish (Lafitau 1974-1977:II:230 [1724], Witthoft 1959:31, Morgan 1962). These food offerings were usually intended to be provisions for the deceased on his or her journey to the afterworld (Morgan 1962:174, 357; Maymon 1991). Plants, such as strawberries, maize, maple twigs, and tobacco, also play important roles in modern reburial ceremonies among traditional Iroquois groups (Versaggi, personal communication 2004).

Contextual analysis of the Engelbert botanical data has provided an opportunity to explore multi-dimensional roles of plants in both the past and present, as well as provide a basis from which to explore mortuary practices.

For example, if the funerary offerings, including the plants, were meant to be provisions for the deceased, we can then ask why the evidence indicates that they were not deposited as frequently, or at all, during the Late Woodland. Were there offerings that we are not recovering archaeologically? Were the dead provisioned through other means, such as placing the objects on the surface of the grave or offering them at some other location? Or was there a shift in the conception of the journey to the afterworld and the proper way to sustain the deceased on that journey? Was this observed shift related to the introduction of European materials and beliefs into Native American value systems?

The particular roles plants played in these shifting mortuary practices must have developed in relation to interdependent economic, social, environmental, and cosmological factors. Archaeobotanical investigation of the multi-dimensional roles of plants is only one entry point for exploring these intersecting factors. Such exploration encourages the understanding and representation of the past occupants of the Engelbert site as people living through complex and dynamic relationships with the living environment, history, and one another.

