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Cider, Wheat, Maize, and Firewood: Paleoethnobotany at Sylvester Manor

Heather Trigg and Ashley Leasure

The paleoethnobotanical analysis program at Sylvester Manor is designed to investigate the relationships between the Sylvesters, their workers, and the botanical environment. Most of the contexts sampled provide information about domestic household consumption. The site residents used large quantities of oak for fuel and possibly building construction. Documents provide more robust information about the production of crops and interactions with Native peoples, suggesting that local Native Americans provided a source of labor for the production of crops.

Le programme d'analyse paleoethnobotanique au site du Sylvester Manor a été conçu pour examiner les relations entre les Sylvesters, leurs employés et l'environnement botanique. La majorité des contextes échantillonnés fournit des informations à propos de la consommation d'une maisonnée. Les résidents ont utilisé de grandes quantités de chêne comme combustible et peut-être même pour la construction. Les documents écrits offrent quant à eux des informations plus solides à propos de la production de plantes cultivées et des interactions entre les Autochtones. Ces documents suggèrent en effet que les Autochtones locaux constituaient une source de main d'œuvre pour la production de plantes cultivées.

Introduction

As a provisioning plantation, Sylvester Manor supplied basic goods to its sister estates in the Caribbean. Documents indicate that many of the provisioning activities centered on the production and export of food, primarily meat. The manufacture of these goods, however, was only one of the activities undertaken at Sylvester Manor. Sustaining the export endeavors and the manor household required housing for the family, buildings for livestock and other activities, food for the inhabitants and perhaps livestock, fuel for heating the home and cooking food, and the production of commodities for exchange. These mundane activities drew the Sylvesters, their African slaves, and the local Native Americans into a web of interactions, both among themselves and with the physical environment.

During colonial times, plants played a large role in peoples' lives. It is known from ethnographic and documentary data that in most regions plants make up a majority of the foods eaten; and it is likely that plants were the dietary staples at the manor. In the 17th century, plant products were not only used for food, but also as exports, medicines, clothing, firewood, fencing, building materials, and tools large and small—parts for plows, mixing spoons, and handles of hoes to name a but a few.

The goal of the paleoethnobotanical research in the Sylvester Manor Project is to

examine the role of plants in plantation activities. Because of preservational issues and behavioral patterns, one difficulty is finding physical evidence for the plants used at the manor. A more important challenge, however, is to provide a more detailed and refined understanding of the nature of the relationships among the various peoples associated with the manor and with the environment. Through the paleoethnobotanical research we attempt to answer some basic questions regarding the nature of these interactions: what plant foods did the Sylvesters eat; what crops were grown or exported; what was exchanged with the Native Americans? To what extent did the Sylvesters maintain traditional Dutch and English foodways and to what extent were these traditions modified? How was labor for crop production scheduled and how was this labor negotiated? What woods were used in the plantation buildings and for firewood? How did these activities impact the landscape? The paleoethnobotanical research is ongoing and cannot provide answers to all these questions, but the analysis is beginning to explore the plantation's dynamics.

Current Landscape and Vegetation

The current landscape and vegetation at the manor are highly managed and largely anthropogenic. The results of these processes are reflected not only in the formal garden and

Figure 1. Sylvester Manor North Peninsula in the late-19th century.

manicured lawns adjacent to the house, but also in the vegetation throughout the manor's current landholdings including areas in and around the marshes. Gardiner's Creek is a small inlet, which by family legend was nearly closed off in the 17th century. This small wetland is fed by a spring at the southeast end of the marsh. Freshwater vegetation such as cattail grows immediately adjacent to the spring, but the marsh itself is brackish and sustains stands of cordgrass and other salt-tolerant plants. The area is terrestrializing, and roughly half the marsh is now firm enough to walk on. This process has been rapid and occurred during the last 50 years, within memory of the last inhabitant of the manor house (Alice Fiske, personal communication 2003). Around the marsh today, there are large stands of pine, maple, oak, black locust, hawthorn, and walnut; however photographs taken in the late-19th or early-20th century show this area completely cleared of large trees (FIG. 1). Like the terrestrialization of the marsh, the current vegetation is quite recent, but modification of the landscape has occurred since the 17th century and perhaps earlier.

