

APPENDIX E

**A STUDY OF NATIVE AMERICAN PLANT USE BASED ON A REVIEW OF
EARLY HISTORIC COMMENTS ON SUBSISTENCE AND TECHNOLOGY**

**A STUDY OF NATIVE AMERICAN PLANT USE
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COMMENTS ON SUBSISTENCE AND TECHNOLOGY**

By

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I. INTRODUCTION

A. OUTLINE OF STUDY

This report details the results of a study encompassing a review of the ethnohistoric literature germane to Native American plant use in the Delaware River Valley and interprets this information within the context of Woodland I and Woodland II settlements at the Puncheon Run Site (7K-C-51), located in Kent County, Delaware. The report is divided into five sections, including this introduction. Section II outlines the research design and study methodologies. Section III describes the physical aspects of the Puncheon Run project area. Section IV provides details on economically useful plants. Section V features a discussion of prehistoric plant use at the Puncheon Run Site in light of the results of the literature review. Finally, a complete bibliography lists all references cited.

B. APPLICATION OF ETHNOHISTORIC RESEARCH TO ARCHEOBOTANICAL INVESTIGATIONS

The agricultural economies and natural resources used by Native Americans were of obvious interest to the Europeans who explored and colonized the east coast of North America during the fifteenth, sixteenth, and seventeenth centuries. The accounts of these curious Europeans vary tremendously in their focus, level of detail, and degree of cultural distortion. Early written accounts offer tantalizing glimpses of the native flora of the Eastern Woodlands, the cultivation of recognized and unrecognized species, and the use of these plant resources to fulfill a multitude of human needs ranging from food to medicine, clothing, housing, and ritual items. At the same time, these early accounts are frustrating because they are incomplete, subject to the vagaries of cultural interpretation, and replete with contradictions, and because they lack a specific nomenclature.

Use of historical documentation to augment paleoethnobotanical investigations at the Puncheon Run Site is an appropriate and commonly used technique in exploring prehistoric plant use. Since its inception as a discipline, American Paleoethnobotany has relied upon early accounts of European explorers and settlers to the New World to provide both cultural contexts and descriptive details of economically important plant life. Illustrations, in particular, have been an invaluable resource in defining human-plant relationships during late prehistoric times.

The study of plant macroremains recovered from archaeological contexts is fraught with many biases. These biases are due both to the cultural factors involved in the deposition of plant refuse, and to the physical factors governing the differential preservation of these plant remains. The great majority of plant remains deposited historically decompose quickly, leaving a limited and grossly prejudiced sample of the original vegetative material. In the most common preservation situations, only plant material deliberately (or accidentally) burned will be preserved archaeologically. In these situations, not all plant material has an equal chance of being burned and preserved—plant foods requiring cooking have a much higher likelihood of entering the archaeological record than foods that were eaten raw. Among those foods that are charred or burned, some plant remains will be readily recognizable (i.e., corn and seeds) and others will not (i.e., roots and tubers).

In interpreting archeobotanical assemblages, paleoethnobotanists have traditionally been concerned about this loss of non-random data. Unfortunately, there is no adequate correction possible for this loss, the best we can do is to carefully consider the biases inherent in the data when extrapolating prehistoric plant use based on archaeological plant remains.

Accounts of how plants have been used by native peoples provide allegory for interpreting prehistoric human-plant relationships. Ethnographic modeling serves as the basis for most paleoethnobotanical interpretation. However, the ethnohistoric record is not without its own set of biases. The limits of the author in terms of scientific proficiency, misinterpretation resulting from cultural familiarity (i.e., identifying unknown species as some similar plant known to the author), a lack of attention to detail, and a tendency to embellish are all factors that distort the ethnographic ethnohistoric record. Early historical accounts also tended to focus on resources with a perceived economic benefit (opportunity) to European colonists. This emphasis undoubtedly eclipsed a plethora of other valuable information. These biases are further compounded by the process of translation, which further skewed original accounts. An example of the inaccurate depictions of local flora and fauna by early chroniclers to the Hudson River region can be seen in the fantastic unicorn and palm trees illustrated in *Wild Animals of the New Netherlands* (Plate E-1).

Even with the careful combination of some excellent ethnohistoric accounts and a growing database of archeobotanical data from the Eastern Woodlands, our understanding of plant use during prehistoric times is less than complete. The study of plant microremains, including phytoliths and pollen, add another dimension to archaeological research, and shortcut some of the biases.

C. PROJECT BACKGROUND

Extended Phase II and Phase III archaeological investigations at the Puncheon Run Site (7K-C-51), ongoing since 1997, have been largely concerned with the role of the site and regional landscape in defining the form and function of Woodland I and II settlements at the site. Plant resource utilization is of particular interest



PLATE E-1: *Wild Animals of the New Netherlands* from Van der Donck
Source: *A Description of the New Netherlands*, by Adriaen Van der Donck (O'Donnell 1968:vi)

to research efforts, and a program of systematic plant macrofossil collection (via water flotation) and analysis has accompanied all stages of field investigation. The results of macrobotanical analysis accomplished to date have been somewhat disappointing in that relatively little analytically significant material was present in the processed samples. While identifiable wood charcoal recovered has been meaningful in the interpretation of local forest composition, the near paucity of food plants within the site sample has inhibited the critical exploration of plant food processing and storage practices, which are central to long-standing subsistence questions surrounding Woodland I and II settlements in Delaware (Custer 1994).

The following study includes a review of literature germane to contact period and early historic plant use by Native Americans. This literature survey has been undertaken in an effort to explore a broader range of plant resources utilized during the early historic period. In concert with archaeological investigations, geomorphological studies, archeobotanical data, collaboration with living Native American groups in the region, and other research, it is hoped that the results of this study will expand our understanding of prehistoric plant use on Delaware's Coastal Plain.

This work is by no means intended to be a comprehensive treatment of Native American plant use. The source material for Native American ethnobotany is vast, and our research has focused on the subsistence and technological aspects of human-plant relations during the early historic period. The medicinal and ceremonial application of native plants by indigenous peoples are limited in this report to clear references made locally by early European explorers. The realm of "folk belief" and "folk medicine," covered extensively for the Delawares by authors such as Tantequidgeon (1942, 1972) lie outside the scope of this study, and have largely been avoided in this work, except in instances where such information is germane to specific research issues.

Furthermore, this study was undertaken as part of the research design for a specific site and will not be comprehensive for the Middle Atlantic region, or even all of Delaware. Specific research issues of consequence to our understanding of the Puncheon Run Site, such as the use of marsh resources and the possible function of subterranean storage pits, are explored in greater depth than other topics.

II. RESEARCH DESIGN

A. APPROACH

Because early ethnohistoric documentation for the lower Delaware River region is extremely scant, research conducted during this study was extended to include the more complete ethnohistories available from a broader geographic area. Ethnohistoric accounts from the Hudson River region south to Florida, from the Appalachian Mountains to the eastern seaboard, were reviewed. Ultimately, where they were appropriate, data gathered from across North America spanning from the contact period through the 1800s was also included, such as Le Page du Pratz's accounts of small-grain cultivation on the lower Mississippi and the detailed descriptions of Hidatsa storage pits in Gilbert Wilson's nineteenth-century work. While the study initially focused on the earliest accounts of human-plant relations, work was quickly extended to review later historical data and to explore the full extent of potential ethnobotanical relationships at the Puncheon Run Site.

B. METHODOLOGY

1. Resources

The literature review focused on primary sources; however, secondary sources, including other ethnohistoric reviews and recent interpretive works, were also consulted. Secondary sources were especially relied upon in exploring the cultivation of small, native grains in the Eastern Woodlands, which is a subject recently the focus of much discussion. The study of this Eastern Agricultural Complex has relied upon a synthesis of archeobotanical data and ethnographic analogy, resulting in evidence for a wide-ranging horticultural economy throughout the region, far in advance of the corn culture, which did not appear until very late prehistoric times in eastern North America.

Cultural data on the Native Americans of the Delaware region has been fragmented and scattered in many places over the past 400 years. The most useful sources in the exploration of early plant use among the Delawares have been the notes of Swedish colonist Johannes Campanius (DuPonceau 1834), Samuel Smith's 1765 account of the Indians of New Jersey, Peter Lindeström's *Geographia Americae* (1654-1656) (1925), Adriaen Van der Donck's descriptions from the seventeenth century (1841), and Moravian missionary David Zeisberger's observations during the eighteenth century (1910). Although exhaustive research has been done regarding the ethnobotany of the Delaware Indians during the historic period (Moerman 1998; Tantaquidgeon 1942, 1972), these studies document a later period in the evolution of the group and represent products of a culture much changed since the time of first European contact. Although these works are extremely helpful in exploring plant use among the Delaware Indians, their usefulness in illuminating late prehistoric economic botany is limited.