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Figures

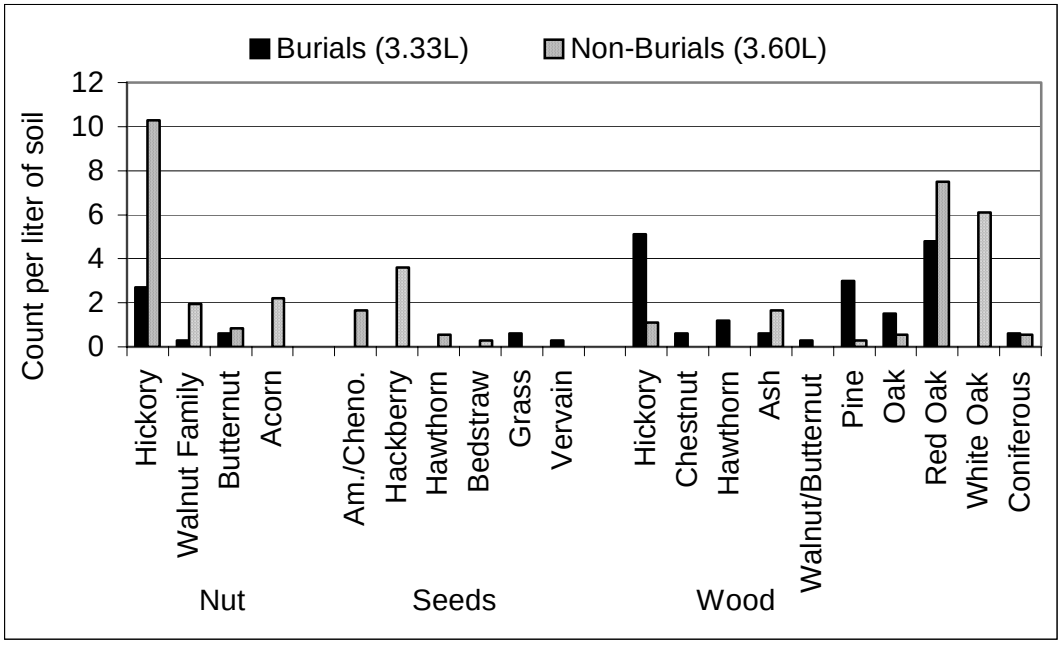

Figure 1: Comparison of Plant Species in the 14 Initial Late Woodland Samples

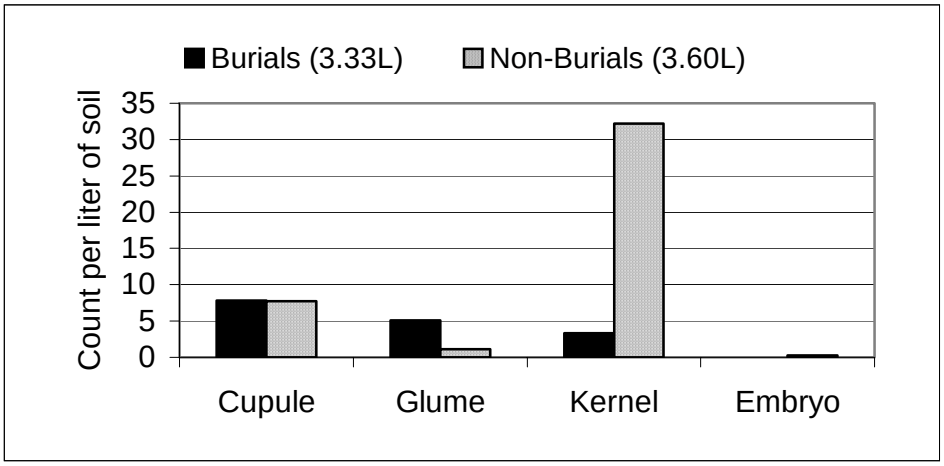

Figure 2: Comparison of Maize Remains in the 14 Initial Late Woodland Samples

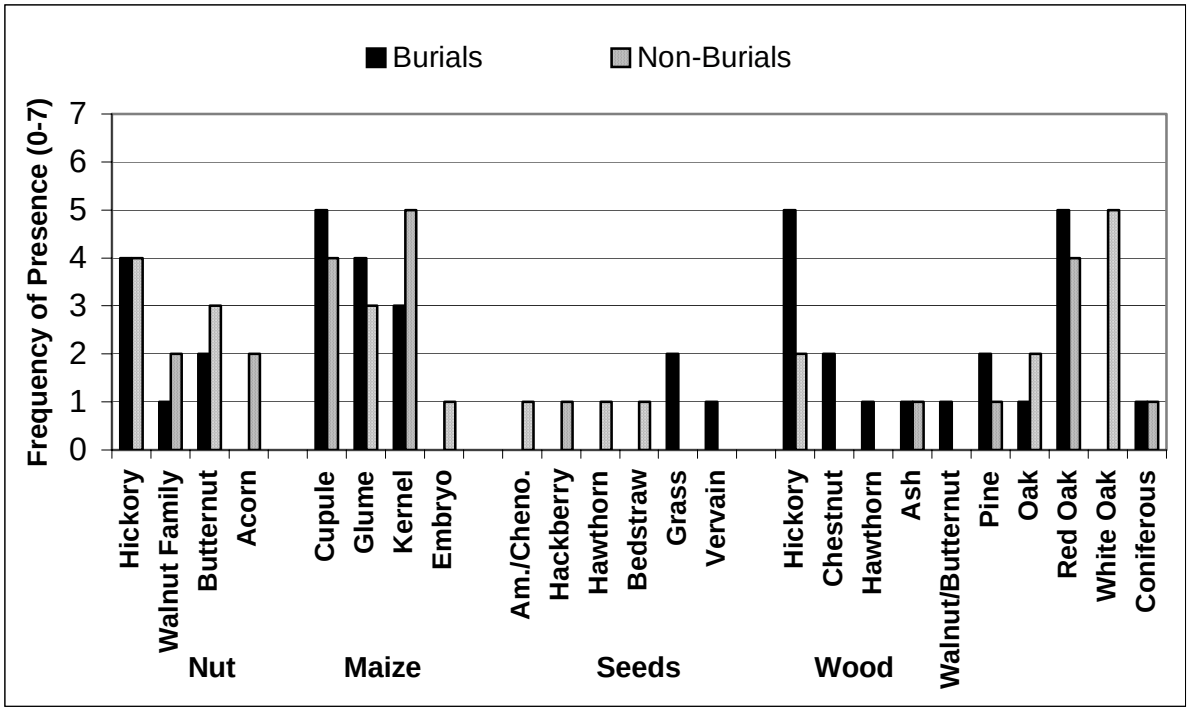

Figure 3: Presence of Plant Species in the 14 Initial Late Woodland Samples

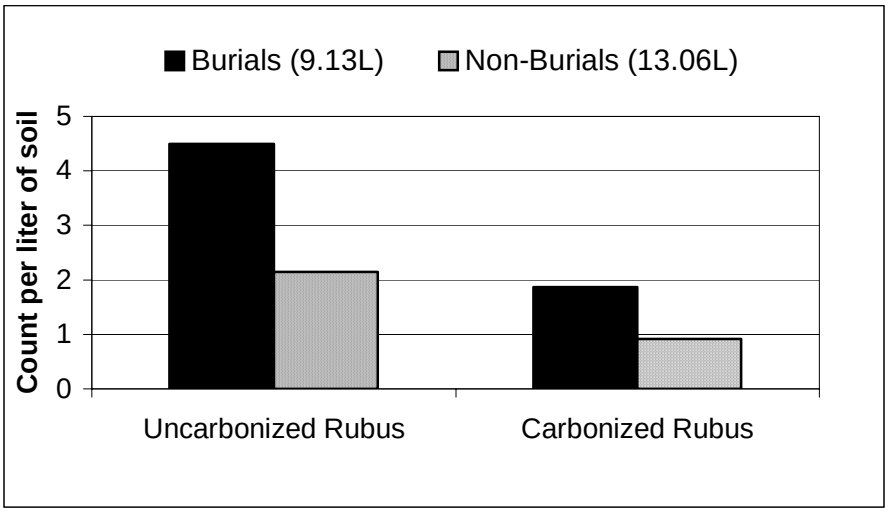

Figure 4: Comparison of *Rubus* Remains from the 30 Random Late Woodland Features