Broad scale vegetation reconstruction for eastern Long Island suggests that at the time the Sylvesters established the plantation, the island was covered by oak woodland (U.S. Fish and Wildlife Service 1991). The island would have supported a variety of plant habitats including grasslands, salt marshes, and localized maple and pine swamps. The understory consisted of shrubs such as huckleberry, blueberry, and blackberry and grasses, ferns, and herbaceous plants. Pre-colonial landscape management has yet to be examined, but it

Figure 2. North Peninsula.

is possible that the Native Americans on the island, as in other areas of the Northeast, used fire as a vegetation control tool. Such practices would have provided the Sylvesters with a previously managed landscape in which large oaks dominated and smaller trees and shrubs were removed (Cronon 1983). The 17th-century vegetation provided not only a landscape upon which the Sylvesters and their household built the plantation, but also raw materials with which to create a living. Assessing the changes due to plantation activities are among the goals of the landscape research.

Sampling Strategy

At Sylvester Manor, we employ a sampling strategy designed to collect several types of paleoethnobotanical data: macrobotanicals, primarily seeds and wood, to explore specific types of plants used; and pollen to examine vegetation and ultimately landscape changes. Through the years, the sampling strategy has changed from the selective collection of bulk sediment samples from features to systematic collection from all contexts. During the first five years of excavation, we have taken nearly 1000 flotation samples and analyzed just over 20% of them. All analyzed samples were examined for charred seeds and wood, and an additional 100 samples from the screens were examined for charred wood. The analysis of the screened

Figure 3. South lawn with midden, underlying features, and Feature 226.

wood focused on two areas of the site where the wood density was the highest, Features 226 and 221, but flotation samples from all areas of the site were analyzed and provide a broad overview of the plant remains.

Because examination and identification of pollen is also integral to the botanical program, we have tested several terrestrial areas immediately adjacent to the excavation units and in the marshy areas near the manor. The marsh is too small for regional vegetation reconstruction, but it should yield information about the land use and landscape modification immediately adjacent to the plantation core. Other inlets near the manor house have been sampled, and these cores await analysis. The pollen from some terrestrial contexts has been extracted and analyzed, but these samples yielded a poorly preserved pollen assemblage. The counts were so low and many grains so damaged that those recovered are not likely to yield an accurate reconstruction of the vegetation (Bryant and Hall 1993; Hall 1981; Pearsall 1989). The pollen cores taken from Gardiner's Creek and other

permanently wet places are more promising because these environments are more conducive to pollen preservation than the open excavation units. While the pollen in these cores has not been fully analyzed, preliminary examination indicates that preservation is excellent and that the cores have the potential for yielding information about landscape changes associated with the plantation activities.

Macrobotanical Remains

The analysis of the macrobotanical materials is more complete and is the basis for the remainder of the discussion. Since flotation samples were systematically taken, we have a good sampling of various areas of the site: the North Peninsula, with its late woodland Native American habitation area and shell middens (FIG. 2); the midden associated with the plantation core; features under this midden (FIG. 3); small features on the north lawn; Feature 226 and smaller features adjacent to it (FIG. 3); and Feature 221, a large stratified pit (FIG. 3).

The preservation and recovery of macrobotanical materials at Sylvester Manor, as in most temperate areas, is highly dependent on a protective environment (Minnis 1981; Pearsall 1989). Because all of the plant remains have been recovered from open-air locations, any 17th-century plant remains that were not thoroughly burnt have long ago decayed. Consequently our discussion of the plants found at Sylvester Manor is limited to those that are charred. This presents a circumscribed view of the plants used, but the findings provide some indication of the nature of the plantation activities. The following discussion groups the samples into types of features and excavation areas that may represent functional, spatial, or ethnic distinctions.