Much of the historical literature pertinent to the natural history and economic botany of the Eastern Woodlands comes from observations made during The Roanoke Voyages, a venture under the auspices of Sir Walter Raleigh during the years 1584 and 1590 to the region that is now North Carolina. Among these accounts are Arthur Barlowe's report (1589), Sir Ralph Lane's letters (1589), and Thomas Hariot's *A Briefe and True Report* (1588), supplemented by John White's watercolors produced when he visited the Carolinas in 1585 (Plate E-2). White's paintings were later embellished by the Frankfurt engraver and printer Theodore de Bry. This artwork is of immense value as historical documentation because it provides a direct record of what was observed by White, who had a keen interest in natural history.

2. Taxonomy and Nomenclature

As was noted in Section I, the accounts of the first European explorers and colonists to the New World provide valuable, but often unclear information. This is particularly true of their descriptions of plant life. Many of the species encountered were entirely new to the Old World, and observers lacked the scientific skill to classify the unfamiliar flora that greeted them in North America. Most of the early sources make some reference to plant species by their "native" name. In some instances, it appears that the same plant was called by many different names depending upon the part of the plant used, the way it was used, or the native population using it.

Over the past 400 years, many attempts have been made to identify the plant resources described by early chroniclers; these attempts have met with some success. Where possible, this work cites credible interpretations and offers the accepted identification of some species. However, although many early descriptions are detailed, they have not been conclusively tied to a particular plant species. This is the case with many of the root resources used by the native peoples of eastern North America. Regarding these plants, I have included their original descriptions verbatim, offering some interpretation of their possible

identification based on available plant resources in the vicinity of our study area, the Puncheon Run Site. Table E-1 provides a reference guide to these “native” plant names, with citations of primary sources and references to their discussion in this report.

III. LANDSCAPE SETTING - THE PUNCHEON RUN SITE

A. SITE DESCRIPTION

The Puncheon Run Site (7K-C-51) occupies a peninsula constituting approximately 24 acres at the confluence of the St. Jones River and Puncheon Run, just south of Dover, Delaware (Figure E-1). The site is located within the Upper Coastal Plain physiographic province, mid-peninsular drainage management unit (Custer 1986). The Puncheon Run Site was occupied by prehistoric populations during the Woodland I (3000 BC to AD 1000) and Woodland II (AD 1000 to 1500) periods, and possibly also in the Archaic period (6000 to 3000 BC). The site is composed of a broad lithic scatter with numerous subsurface features, including fire-cracked rock clusters, lithic reduction areas, and soil anomalies, such as cylindrical storage pits and what have been hypothesized to be possible semisubterranean pit houses. This large site is not classifiable as a particular site type (i.e., procurement site or base camp); rather, the term *site* is used to describe a broad landscape that includes separate activity areas that may or may not have composed a single settlement (The Louis Berger Group, Inc. 1998:4).

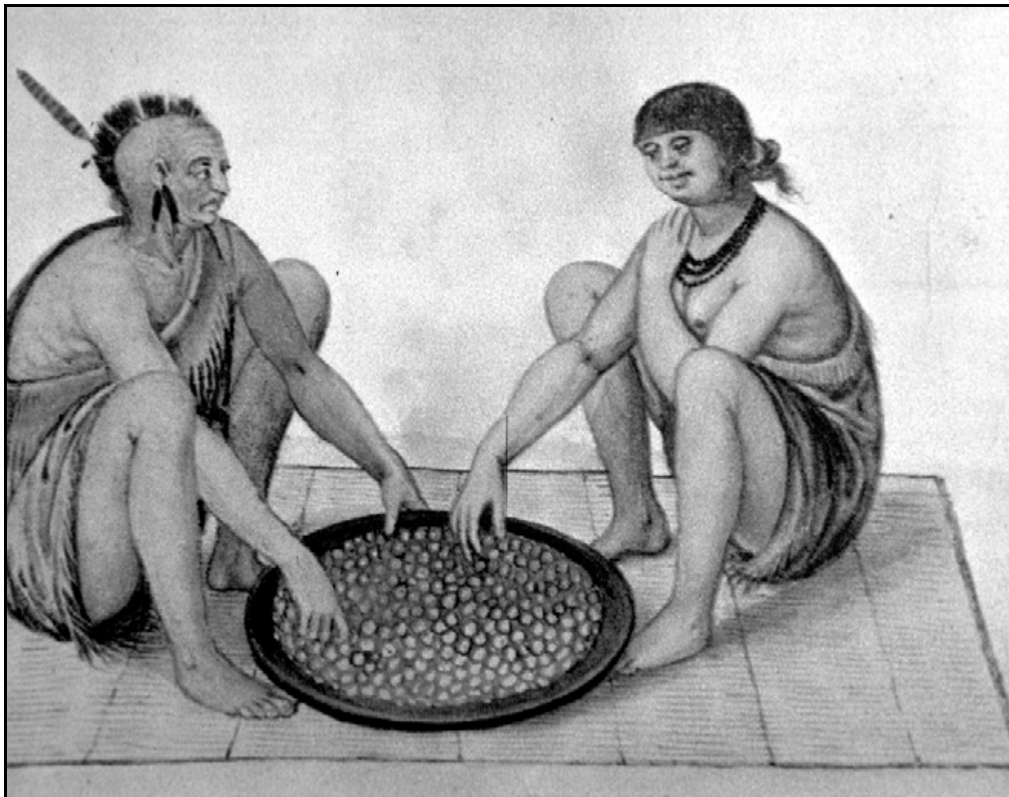


PLATE E-2: *Theire sitting at meate*, Watercolor by John White, 1585

Table E-1: Index to Economically Important Plants by Aboriginal or Early Historical Name

Plant Name	Reference	Candidate Species	Use	Section Reference
angelica	Clayton 1968:14-15; Beverley 1705:219; Banister 1970:386; Hariot 1893:27; Rafinesque 1817:192	<i>Angelica atropurpurea</i> , <i>A. lucida?</i> , <i>A. venosa?</i>	wild, quasi-cultivated?	IV.B.4.c.ii.3
apooke	Strachey 1967:121-122	<i>Nicotiana rustica</i>	cultivated	IV.B.2.j
Assentamens	Smith 1986:I:157	<i>Phaseolus vulgaris</i>	cultivated	IV.B.2.g
Calabashes	Kalm 1966:183; Lindeström 1925:255	<i>Lagenaria siceraria</i>	cultivated	IV.B.2.f
Chapacour	Beverley 1705:138, citing Hariot	?	dye root	IV.B.4.c.ii.14
Chechinquamens (checkinquamens)	Smith 1986:152-153; Beverley 1705:132; Lawson 1952:101; Force 1836-1846:II:2:23	<i>Castanea pumila</i>	wild	IV.B.4.a.v, IV.B.4.a.vi, IV.B.4.b.ii
China root	Hariot 1893:25-26	<i>Smilax</i> sp.	wild	IV.B.4.b.viii
cushaws	Beverley 1705:27; Lawson 1952:188; Wood 1865:76	<i>Cucurbita</i> sp.	cultivated, fruit	IV.B.2.c
<i>Choupichoul</i>	Asch and Asch 1977:97; Swanton 1911:76, 1946:291; Yarnell 1972:10; Smith 1992a and b; Le Page du Pratz 1758:Tome Second:176; Le Page du Pratz 1975:360; (Le Page du Pratz 1758:Troisieme partie:9; Le Page du Pratz 1975:175)	<i>Chenopodium berlandieri</i> , <i>Atriples</i> spp.; <i>Echinochloa crusgalli</i> ; <i>Phalaris caroliniana</i>	cultivated	IV.B.2.a.i
<i>Coscushaw</i>	Hariot 1893:27	? Unidentified root	wild	IV.B.4.c.i.10
Cushaws, Ecushaw	Hariot; Beverley 1705:27:141, 143	<i>Cucurbita</i> sp.	cultivated, fruit	IV.B.2.c, IV.B.2
Cuttinaman	Force 1836-1846:II:31, 27	<i>Sagittaria latifolia?</i>	wild	IV.B.4.c.i.1, IV.b.4.c.i.5, IV.B.4.c.i.7
Cuttanimmons	Beverley 1705:181	<i>Sagittaria latifolia?</i>	wild	IV.B.4.c.i.7
Filbirds	Force 1836-1846:II:31	<i>Corylus americana</i>	wild	IV.B.4.b.iii
Flagges	Wood 1865:107	many species, including <i>Acorus calamus</i>	wild	IV.B.4.c.i.1
Garnanses	Smith 1986:I:157	<i>Phaseolus vulgaris</i>	cultivated	IV.B.2.g