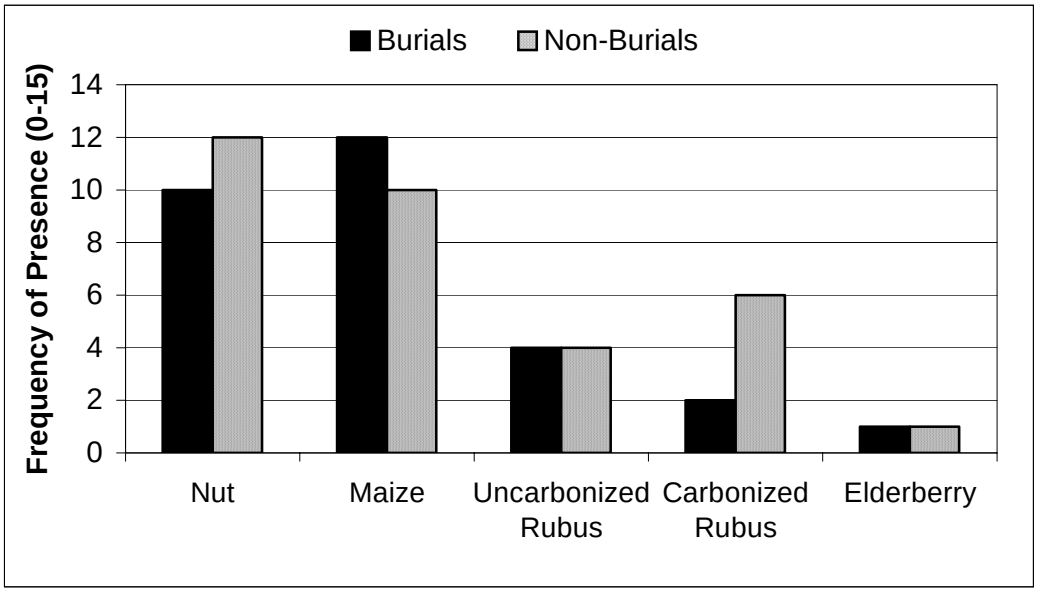

Figure 5: Presence of Select Plant Species in the 30 Random Late Woodland Features

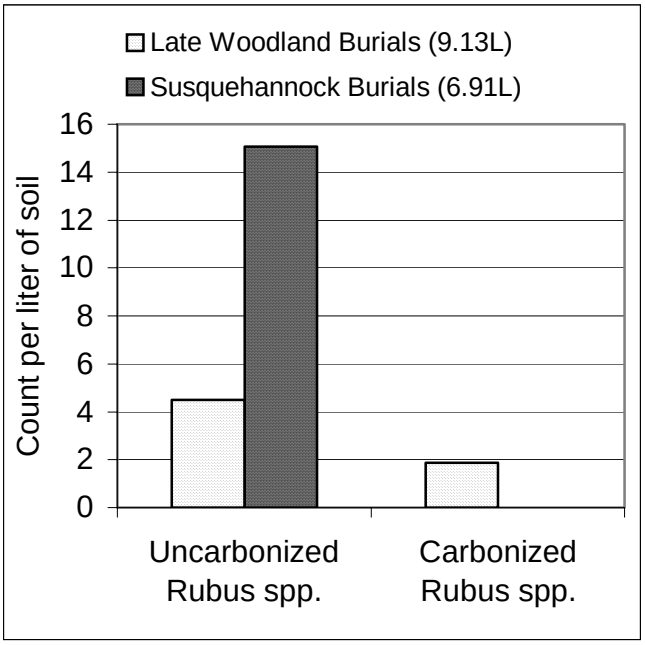

Figure 6: Comparison of *Rubus* Remains from Late Woodland and Susquehannock Burials