North Peninsula Features and Shell Middens

Several features, perhaps plow scars or sills, were sampled on the North Peninsula. The plant remains in these features were limited, but contained hickory nutshells and several types of fruit seeds (TABS. 1 and 2). These features lack the cultigens recovered from other areas of the site, but this may be the result of the small number of samples examined and the limited quantities of botanical materials in these samples rather than representing a significant trend. The small sizes of charred wood in these features made identification difficult, but ring porous woods dominated the assemblage, a morphological group that includes such taxa as oak, chestnut, and hickory. Because of the small size of the pieces, a secure identification is not possible, but it is likely that the dominant wood is oak. In this respect, these features are almost indistinguishable from the small features associated with the plantation core.

The plant parts recovered from the recently discovered North Peninsula shell middens (FIG. 2) contrast with other portions of the site. From the shell middens, we recovered large quantities of charred wood and hickory nutshell fragments. Maize kernels and cupules (portions of cobs) were also recovered providing the first direct evidence for pre-European agriculture on the island. Weedy plants associated with agricultural fields such as goosefoot and purslane are suggestive of not only the consumption of maize on the island, but also its production. While goosefoot and purslane are associated with agricultural fields, their seeds

and greens may also have been used for food. Fruit seeds recovered—blueberry, huckleberry, and grape—attest to other gathered resources utilized by Native peoples prior to the arrival of the Sylvesters. Charred wood from these features included substantial quantities of hickory, maple, and softwood in addition to smaller amounts of oak, which is nearly ubiquitous in the archaeological samples. The use of plants from these Native contexts provides a perspective for examining the botanical remains from the later European-dominated areas at the plantation core. The differences between these areas are striking, both in the types of plants recovered and the density of food remains. Despite our examination of almost three times the sediment volume from the plantation core (which includes the midden), the samples from the Native shell middens contained more plant remains both qualitatively and quantitatively. The vast majority of the nutshells and more than half of the maize from our excavations come from the North Peninsula, and while the number of fruit and weedy seeds are low, the species richness from these contexts is higher than from the plantation core.

Midden

The midden in the plantation core was extensively sampled and yielded a substantial amount of charred wood and a small variety of food remains. In all samples, the density of seeds and related plant parts was low, providing only limited evidence of the consumption of foods. The plants recovered included 1 kernel of wheat, 2 of maize, 10 nutshell and nutmeat fragments, and the seeds of several weedy and non-cultivated plants. The nutshell fragments included both thick-shelled types such as hickory or walnut and thin-walled types from acorns, chestnuts, or hazelnuts. The wood from the midden samples represent a variety of tree types, but the spectrum is dominated by oak and oak/chestnut¹. Smaller amounts of other taxa—hickory, beech, maple, and walnut were also found (TAB. 3). The majority of the charred wood pieces were very small, indicating their use as domestic firewood rather than burnt timbers. These plant parts are consistent with the disposal of

¹ Because these types of wood are morphologically similar, distinguishing between the two can be difficult with small pieces of wood.

Table 1. Seeds and nutshells from possible food plants (counts).

Area	Maize	Wheat	Peach	Nut/Nutshell	Blueberry	Raspberry	Huckleberry	Chenopodium	Portulaca
North Peninsula	32	0	0	550	2	0	3	8	1
Midden Features	4	0	0	7	0	0	0	0	0
North Lawn Features	15	0	0	6	0	0	0	0	0
Feature 221	1	5	1	11	0	1	0	1	0
Fea. 226 & adjacent features	2	3	0	2	1	0	0	2	1
Midden	2	1	0	12	0	0	0	2	0
Total	56	9	1	588	3	1	3	13	2

Table 2. Seeds from other plants (counts).