Table E-1 (continued)

Plant Name	Reference	Candidate Species	Use	Section Reference
Habascon	“ . . . a roote of hoat taste almost of the forme anbd bignesse of a Parseneepe, of it selfe it is no victuall, but onely a helpe beeing boiled together with other meates” (Hariot 1893:26).	<i>Ligiusticum actaeifolium?</i> <i>Angelica</i> sp.?	wild	IV.B.4.c.ii.3
Hopniss (Håpniss)	Kalm 1966:259	<i>Apios americana</i>	wild	IV.B.4.c.ii.4
Isquotersquashes	Wood 1865:76	<i>Cucurbita</i> sp.	cultivated	IV.B.2.c
Kabach	Beverley 1705:27	<i>Lagenaria siceraria</i>	cultivated	IV.B.2.f
kaishcupenauk	Hariot 1893:26; Swanson 1946:270	<i>Dioscorea villosa</i>	wild	IV.B.4.c.ii.7, IV.B.5.a
katniss	Kalm 1966:260	<i>Saggitaria latifolia</i>	wild	IV.B.4.c.i.7
Macocks	Smith 1986:I:158; Beverley 1705:27	<i>Cucurbita maxima</i> , <i>C. mochata</i> , <i>C. pepo</i> , <i>C. mixta</i>	cultivated, fruit	IV.B.2.c, IV.B.2
Mangúmmenauk	Hariot 1893:29	<i>Quercus</i> sp.	wild	IV.V.4.a.xxiv
Maracocks	Smith 1986:I:92, 153, 158	<i>Passiflora incarnata</i> <i>Podophyllum peltatum</i>	quasi-cultivated	IV.B.4.c.ii.16, IV.B.4.c.ii.18
Marhonions	Force 1836-1846:II:31	?	wild	IV.B.4.b.iii
Marigolde	Hariot 1893:23	<i>Helianthus annuus</i>	cultivated	IV.B.2.E
Mattoume (mattoumme)	Smith 1986:I:153	<i>Arundinaria gigantea</i> <i>Zizania aquatica</i>	wild	IV.B.4.c.i.9, IV.B.4.c.i.2
maycock	Lawson 1952:97	<i>Passiflora incarnata</i>	wild	IV.B.4.c.ii.16
melden	Hariot 1893:22-23; Sturtevant 1965:64-65	<i>Amaranthus</i> sp. or <i>Chenopodium</i> sp.	cultivated, seed	IV.B.2.a.ii; IV.B.2.h, IV.B.1.a
Messammines	Smith 1986:I:152	possibly <i>Vitis labrusca</i>	wild	IV.B.4.v.xii
metaquesunnauk	Hariot 1893:28	<i>Opuntia humifusa</i>	wild	IV.B.4.c.ii.15
monohominy	Smith 1986:II:151; Strachey 1967:129	<i>Quercus</i> sp.	wild	IV.B.4.a
Muskerats	Force 1836-1846:II:27	?	Wild	IV.B.4.c.i.1, IV.B.4.c.i.5, IV.B.4.c.i.7
Musquaspen, Musquaspenne	Beverley 1705:138; Smith 1986:I:154	<i>Sanguinaria canadensis</i>	wild	IV.B.4.c.ii.20
nendo	Rafinesque 1817	<i>Angelica venonosa</i>	wild	IV.B.4.c.ii.3

Table E-1 (continued)

Plant Name	Reference	Candidate Species	Use	Section Reference
Nocake	Wood 1865:76	<i>Zea mays</i>	cultivated	IV.B.2.k
Ocoughtanamins	Smith 1986:I:152	<i>Orontium aquaticum</i> , also identified as <i>Prunus virginiana</i>	wild	IV.B.4.c.i.4
okeepenavk	Hariot 1893:26; “A large fungus growth found in sandy soils of the Carolinas” (Carrier 1923:32), sometimes called tuckahoe.	<i>Ipomoea pandurata</i>	wild	IV.B.4.c.ii.11
okindgier	Hariot 1893:22	<i>Phaseolus vulgaris</i>	cultivated	IV.B.2.g
openavk (openawk)	Hariot 1893:26	<i>Solanum tuberosum?</i> <i>Apois americana?</i> <i>Ipomoea pandurata?</i>	Cultivated or wild?	IV.B.4.c.ii.4, IV.B.4.c.ii.11, IV.B.2
osámener	Hariot 1893:29	<i>Quercus</i> sp.	wild	IV.B.4.a.xxiv
Parsemenas	Force 1836-1846:II:23	<i>Diospyros virginiana</i>	wild	IV.B.4.a.vii, IV.B.4.a.ix, IV.B.4.a. xiv, IV.B.4.a.xxi, IV.B.4.a.xxvii
Pausarowmena	Smith 1986:I:157-158	<i>Zea mays</i>	cultivated	IV.B.2.k
Pawcohischora	Smith 1986:I:152	<i>Carya</i> sp.	wild	IV.B.4.a.v, V.B.5.c
pawcohiccora	Smith 1986:III:109; Strachey 1967:129	<i>Carya</i> sp.	wild	IV.B.4.a.v, V.B.5.c
pemmenaw	Smith 1986 I:163-164	refers to thread, not to plant		IV.B.4.c.ii.12
powhicora	Clayton 1968:424	<i>Carya</i> sp., <i>Juglans nigra</i>	wild	V.B.5.c
penavk or penauk	common Algonquian word meaning “root” (Michelson 1912)			
Planta Solis	Hariot 1893:23	<i>Helianthus annuus</i>	cultivated	IV.B.2.e
poate	Father Andrew White in Hall 1967:44	<i>Nicotiana rustica</i>	cultivated	IV.B.2.j
pocone (s)	Smith 1986:I:154, 161, 168	<i>Lithospermum caroliniense</i>	wild	IV.B.4.c.ii.14
pucoon	Smith 1986:I:154, 161, 168	<i>Lithospermum caroliniense</i>	wild	IV.B.4.c.ii.14
pompion	Beverley 1705:27	<i>Cucurbita maxima</i>	cultivated	IV.B.2.c
Ponap	Smith 1986:I:158	<i>Zea mays</i>	cultivated	IV.B.2.k
Pungnough	Smith 1986:I:158	<i>Zea mays</i>	cultivated	IV.B.2.k

Table E-1 (continued)

Plant Name	Reference	Candidate Species	Use	Section Reference
Puccoon	Beverley 1705:138	<i>Lithospermum caroliniense</i> , <i>Sanguinaria canadense</i>	wild	IV.B.4.c.ii.14, IV.B.4.c.ii.20
pummuckóner	Hariot 1893:29	<i>Quercus</i> sp.	wild	IV.B.4.a.xxiv
pumpeon	Smith 1986:I:158	<i>Cucurbita maxima</i>	cultivated	IV.B.2.c
putchamins	Smith 1986:I:152	<i>Diospyros virginiana</i>	wild	IV.B.4.a.ix
Rakíok	Hariot 1893:34	<i>Liriodendron tulipifera</i>	wild	IV.B.4.a.xvi
Rawcomenes	Smith 1986:I:152	<i>Ribes Cynosbati</i>	wild	IV.B.4.b.vi
Raxocomens	Beverley 1705:131	<i>Vaccinium macrocarpon</i>	wild	IV.B.4.b.x
Rockahomonie,	Beverley 1705:185	<i>Zea mays</i>	cultivated	IV.B.2.k
sacquenummener	Hariot 1893:28	<i>Peltandra virginica</i> (Swanton 1946:363)	wild	IV.B.4.c.i.5
Sacquenummener (Cuttanimmons, Ocoughtanamnis)	Beverley 1705:181	<i>Peltandra virginica</i> (Swanton 1946:363)	wild	IV.B.4.c.i.5
Sagatémener	Hariot 1893:29	<i>Quercus</i> sp.	wild	IV.B.4.a.xxiv
Sapúmmener	Hariot 1893:29	<i>Quercus</i> sp.	wild	IV.B.4.a.xxiv
seg root	Force 1836-1846:II:27	<i>Acorus calamus</i>	wild	IV.B.4.c.i.1
Squanter-Squash	Beverley 1705:27; Lawson 1952:188; Wood 1865:76	<i>Cucurbita maxima</i> , <i>C.</i> <i>mochata</i> , <i>C. pepo</i> , <i>C.</i> <i>mixta</i>	cultivated, fruit	IV.B.2.c
Tangomockonominge	Beverley 1705:138, citing Hariot; Hariot 1893:19	bark-dye plant	wild	IV.B.4.c.ii.14
Taw-ho (Taw-him, Tuckáh, Tuckahoo)	Kalm 1966:260-261	<i>Peltandra virginica</i>	wild	IV.B.4.c.i.5, IV.B.4.c.i.6, IV.B.5.a
Taw-kee (Taw-kim, Takvim)	Kalm 1966:261-262	<i>Orontium aquaticum</i>	wild	IV.B.4.c.i.4, IV.B.5.a
Tockawhoughe, Tocknough Tockwough	Smith 1986:I:153, 162, 264	<i>Peltandra virginica</i> <i>Pontederia cordata</i>	wild	IV.B.4.c.i.5, IV.B.5.a
tsinaw	Hariot 1893:25-26	<i>Smilax</i> sp.	wild	IV.B.4.b.viii