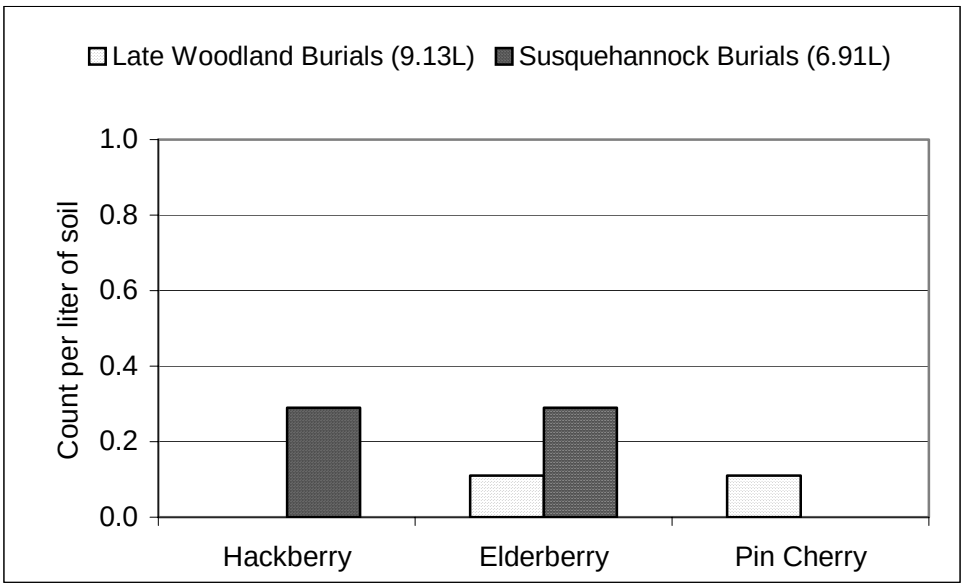

Figure 7: Comparison of Plant Remains from Late Woodland and Susquehannock

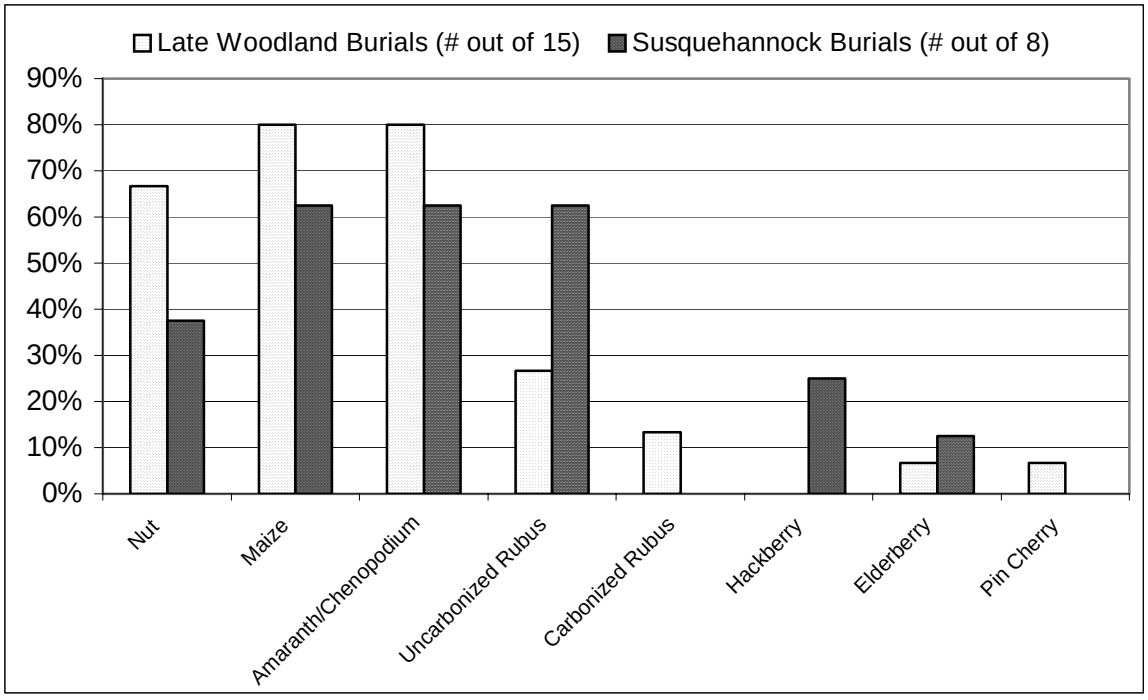

Figure 8: Presence of Select Plant Remains in Late Woodland and Susquehannock Burials

This was the abstract submitted:

Archaeologists at Binghamton University have recently examined macrobotanical remains from the Engelbert site, a Late Woodland and protohistoric occupation and burial site in south central New York, with the intention of investigating whether certain plants were deposited more frequently in burial versus non-burial contexts. Preliminary results indicate that a variety of plants (maize, beans, hackberry, nut, *Chenopodium*, *Rubus*) were used by the occupants, and that certain plants, such as *Rubus*, may have been more frequently deposited in burials. Examining such synchronic or diachronic differences in plant distributions can further our understanding of belief and subsistence systems in prehistoric New York.