Area	Bayberry	Polygonum	Grass Seed/Rachis	Leguminosae	Malva	Juniper	Sedge	Rosaceae	Cornus
North Peninsula	13	1	0	0	1	1	3	0	0
Midden Features	0	0	3	0	0	0	0	0	0
North Lawn Features	0	0	0	1	0	0	0	0	0
Feature 221	0	1	0	0	0	0	0	0	0
Fea. 226 & adjacent features	2	2	4	0	0	0	2	2	0
Midden	0	1	6	0	0	0	0	0	2
Total	15	5	13	1	1	1	5	2	2

Table 3. Charred wood (counts).

Area	Conifer	Ring Porous	Oak	Chestnut	Oak/Chestnut	Hickory	Beech	Elm	Ash	Walnut	Diffuse Porous
North Peninsula	20	67	26	0	20	25	0	0	0	0	39
Midden	5	52	109	10	8	28	13	0	14	0	22
Midden Features	1	1	29	0	21	1	0	0	0	0	0
North Lawn Features	2	14	9	0	4	0	0	0	0	0	1
Feature 226	14	49	97	16	0	18	0	0	12	16	1
Associated Features	10	28	36	8	0	17	3	0	0	7	4
South Lawn	14	24	129	18	1	14	2	3	12	20	6
Feature 221	68	301	930	58	7	252	2	16	46	11	16
Burned Area	0	0	1	0	0	0	14	0	0	0	64

household debris from fireplaces rather than from crop production or early stage processing activities such as parching grains. Many samples contained small unidentifiable plant parts that may be the remnants of ground foods—maize, wheat, nutmeats and the like. The food remains, despite being few in number, do indicate the household consumed both European-introduced foods, wheat, and indigenous foods: maize and nuts.

Features Beneath the Midden

The features lying under the midden consist of trenches, postholes, and postmolds, and they perhaps represent an earlier occupation of the site (see FIG. 3). The plant remains from these features consisted of a few maize kernels, some charred nutshells, several grass rachis fragments, and charred wood. All of the charred maize kernels came from a single feature. Just like the midden above them, the features contained a similar spectrum and low density of food remains. While the number of species is lower, the charred wood assemblage is also comparable to the midden above, with oak and oak/chestnut the dominant woods.

Feature 221

This large pit feature in the Southeast Lawn yielded small quantities of several Old World crops, a few wheat kernels and a peach pit, and a New World domesticate in the form of a single maize kernel. The assemblage included a few seeds from gathered and weedy plants (TABS. 1 and 2). The majority of the wood in this feature was oak, but there was also a significant amount of hickory (TAB. 3). Other wood taxa are represented in smaller quantities. Like the midden, many of the flotation samples from Feature 221 contained small pieces of unidentifiable plant parts. These are perhaps bits of flour or meal or tiny fragments of starchy foods that were charred when they fell or were swept into the fire.

Feature 226 and Adjacent Features

Feature 226 (see FIG. 3), a large feature located on the south lawn about 10 meters west of Feature 221, contained large quantities of charred wood and small amounts of food debris. Taxa included Old and New World

domesticates, gathered resources such as nuts and berries, and weedy plants. The samples from this feature, too, contained charred starchy fragments. The charred wood assemblage was largely composed of oak, but with significant quantities of hickory and smaller amounts of other taxa. Feature 274, associated with 226, contained only oak and probably represents a post that had burned in place.

North Lawn Features

These small features contained the same spectrum of plants as the features beneath the midden. The seeds recovered are limited to a few maize kernels and nut fragments, and the wood spectrum is largely composed of oak and oak/chestnut.