Table E-1 (continued)

Plant Name	Reference	Candidate Species	Use	Section Reference
Tuccahoe, Tuckahoe, wampee	“earth-nuts which they call Tuccaho” (Catesby 1743:x); Force 1836-1846:II:3; also called “wampee” in coastal areas of the Carolinas (Gerard 1907:109-110); “A large fungus growth found in sandy soils of the Carolinas” (Carrier 1923:32), also called “okeepenavk”; Beverley 1705:181; Swanton (1946:271) refers to tuckahoe as being the name given to “tuberlike objects due to the disintegration of the roots of certain trees (mainly coniferous).	<i>Orontium aquiaticum</i> , <i>Peltandra virginica</i> , <i>Pontederia cordata</i>	wild	IV.B.4.c.i.4, IV.B.4.c.i.5, IV.B.4.c.i.6, IV.B.5.a
<i>Tucaho</i>	Force 1836-1846:II:27	<i>Peltandra virginica</i>	wild	IV.B.4.c.i.5, IV.B.4.c.i.7, IV.B.5.a
Ustatahamen, Ustahame	Smith 1986:I:158	<i>Zea mays</i>	cultivated	IV.B.2.k
Usketanamun	Strachey 1967:81	<i>Zea mays</i>	cultivated	IV.B.2.k
Vppówc	Barlowe (Burrage 1906:292); Hariot 1893:25-26	<i>Nicotiana rustica</i>	cultivated	IV.B.2.j
vppówoc	Hariot 1893:25	<i>Nicotiana rustica</i>	cultivated	IV.B.2.j
walnuts	Lorant 1946:250, 256; Quinn 1991:351; Hariot 1893:27-28; Smith 1986:I:152; Lawson 1952:101; Force 1836-1846:II:34; Beverley 1705:131, 132	<i>Carya</i> sp, <i>Juglans nigra</i>	wild	IV.B.4.a.v, IV.B.2.a.xiii, IV.B.2.a.v, IV.B.4.a.xiii, IV.B.2, IV.B.4.b.iii, IV.B.4.c.i.5, IV.B.4.c.i.5, IV.B.4.c.ii.17, IV.B.4.c.i.4, IV.B.5.c, V.B.4.a
Wasebur, Wasewówr	Beverley 1705:138, citing Hariot, Hariot 1893:19	herb used as dye plant	wild	IV.B.4.c.ii.14
wickonzowr	Hariot 1893:22	<i>Phaseolus vulgaris</i>	cultivated	IV.B.2.g
Widlogouill, Widlogouil	Le Page du Pratz 1758: troisieme partie:9; Swanton 1911:76	<i>Chenopodium</i> sp.	quasi-cultivated, seed	IV.B.2.a.i
wighsacan	Smith 1986:I:154, 168	<i>Asclepias syriaca</i>	wild	IV.B.4.c.ii.6
wild fig	Lawson 1952:107	<i>Opuntia humifusa</i>	wild	IV.B.4.c.ii.15
wisank	Hariot 1588:445	<i>Asclepias syriaca</i>	wild	IV.B.4.c.ii.6
wysauke	John White in Lorant 1946	<i>Asclepias syriaca</i>	wild	IV.B.4.c.ii.6

B. LANDSCAPE SETTING

1. *Terrestrial Environment*

The Puncheon Run Site occupies a neck of land bounded by the St. Jones River and Puncheon Run, and Route 13. Nearly level upland areas of the site give way to sloping alluvial terraces, with surface elevations ranging from 10 to 30 feet (3 to 9 meters) above mean sea level across the site. Tillable areas of the site have been used intensively for agriculture for centuries.

Vegetation across the project area today consists of fallow agricultural land, mown periodically to control natural forest succession, with limited woodlands: The northern end of the site supports a shrub-scrub area in early forest succession (approximately 15-year growth). A fringe area of mixed deciduous forest is confined to scarps flanking Puncheon Run and the St. Jones River, and a fragment of mature hardwood forest persists along the south-central edge of the site, abutting the old millpond. This mature forest remnant is dominated by American beech (*Fagus americana*), pignut hickory (*Carya glabra*), mockernut hickory (*Carya tomentosa*), a variety of oak species (*Quercus falcata*, *Q. phellos*, *Q. alba*, *Q. velutina*, *Q. rubra*), with tulip poplar (*Liriodendron tulipifera*) and black cherry (*Prunus serotina*). Understory in this area is dominated by dogwood (*Cornus florida*), arrowwood (*Viburnum dentatum*), and mountain laurel (*Kalmia latifolia*).

Two thousand years ago, the Puncheon Run Site's most prominent vegetative feature was probably a mostly deciduous forest. Upland areas of the site would have been dominated by various oak species (*Quercus* sp.), hickories (*Carya* sp.), tulip poplar (*Liriodendron tulipifera*), American beech (*Fagus americana*) with some loblolly pine (*Pinus taeda*) in the canopy, and an understory of dogwood (*Cornus florida*), mountain laurel (*Kalmia latifolia*), and viburnums (*Viburnum* sp.). Stream margins would also have supported persimmon (*Diospyros virginiana*) and black gum (*Nyssa sylvatica*), and bald cypress (*Taxodium distichum*) trees may have occupied calm, shallow waters.

2. *Aquatic Environment*

Aquatic resources local to the Puncheon Run Site include the St. Jones River, which bounds the site on the east and north, and Puncheon Run, which flanks the sites' southern periphery. The St. Jones River is a 22-mile-long, winding tidal stream that enters Delaware Bay from the northwest 72 miles below Philadelphia and 26 miles northwest of Cape Henlopen at the mouth of the bay. In the vicinity of the project area today, the St. Jones River is a tidal stream bordered by freshwater marshes and wooded wetlands. At the western end of the site, Puncheon Run is a swift-flowing perennial stream; the site extends to within a few feet of its banks. As it nears the St. Jones River, Puncheon Run widens across a broad and shallow floodplain. The confluence of the St. Jones River and Puncheon Run is a broad freshwater marsh.

The location of the Puncheon Run Site at the confluence of these two tributaries offered inhabitants ready access to a variety of microenvironmental zones, including Coastal Plain uplands, fertile floodplains, freshwater marshes, and open water environments. These features offered an array of important resources to prehistoric human populations. In addition to providing transportation along an estuarine highway linking the site with others along the St. Jones River, the Delaware River and its tributaries, and Delaware Bay, the St. Jones River and Puncheon Run held abundant fish, shellfish, and vegetable foods in the form of marsh plants. The peninsular situation of the project area also afforded a naturally defensible and easily protected site. Understanding the landscape and the distribution of natural resources within it is critical to defining the shape and function of Woodland I and II settlements at the Puncheon Run Site. At the same time, it is important to acknowledge that thousands of years of human activity here constitute forceful ecological factors in creating the present landscape.