Charcoal Concentration—Southwest Lawn

A discussion of a charcoal concentration in the Southwest Lawn, referred to also as “Burned Area” (FIG. 4), is included primarily to highlight the differences in charred wood between it and the other areas of the site. The wood assemblage was remarkably uniform throughout the burned area and consisted primarily of maple with smaller, but still significant quantities of beech wood. This is in stark contrast to all other areas of the site, which are dominated by oak. It is possible that this feature represents a much more recent burning episode with some of the wood coming from the beech tree directly above the feature. Such a dramatic difference in wood types between what is probably a recent feature and the earlier prehistoric and colonial occupations of the site indicates the potential value that analyzing wood use may have for understanding peoples’ activities.

Discussion

Preliminary evidence for the late woodland Native American component located on the North Peninsula indicates that the Native peoples’ land use and subsistence practices here mirrored those elsewhere along the Long Island Sound and in southern New England (Bendremer 1999; Bernstein 1999). Maize from these shell middens provides the first and earliest evidence of agriculture on the island; however, as the plant remains we recovered indi-

Figure 4. Southwest lawn with burned area.

cate, agricultural products were complemented by the use of gathered nuts, fruits, and possibly starchy seeds and greens of weedy plants. Although the shell middens have not yet been dated, it is possible that Nathaniel Sylvester arrived at Shelter Island to find Native peoples engaged in a mix of subsistence practices that included maize agriculture. Some land on the island had previously been cleared for firewood and to bring it under agricultural production. When this clearance occurred is not yet known, but the Sylvesters may have arrived to see patches of treeless land available for planting, grazing, and the construction of

plantation buildings, and a Native population accustomed to an agricultural lifestyle. It was in this type of cultural and physical landscape that the Sylvesters found themselves.

The plant remains from most areas of the site occupied after the arrival of the Sylvesters appear to be primarily domestic debris. With the exception of some of the postholes, there is little evidence that the plant remains reflect in situ use. Moreover they represent the debris from the household's consumption of plants, rather than construction or destruction episodes, crop processing or large-scale production of resources for export. As such, they pro-

vide information about a limited, but critical set of domestic activities, primarily the foods consumed and the types of fuel woods used. As yet, they cannot help us understand what role plants may have played in the export economy of the manor.

Food

None of the plant remains from the plantation core speak directly about food production, but because of the context of their recovery, they do provide some evidence for food consumption. Because of the low density of seeds and nutshells, it is difficult to quantitatively analyze the food remains; however, the data can be used to make qualitative assessments. The food remains from the midden and the larger features indicate the household consumed both Old World and New World domesticates. Nutshells are largely absent from the plant assemblage from the plantation core, although they can be found in small features that may be associated with Native American use of the area prior to the Sylvesters' arrival and are clearly important in the pre-European occupation on the North Peninsula. The Sylvesters introduced wheat and peaches from Europe, but they also consumed maize, a crop associated with indigenous peoples. The household also consumed gathered resources: locally available fruits such as blueberries, raspberries, and huckleberries, and nuts. We lack archaeological evidence for many plants that must have been consumed or contributed to the plantation economy, but an account book from the late 17th century indicates the household also produced apples and pears (G. Sylvester 1680–1701).

The botanical and documentary evidence suggests that maize was an important component of the household's diet, but it is possible that the household consumed other foods associated with Native American cuisine. Small quantities of goosefoot (*Chenopodium* sp.) seeds were found in association with other food plants. Native peoples commonly used these seeds for food, but they are also encouraged in disturbed habitats. Whether goosefoot was a food or merely a weed accidentally incorporated into the archaeological deposits cannot be determined, but there is evidence for the use of other Native American foods. The presence of the nutshells and nutmeats, hickory, walnut,

hazel, and/or chestnut, in the deposits are similar to those found in pre-colonial Native American sites such as those found on the North Peninsula as well as others on Shelter Island and throughout the northeast (Bernstein 1999; Lightfoot, Kalin and Moore 1987; Scarry 2003). Hickory nuts, in particular, were important to Native peoples in the northeast. To produce a high calorie, nutritious oil, Native Americans would crack open hickory nutshells and then boil the nuts and shells together to release the oils. The charred hickory nutshell fragments found in various areas of the site are suggestive of Native Americans' processing methods in pre-colonial times, and may indicate that Native Americans produced foods for the Sylvesters, or that the Sylvesters adopted these practices. It is also a possibility that these plant remains indicate Native people provisioning themselves and illustrate the multi-cultural nature of the Sylvester household. At this point we cannot tease these possibilities apart.