Since colonial times, the St. Jones River and Puncheon Run have been greatly modified. Sedimentation of these waterways has significantly changed their shape and nature, and effected major alterations in the types of biological resources available within their waters.

a. Changes to the River

The Delaware River Valley has historically been an area of immense agricultural value. Europeans settling in the region found fertile, well-drained alluvial soils well suited to field agriculture. The area was farmed extensively in small grains, fruits, and vegetables through the twentieth century.

The clearing of native forests in the colonial period and the ensuing rigorous cultivation of the landscape have resulted in the creation of open, unprotected soils that were easily eroded into local streams and rivers. Regional agricultural pursuits relied upon the St. Jones as a highway for moving crops to market, while at the same time they effected major siltation of the St. Jones River and its tributaries (Plate E-3). Much of the acclaimed farm soils of the Delaware watershed ended up in its tributaries.

By the early twentieth century, the St. Jones River was heavily sedimented, and its course had become narrow and sluggish, as attests the following description by C.A.F. Flagler, Chief of Engineers for the U.S. Army Corps of Engineers.

The St. Jones River from the mouth to Lebanon flows through marsh lands, and above Lebanon to Dover through a narrow, crooked valley, widening occasionally into low, muddy flats. By natural action the river has become exceedingly crooked, and without improvement would become more so [Flagler 1908].

Sedimentation of local waterways created an impediment to navigation, the economically critical mechanism for moving farm products to market.

b. Improvement Projects

The St. Jones River has been under improvement by the United States at various times since the 1880s in efforts to maintain its navigability from Delaware Bay to Lebanon (a key shipping point in the late nineteenth and early twentieth centuries), and beyond to the capital city of Dover. Major projects on the river included realignment of the river channel, jetty construction, and maintenance dredging.

i. Nineteenth-Century “Improvements”

The original project for the improvement of the St. Jones River was begun in 1880 and was confined to work at the mouth of the river. The project was enlarged in 1884 and again in 1889 to provide for the removal of the shoals in the river to Dover to a depth of 6 feet at mean low water (United States House of Representatives 1896).

ii. Twentieth-Century “Improvements”

The River and Harbor Act of March 2, 1907, authorized projects along the St. Jones River to extend steamboat navigation from Lebanon to Dover and to make improvements to navigability as far as Delaware Bay. Authorization provided for a series of 16 cutoffs between Dover and the mouth of the St. Jones River, construction of which saved a distance of 5.9 miles of navigation between the two points (Miller 1908).



Plate E-3: View of the St. Jones River from the Puncheon Run Site

The channelization of the St. Jones River was ongoing for decades, but was largely complete by the mid-1930s. Three cutoffs (Cutoff Nos. 1, 2, and 3) were executed in the immediate vicinity of the Puncheon Run Site (Figure E-2). Cutoff No. 2 actually bisected the eastern limits of the peninsula on which the site is located, appropriating approximately 4 acres and annexing the easternmost limits of the site as an island. (This island was designated Locus 4 by Hunter Research, Inc., during their Phase I archaeological survey [Leibknecht et al. 1997]).

Channelization of the St. Jones changed both the form and the course of the river and its tributaries. After the mechanical alteration of the St. Jones, Puncheon Run emptied not into the main channel of the river, but into a meander channel, creating a more gentle convergence where reduced water speed permitted the discharge of suspended sediments. A new marshland community developed. The straightening and deepening of the main stem of the river also resulted in the regular influx of more saline waters from Delaware Bay, which had the effect of largely changing the aquatic biota. For example, prior to river channelization, a large colony of the showy American lotus (*Nelumbo lutea*) dominated the St. Jones River at Dover (Plate E-4). After the straightening of the river, local water conditions were so changed that the lotus quickly died.

The most commercial use of the St. Jones River occurred during the period 1909-1913 (Pillsbury 1937), after which time commerce on the St. Jones steadily declined.

IV. RESULTS OF RESEARCH

A. INTRODUCTION

The following section presents the results of a review of the ethnohistoric literature pertaining to the use of plants by native peoples of the Delaware River region. First, the historical documentation of horticultural practices is outlined, followed by a discussion of the kind of plants cultivated. The third part discusses the “management” of natural areas for human use, and the fourth and fifth parts describe the historically documented wild plant resources of economic importance.

Discussions of particular plant resources are loosely organized by cultivated and wild plants (wild taxa are further separated into trees, shrubs, vines, and herbs). Within these categories, particular species are discussed alphabetically by genus. Table E-1 lists all locations in this text where documentation is offered for the use of species by their native (or early historical) name.

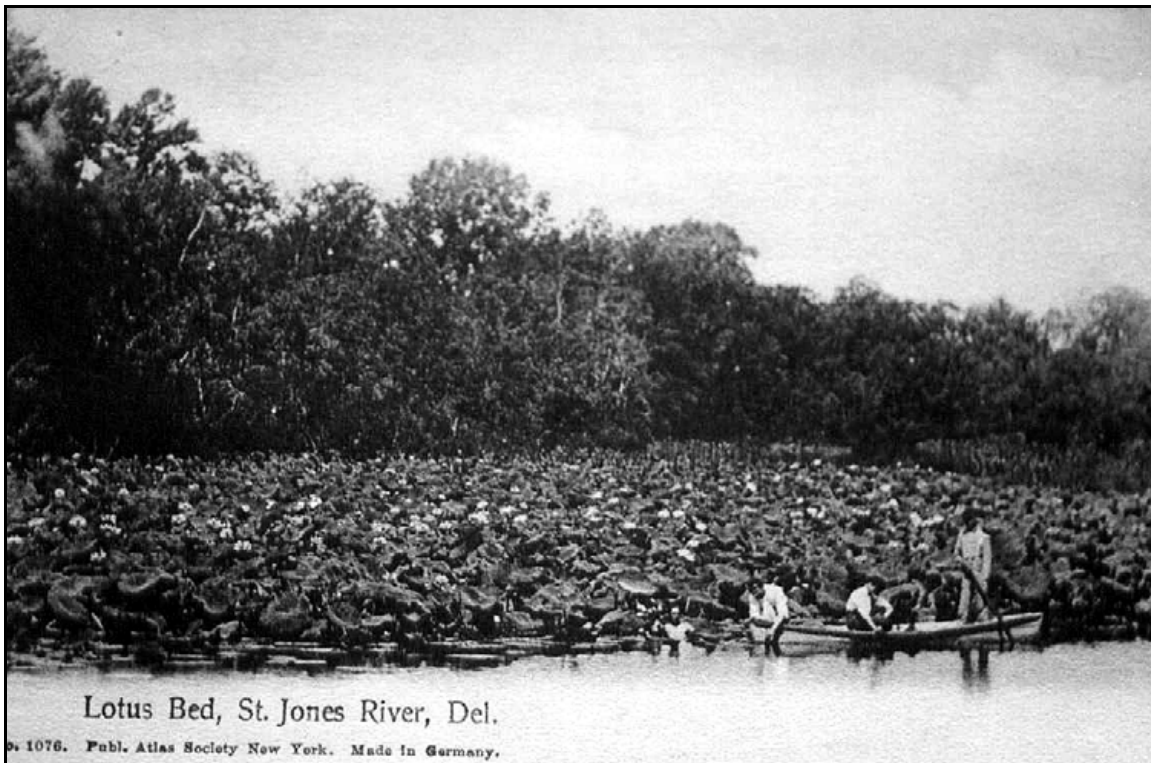


PLATE E-4: The ‘Lotus Lilies’ of the St. Jones River

SOURCE: Post card of the Atlas Society, New York. No. 1076. Collection of William McAvoy

B. PLANTS OF ECONOMIC SIGNIFICANCE AND THEIR MANAGEMENT

1. Horticultural Practices

a. Plant Domestication

All sorts of Grain, as Wheat, Rye Barley, Oates, Pease, besides several others that have their original and birth from the fertile womb of the Land (and no where else), they all grow . . . [Hall 1967:348].

Native agricultural practices as noted in early ethnographic accounts of the Middle Atlantic region are largely confined to the growing of maize (corn), beans, and squashes. Archeobotanical data gathered over the past 30 years (since the widespread use of flotation to recover plant macroremains) has established that native populations throughout the Eastern Woodlands of North America engaged in much more diverse horticultural pursuits, namely, the cultivation of numerous small, native grains known collectively as the Eastern Agricultural Complex. These starchy and oily seeded annual plants composed substantial food production economies that developed prior to the introduction of Mesoamerican crop plants (i.e., corn, beans, and squash). Native North American seed crops include sunflower (*Helianthus annuus*), marshelder (*Iva annua*), little barley (*Hordeum pusillum*), maygrass (*Phalaris caroliniana*), erect knotweed (*Polygonum erectum*), and chenopodium (*Chenopodium berlandieri*).

No ethnohistoric evidence has been located that describes the cultivation of plants of the Eastern Agricultural Complex in Delaware; however, paleoethnobotanical data from the Two Guys Site in Sussex County, Delaware, documents the use of cultivated-type sumpweed (*Iva annua*) from Late Woodland contexts (circa AD 800-1600) (LeeDecker et al. 1996). Sunflowers were widely mentioned in the literature (Beverley 1705; Harriot 1893:23). The only clear account of native, small, starchy grain cultivation among the coastal Algonquians is from North Carolina, where Harriot observed a plant called “melden” (see Harriot 1893:22-23, *Amaranthus* sp., Section IV.B.2.h, below). Sturtevant suggests that this plant is a species of amaranth (*Amaranthus*) or possibly goosefoot (*Chenopodium*) (1965:64-65). (See also Section IV.B.2.a.ii of this report).

The transition from foraging to farming was lengthy, and we know from the ethnographic record that farming never supplanted gathering. Rather, horticulture was incorporated into the semisedentary lifestyle of the coastal Algonquians. Farming provided a measure of stability to the diet of these populations, allowed larger groups of people to live communally for part of each seasonal cycle, and advanced some level of sophistication to sociopolitical organization.

b. Field Design and Arrangement

The form that cultivated lands took during prehistoric times is uncertain. Undoubtedly, factors such as soil fertility, openness or clearability, protection from animal predation, proximity to augmentary freshwater sources, and convenience to processing and storage areas all played a defining role in the placement and arrangement of gardens and agricultural fields (Plates E-5 and E-6).

Captain John Smith describes the arrangement of Indian settlements in the Virginia landscape circa 1600:

Their houses are in the midst of their fields or gardens which are smal plots of ground. Some 20, some 40. some 100. some 200. some more, some lesse, some times from 2 to 100 of those houses together, or but little separated by groves of trees. Neare their habitations is little small wood or old trees on the ground by reason of their burning of them for fire. So that a man may gallop a horse amongst these woods any waie, but where the creekes or Rivers shall hinder [Smith 1986:I:162].

Of the arrangement of gardens in the town of Secota (see Plate E-5), Harriot observes:

For the howses are Scattered heer and ther, and they have gardein expressed by the letter E. wherin groweth tobacco which the inhabitants call Uppowoc. They have also groaues wherin they take deer, and fields wherin they sowe their corne. In their corne fields they builde as yt weare a scaffolde wher on they sett a cottage like to a rownde chair, signiffied by F. Wherin they place one to watche, for there are suche number of fowles, and beasts, that unless they keepe the better watche, they would

soone devoure all their corne. For which cause the watcheman maketh continual cryes and noyse. They sowe their corne with a certaine distance noted by H. other wise one stalke would choke the growthe of another and the corne would not come unto his rypenes G. For the leaves therof are large, like unto the leaves of great reedes . . . likewise they have garden notted bey the letter I. wherin they use to sowe pompions [1893:XX].

All the aforesaide commodities for victuall are set or sowed, sometimes in groudes apart and severally by themselves; but for the most part together in one ground mixtly: the manner therof with the dressing and preparing of the ground, because I will note unto you the fertilitie of the soile; I thinke good briefly to describe [Hariot 1893:23-24].

Lawson's notes on North Carolina in the early 1700s describe the private ownership of crops:

They have no Fence to part one anothers Lots in their Corn-Fields, but every Man knows his own, and it scarce ever happens that they rob one another of so much as an Ear of Corn, which, if any is found to do, he is sentenced by the Elders to work and plant for him that was robbed, till he is recompensed for all the Damage he has suffered in his Corn-Field; and this is punctually performed, and the Thief held in Disgrace that steals from any of his Country-Folks [Lawson 1952:189].

Pilgrims exploring the Cape Cod area in 1620 observed fallow and recently harvested fields in mid-November:

We . . . found much plaine ground, about fiftie Acres, fit for the Plow, and some signes wehre the Indians had formerly planted their corne. . . . We went on further and found new stubble, of which they had gotten Corne this yeare, and many walnut trees full of Nuts, and great store of Strawberries, and some Vines; passing thus a field or two, which were not great, we came to another, which had also bin new gotten . . . [Cheever 1848:33-34].

Lawson (1701) among the Keyauwees near present-day High Point, North Carolina, describes palisaded villages "having large Corn-Fields joining to their Cabins" (1952:48).

Along the Green River in North Carolina, Lawson describes

. . . several Plots of Ground cleared by the Indians after their weak manner, compassed round with great Timber Trees, which they are no wise able to fell and so keep the Sun from Corn-Fields very much; yet nevertheless, we saw as large Corn-stalks, or larger, than we have seen anywhere else [1952:72].

The size of cultivated fields was disagreed upon by European witnesses, with their estimates ranging from 100 square feet (Spelman 1872:cvi; Strachey 1967:79) to 200 acres (Smith 1986:III:116).

c. Preparation and Planting

Practicing horticulture in the eastern Woodlands required the clearing of forest cover to open the ground to the sun. Preparation of planting areas was arduous work in which men as well as women participated (Roundtree 1989:46).

Spelman describes clearing virgin forest land in Virginia. Forest clearing was accomplished by girdling small trees with fire and cutting down the larger trees, or by burning them repeatedly and chopping away the charred wood before relighting (1872:cxi). The entire area was then burned over. Similar practices of forest clearing were observed in New England (Salwen 1978:163) and the Carolinas (Hariot 1588:55).

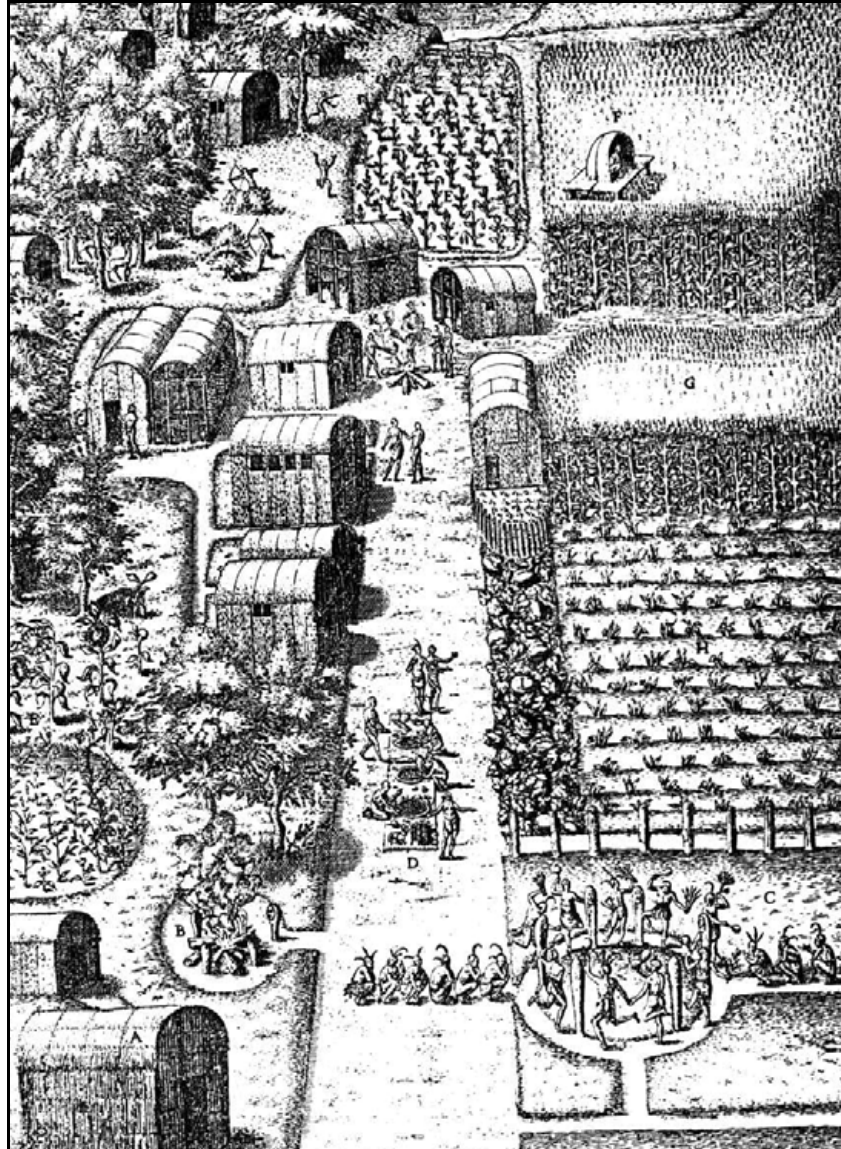


PLATE E-5: *The Tovvne of Secota, Showing the Arrangement of Gardens*

SOURCE: Hariot 1893

The greatest labour they take, is in planting their corne, for the country naturally is overgrowne with wood. To prepare the ground they bruise the barke of the trees neare the root, then do they scorch the roots with fire that they grow no more. The next year with a crooked peece of wood, they beat up the woodes by the rootes, and make a hole in the earth with a sticke, and into it they put 4 graines of wheate, and 2 of beanes. These holes they make 4 foote one from another; Their women and children do continually keepe it with weeding, and when it is growne midle high, they hill it about like a hop-yard. . . . In May also amongst their corne they plant Pumpeons, and a fruit like unto a muske millen . . . [Smith 1986:I:157, 158].