The Sylvesters modified traditional Dutch and English food practices, because like many colonists, they added New World foods to their diet. The presence of maize and wheat in the same deposits is indicative of such processes. From the current evidence we cannot determine the relative importance of maize and wheat, nor can we determine if there were differential food practices within the household; that is, were the European foods available only to the Sylvesters themselves? Were the enslaved Africans provided with lower status foods, possibly the maize? In the absence of more definitive data, it is likely that the entire household consumed both the European and indigenous foods.

Although the archaeological remains primarily provide evidence of consumption at the manor, the documents help to verify that the Sylvesters were producing some of these same foods. The 17th-century account book describes tools sent to the smithy for repair and sharpening. Some were used to produce plant foods: plows, used in producing wheat, and cutting tools for the production of hay. These tools indicate that European agricultural practices were brought to the island. The book also recounts the sale of pears grown at the manor, and other documents describe a cider press on the premises suggesting a substantial investment in the production of apples and cider.

Figure 5. Charred wood representation.

The production of cider may also account for some of the raspberry seeds we found, as this fruit is also used for cider-making (Stephen Mrozowski personal communication 2005).

Many European colonists quickly adopted and grew their own maize, but documents indicate the Sylvesters purchased it from local Manhansets (N. Sylvester 1680), possibly to consume in the household or to feed their livestock. Whether the manor grew some of its own maize is not known, but it is clear the Sylvesters' food production did not meet their needs.

Fuel

Although there is some evidence for foodways, the vast majority of the botanical materials recovered thus far speak to the plantation's use of wood. The quantity of charred wood is not surprising given the manor's needs. Wood provided the fuel for heating the manor house, cooking the inhabitants' food, and baking their bread. Peoples' choice of fuel wood is an intersection between cultural and physical factors, and although the abundance of a particular type of wood plays a factor in the frequency of its use, people do not randomly choose woods from those available (Smart and Hoffman 1988). Instead wood species are chosen or avoided for

intrinsic qualities, such as heat value or smokiness, and cultural values such as taboos or esthetics may play a role (Smart and Hoffman 1988). As a result, the charred wood at a site is usually not an accurate mirror of the vegetation. Colonists in New England preferentially chose oak and hickory wood for fuel (Cronon 1983), and this choice is consistent with the wood taxa found in most contexts in Sylvester Manor (FIG. 5). Hickory produces, by far, the greatest heat value of any common wood in the region, while oak is a strong second (Reynolds 1942), and these factors may underlie both the Native peoples' and Sylvesters' choices of fuelwood. The large proportion of oak in the deposits no doubt reflects both its value as fuel and its abundance on the island. The colonists preferred oak for many uses: lumber, fence posts, furniture, tools, as well as fuel. Barrel staves were commonly made from oak; red oak was favored for sugar and molasses while white oak was preferred for wine casks. It is unlikely that we have evidence for the production of barrel staves at Sylvester Manor, and indeed the documents suggest that they were not produced on the island, but were purchased from Connecticut. We know such items were produced for export to Barbados, but the contexts from which our samples come appear to be limited to household debris.

Figure 6. Charred wood from large features.