The ground they never fatten with mucke, dounge or any other thing; neither plow nor digge it as we in England, but only prepare it in sort as followeth. A fewe daies before they sowe or set, the men with wooden instruments, made almost in the forme of mattockes or hoes with long handles; the women with short peckers or parers, because they use them sitting, of a foote long and bout five inches

in breadth: doe onely breake the upper part of the ground to rayse up the weedes, grasse, & old stubbes of corne stalkes with their rootes. The wich after a day or twoes drying in the Sunne, bieng scrapted up into many small heapes, to save them labour for carrying them away; they burne into ashes. (And wherease some may thinke theat they use the ashes for to better the grounde; I say that then they woulde eyther disperse the ashes abroade; which wee observed they doe not, except the heapes bee to great: or els would take speciall care to set their corne where the ashes lie, which also wee finde they are careless of.) And this is all the husbanding of their ground that they use.

Then their setting or sowing is after this maner. First for their corne, beginning in one corner of the plot, with a pecker they make a hole, wherein they put foure graines with that care they touch not one another, (about an inch asunder) and cover them with the moulde againe: and so through out the whole plot, making such holes and using them after such maner: but with this regard that they bee made in rankes, every ranke differing from other halfe a fadome or a yarde, and the holes also in every ranke, as much. By this meanes there is a yarde spare ground betwene every hole: where according to discretion here and there, they set as many Beanes and Peaze: in divers places also among the seedes of Macocqwer, Melden and Planta Solis [Hariot 1893:23-24].

Beverley recorded the following observations of planting practices:

All these Sorts (of corn) are planted alike, in Rows, Three, Four or Five Grains in a Hill, the larger Sort at Four or Five Foot Distance, the lesser Sort nearer. The Indians used to give it One or Two Weedings, and make a Hill about it, and so the Labour was done. They likewise plant a Bean in the same Hill with the Corn, upon whose Stalk it sustains it self.

The Indians sow'd Peas sometimes in the Intervals of the Rows of Corn, but more generally in a Patch of Ground by themselves. They have an unknown Variety of them, (but all of a Kidney-Shape) some of which I have met with wild; but whence they had their Indian Corn, I can give no Account; for I don't believe that it was spontaneous in those Parts [1705:144].

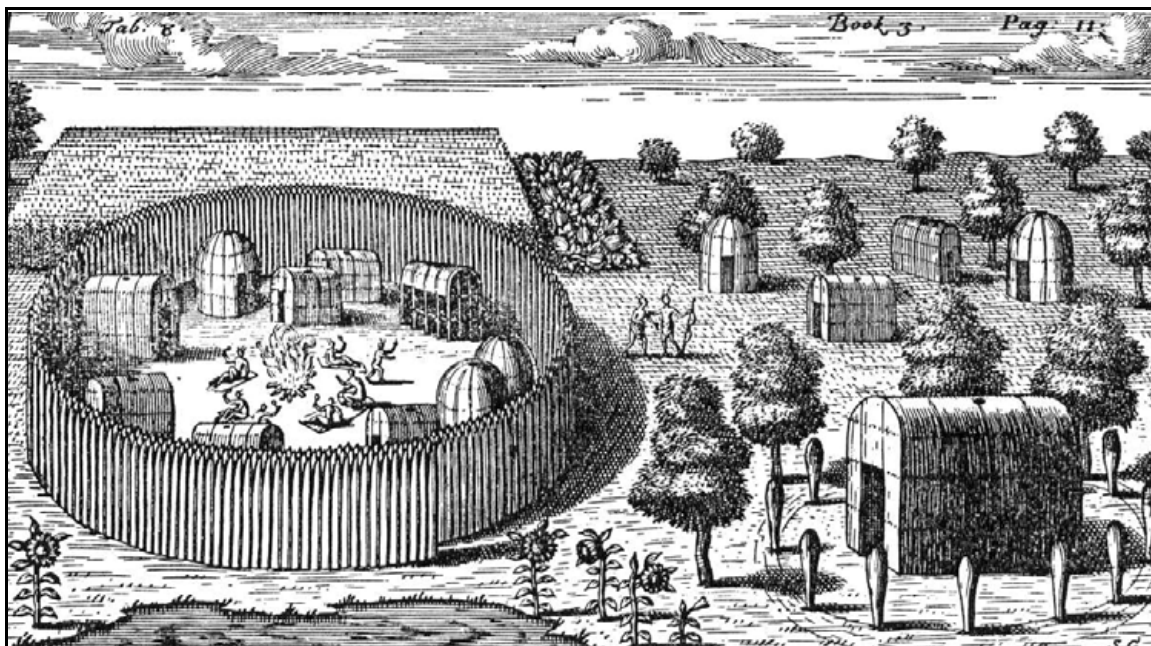


PLATE E-6: Arrangement of Gardens and Cultivated Fields
SOURCE: Beverley 1705:175

Wood describes the cultivation of cornfields in the northeast:

... an other work is their planting of corne, wherein they exceede our English husband-men, keeping it so cleare with their Clamme shell-hooes, as if it were a garden rather than a corne-field, not suffereing a choaking weede to advance his audacious head above their infant corne, or an undermining worme to spoile his spurnes [1865:106-107].

Recent studies in Virginia show how English colonists there benefitted from appropriating the previously cleared aboriginal farmlands (Potter and Waselkov 1994).

Agricultural implements were largely made of wood—many accounts mention “digging sticks” used in clearing forested land for gardens and in planting and cultivating. Wooden handles were used to haft shell and bone hoes.

d. Harvest and Yields

According to Roundtree (1989:49), many coastal Algonquian groups possessed a fairly sophisticated mathematical system used for evaluating their harvests. Early historical accounts of corn yields include the following excerpts:

The ground being thus set according to the rate by us experimented, and English Acre conteining fourtie perches in length, and fore in breadth, doeth there yeeld in croppe or of-come of corne, beanes, and peaze, at least two hundred London bushelles: besides the Macocqwer, Melden, and Planta Solis: Wehn as in England fourtie bushelles of our wheate yeelded out of such an acre is thought to be much.

I thought also good to not this unto you, if you which shall inhabite and plant there,maie know how specially that countrey corne is there to be preferred before ours: Besides the manifold waies in applying it to victuall, the increase is so much that small labour and paines is needful in respect that must be used for ours. For this I can assure you that according to the rate we have made prooffe of, one man may prepare and husbände so much grounde (having once borne corne before) with lesse then foure and twentie houres of labour, as shall yeelde him victuall in a large proportion for a twelve moneth if hee have nothing else, but that which the same gound will yeelde, and of theat kinde onelie which I have before spoken of: the saide gound being also but five and twentie yards square. And if neede require, but that there is ground enough, there might be raised out of one and the selfsame ground two harvestes or of-comes: for they sowe or set and may at anie time when they thinke good from the middest of March untill the ende of June: so that they also set when they have eaten of their first croppe. In some places of the countrey notwithstanding they have two harvests, as we have heard, out of one and the same ground [Hariot 1893:24].