Because wood was a raw material for many items used in colonial times, the demand for wood was great and large areas were deforested (Cronon 1983). This process started before Europeans arrived, and early travelers remarked that Native peoples had cleared areas of southern New England. However, colonization accelerated this trend. During the 1600s an average household in New England burned an estimated 30 to 40 cords of wood per year, requiring the logging of more than an acre of forest each year (Cronon 1983). As Shelter Island comprises 8000 acres, harvesting fuel wood for the Sylvesters' household alone would not have taxed the island's resources, if the forests were largely intact. However, other activities would have increased deforestation. Clearing by the Manhansets prior to the Sylvesters' arrival would have, of course, diminished the available wood, and the Native Americans settling around the manor would also have drawn on these resources for fuel and raw materials. The Sylvesters also removed trees to provide land for plantation buildings, agricultural fields, orchards, and pasturelands, but the question remains whether all these activities depleted the forests on the island.

The exhaustion of tree resources is often indicated archaeologically as a shift to second or third choice fuel woods (Minnis 1978). The charred wood spectrum remains largely the same throughout the site except in the burned area, west of the plantation core. This area

showed a dramatically different assemblage of wood species (FIG. 6), but the deposits might relate to much later events. The change in charred wood may illustrate the results of land clearance activities, which occurred later. Since we know there were far fewer trees in the 19th century, the evidence from the burned area could mirror that fact. The Sylvesters' activities apparently did not deplete the island's tree resources, but this preliminary interpretation needs to be validated by other data, possibly the pollen cores taken from the marsh.

Landscape and Cultural Interactions

The botanical materials across the site are strikingly similar, even in contexts where, from the material culture, we might expect to see differences. Features 226 and 221 and the midden are one such example. The material culture in these areas is different, particularly in the proportion of Native ceramics and stone tools, and we might expect to see differences in the plants used. However, the charred food remains demonstrate the same low-density mix of cultigens and gathered resources while the charred wood spectrum shows a similar mix of oak, chestnut, and hickory (FIG. 6). Minor differences can be seen between these large features and the smaller features typically identified as postholes and postmolds under the midden, on the north lawn, and associated with Feature 226. Throughout the site, these features appear

Figure 7. Charred wood from small features.

to contain fewer species and are dominated more strongly by oak and chestnut wood (FIG. 7). Neither aspect is surprising. These are small features with few samples and less diversity is to be expected through stochastic processes alone. More importantly, the features' functions appear to be similar, architectural in nature, and required only a few pieces of wood. The emphasis on wood taxa like oak and chestnut is also consistent with texts describing colonists' use of these woods for fencing and construction (Cronon 1983).

The striking similarity of plant remains—both food remains and firewood—across the plantation core suggests that there is not a strong distinction in the plant-use strategies of the people undertaking these activities. The differences in plant remains among features appear to be due primarily to the feature function rather than differences in the activities of the various groups, Sylvesters, Africans, or Native Americans, comprising the plantation's work force.

The production and consumption of plants at the plantation bound the Sylvesters and Native Americans together. The archaeological materials suggest that the Sylvesters adopted some of the Native Americans' food practices, and documents recount the exchange of food products, maize and cider, between the Sylvesters and local Native Americans. The interactions, however, go beyond the exchange of food and included paying Native Americans

for goods and services (see Priddy, this volume). Documents indicate that this included the cutting and delivery of wood for firewood. The account book indicates that Giles Sylvester paid an individual named Napansson for 30 loads of wood. In one such exchange, a cord of wood was worth 2 gallons of cider (G. Sylvester 1680–1701). The Native Americans also provided labor for the fieldwork and the production of crops, and in return, the Sylvesters paid them in products from the plantation such as cider, apples, and pears.

Nathaniel Sylvester's will and other documents provide written testimony to the constructed landscape of Sylvester Manor. Upon his death in 1680, Nathaniel left to his wife Grissell his share of the "houses, gardens, [and] orchards" on Shelter Island (N. Sylvester 1680). In addition to the livestock, pastures, a mill and meadows, Nathaniel mentions the cider mill and orchards to which he lays full claim because, he argued, they were "built with my owne Estate" (N. Sylvester 1680). Through these efforts, he attempted some replication of a European farming landscape.

While he grew Eurasian crops such as wheat and apples, it is also likely that he modified the European practices, and like many early colonial farmers, planted maize. One strategy to bring land under cultivation was to first grow maize. It required less preparation of the ground, and it was thought that planting maize broke up the soil and subsequently made

it easier to cultivate cereals such as wheat. If Nathaniel used this approach, Shelter Island's Native population may have been invaluable. The local Manhansets' experience growing maize and their knowledge of the weather and soils of Shelter Island may have been a critical resource to the Sylvesters and assisted in the successful production of crops that sustained the household.

Conclusions

Plants have always played an important role at Sylvester Manor—from the large formal gardens currently planted here, to the two flowers named for Mrs. Fiske, to the beech tree planted in the 1800s by America's foremost botanist Asa Grey. Plants also played important roles during the 17th century. They were a major source of the goods used in everyday life—food, drink, fuelwood, timber, and medicines. Despite systematic collection during the five years of excavation at the manor, the presence of plant food remains was sparse and their distribution patchy. It was only through extensive sampling that we were able to recover physical evidence for many plants that we know were used at the manor. Although some of these are listed in written records, the use of others such as peaches and nuts is not documented. While the site yielded information on a small variety of total number of plants that the inhabitants probably consumed, we are able to develop a picture of the dynamic relations between the people of the plantation and their plants.

The botanical remains document the consumption of Old World and New World foods and the manor's need for firewood while 17th-century texts provide information about production on the plantation. These records indicate that field crops and orchards were established on the island and that there was a substantial cider mill on the premises. It is also likely that the Sylvesters, like other settlers in the Northeast, had kitchen gardens for both food and medicines (Leighton 1970) although we lack evidence for these. Although grains were grown at the plantation, this production did not always fill the plantation's needs, and the Sylvesters bought wheat from others and traded apples for maize from the local Native Americans. It is clear that the Sylvesters

attempted to recreate familiar European food practices, but they were also willing to adopt New World foods associated with Native American cuisine.

We also have tantalizing suggestions for modification of the land around the manor. The Sylvesters along with Native Americans and Africans cleared trees for timber and firewood, cleared land for planting crops, orchards and kitchen gardens, and introduced Old World livestock. The Sylvesters also deliberately introduced Old World crops such as wheat, apples, pears, and perhaps peaches. These and other activities had an impact on the environment. While the pollen analyses are in their initial stages, the macrobotanical materials indicate a landscape that was transformed by plantation activities but not depleted of economically important plant taxa.

Plants provided one avenue for integrating the various peoples—Native Americans, Sylvesters, and Africans—who lived and worked at the plantation. The cross-cultural trade of food was but a limited exchange. It is through the production and consumption of plants that local Native people were incorporated into the plantation's core activities. Cultivating Old World crops, such as wheat, not only supplied food to the Sylvesters but may have employed Native peoples to plow and reap. Their assistance in producing cider and providing firewood for the plantation also drew them into an economic relationship. In return these laborers were paid in the plantation's produce: pears, apples and cider. These interactions were not necessarily centered on plantation activities because the Sylvesters seem to have been at least somewhat dependent on local Native peoples for food. Whether the goods were associated with indigenous or the colonists' cultures apparently did not matter as Native peoples were paid in European plant foods and the Sylvesters bought Native American crops. The use of plants bound these people together.

Despite the difficulties associated with the recovery of botanical remains, the importance of plants to the plantation is clear. By recreating the use of plants and the landscape surrounding the manor, we can begin to understand the activities of the Sylvesters, the Native Americans and the Africans who worked there. As garden historian Ann Leighton (1970: 3)

stated, "Plants bear direct testimony to the tastes and needs, the whims and joys, even to the most secret hopes and fears, of the people themselves. In recreating gardens of other times we come as close as is possible to those who worked and walked in them."

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