The grain which the Indians cultivate chiefly is corn, or *Zea mays* L., and they have little fields for that purpose. But besides this they plant a great quantity of squashes, a species of pumpkin or melon, which they have always cultivated, even in the remotest ages. The Europeans settled in America got the seeds of this plant from the Indians, and at present their gardens are full of it. . . . The Indians likewise sow several kinds of beans, which for the greatest part they have secured from the Europeans. But peas, which they sow also, they have always had amongst them before any foreigners came into the country. The squashes of the Indians, which now are cultivated by the Europeans too, belong to those kinds of gourds (*cucurbita*) which ripen before any other. They are a very delicious fruit, but will not keep. I have, however, seen them kept till pretty late in winter [Kalm 1966:74-75].

2. *Plants Cultivated*

According to all the accounts of coastal Algonquian culture, corn (*Zea mays*) dominated agricultural enterprises. Observers described small fields planted with corn, beans (*Phaseolus vulgaris*), squashes, and pumpkins (*Cucurbita maxima*, *C. pepo*, *C. mochata*, and *C. mixta*). Gourds (*Lagenaria siceraria*) were grown mainly for use as containers and utensils. Sunflowers (*Helianthus annuus*) also appear to have been regularly cultivated.

Several Kinds of the Creeping Vines bearing Fruit, the Indians planted in their gardens or Fields, because they wou'd have Plenty of them always as hand; such as, Musk-melons, Water-melons, Pompions, Cushaws, Macocks, and Gourds. . . Besides all these, our natives had originally amongst them, Indian Corn, Peas, Beans, Potatoes, and Tobacco [Beverley 1705:141, 143].

Native tobacco (*Nicotiana rustica*) was widely cultivated (Swanton 1946:381-386).

A number of plants of certain European introduction appear in the early literature. These include watermelons (*Citrullus vulgaris*), muskmelons (*Cucumis melo*), potatoes, and cucumbers (*Cucumis sativus*). As with the peach, it seems that the cultivation of these plants was quickly adopted by Native Americans.

Beverley describes the cultivation of potatoes in the following passage:

Their Potatoes are either red or white, about as long as a Boy's Leg, and sometimes as long and big as both the Leg and Thigh of a young Child, and very much resembling it in Shape. I take these Kinds to be the same with those, which are represented in the Herbals, to be Spanish Potatoes. I am sure, those call'd English or Irish Potatoes are nothing like these, weather in Shape, Colour, or Taste. The Way of propagating Potatoes there, is by cutting the small ones to Pieces, and planting the Cuttings in Hills of loose Earth: But they are so tender, that it is very difficult to preserve them in the Winter; for the least Frost coming at them, rots and destroys them; and therefore People bury 'em under Ground, near the Fire-Hearth, all the Winter, until the Time comes, that their Seedings are to be set [Beverley 1705:145].

And it appears that Hariot describes the potato as *openavk*:

Openavk are a kind of roots of round forme, some of the bignes of walnuts, some far greater, which are found in moist & marish grounds growing many together one by another in ropes, or as though they were fastened with a string. Being boiled or sodden they are very good meate [Hariot 1893:26)].

a. *Chenopodium* sp. (*Goosefoot/Chenopodium*)

Goosefoot is a starchy-seeded annual or perennial herb common to a variety of open field and forest-edge settings. It is an opportunistic weedy species that quickly establishes itself on disturbed soils, such as those created on frequently inundated floodplains, cultivated fields, and roadsides (Brown and Brown 1984).

The recovery of goosefoot seeds from archaeological contexts has established the plant's economic significance to prehistoric populations throughout eastern North America. It is hypothesized that *Chenopodium* flourished in open habitats created by sedentary or semisedentary human populations (Anderson 1952; Heiser 1949; Smith 1985). In addition to the archaeological recovery of wild *Chenopodium* seeds, a gradual increase in *Chenopodium* achene size and seed coat thickness has been documented archeobotanically, evidencing its prehistoric domestication (Asch and Asch 1977; Smith 1985).

i. *Choupichoul* (Possible *Chenopodium berlandieri*)

The only historical account that *clearly* features the cultivation and use of small native grains is from far beyond the Puncheon Run project area. Antoine Simon Le Page du Pratz's observations of the Natchez area of the Lower Mississippi from the early eighteenth century (Le Page du Pratz 1758) describing the cultivation of the grain *Choupichoul*. The identification of *Choupichoul* has long eluded scholars, and over the years it has been speculated to be a kind of millet, a species of orach (buckwheat) (*Atriplex* spp.) (Asch and Asch 1977:97), cockspur (*Echinochloa crusgalli*) (Swanton 1911:76, 1946:291), and maygrass (*Phalaris caroliniana*) (Yarnell 1972:10). Recent research (Smith 1992a) suggests that *Choupichoul* is actually *Chenopodium berlandieri*. This identification seems most probable in light of recent archeobotanical data and field studies of the growth habit of modern stands of *C. berlandieri* in the Lower Mississippi river valley.

The following passage from Le Page describes the cultivation and use of *Choupichoul* and corn:

Il y a apparence que ces Peuples rassemblés, & composant une Ville & ou un Village, devinrent plus sédentaires, ne pouvant comme auparavant, emporter leurs demeures qu'ils avoient renues stables en les bâtissant. Ils cultivèrent la terre, afin qu'elle pourvût à leur nourriture; ils s'adonnerent à la culture du Mahiz, soit qu'ils l'eussent trouvé en Amérique, soit qu'ils l'eussent apporté de la Scythie ou de la Tartarie qui en produisent. Ce grain est très bon & très-nourrissant, de même que le Choupichoul qui vient sans qu'on le cultive [Le Page du Pratz 1758:tome second:176].

The natives having once built for themselves fixed habitations, would next apply themselves to the cultivation of the ground. Accordingly, near all their habitations, they have fields of maiz, and of another nourishing grain called Choupichoul, which grows without culture [Le Page du Pratz 1758:360].

Another translation of this passage reads as follows:

It appears that these people assembled, and forming a town or a village, became more sedentary, and now unable to carry their habitations, which they had rendered stable by building them. They cultivated the earth, so that it would give them food; they started to cultivate Maize, which they either found in America or brought from Scythia or from Tartary that produce it. This grain is very delicious and very nourishing, in the same way as Choupichoul that grows without being cultivated [Valérie Chaussonnet in Smith 1992b:253].

Le Page describes *Choupichoul* as a millet-like grain, a description that has led to much confusion regarding the true taxonomic classification of the plant (Smith 1992b:255).

Ils font encour du manger avec deux graines dont l'une se nomme Choupichoul, qu'ils cultivent sans peine, l'autre est le Widlogouill, qui vient naturellement & sans aucune culture; ce sont deux espèces de millet qu'ils écalent de même que la riz [Le Page du Pratz 1758:troisieme partie:9].

They likewise use two kinds of millet, which they shell in the manner of rice; one of these is called Choupichoul, and the other Widlogouil, and they both grow almost without any cultivation.

Or . . .

They also make food of two grains, of which one is called Choupichoul which they cultivate without difficulty, and the other is the Widlogouil, which grows naturally and without any cultivation. These are two kinds of millet which they hull in the same way as rice [Swanton 1911:76].

The most interesting of Le Page's accounts of *Choupichoul* is the following, which details the culture of the plant on the seasonally dry sand-banks in the Mississippi. This account is especially valuable in corroborating the floodplain weed theory of plant domestication (Anderson 1952).

I ought not to omit mentioning here, that from the low lands of Louisiana, the Mississippi has several shoal banks of sand in it, which appear very dry upon the falling of the waters, after the inundations. These banks extend more or less in length; some of them half a league, and not without a considerable breadth. I have seen the Natchez, and other Indians, sow a sort of grain, which they called Choupichoul, on these dry sand-banks. This sand received no manner of culture; and the women and children covered the grain any how with their feet, without taking any great pains about it. After this sowing, and manner of culture, they waited till autumn, when they gathered a great quantity of the grain. It was prepared like millet, and very good to eat. This plant is what is called Belle Dame Suavage, which thrives in all countries, but requires a good soil; and whatever good quality the soil in Europe may have, it shoots but a foot and a half high; and yet, on this land of the Mississippi, it rises, without any culture, three feet and a half, and four feet high [Le Page du Pratz 1755:175].

Or . . .

I ought not to omit here that from the lowlands of Louisiana upward the river St. Louis [Mississippi] has many sand banks, which become entirely dry after the waters have gone down at the end of the flood. These sand banks vary in length. There are some half a league long which do not lack a good breadth. I have seen the Natchez and other natives sow a grain which they called choupichoul on these sand banks. This sand is never cultivated and the women and children cover the grain, with a great deal of indifference, with their feet, almost without looking at it. After this sowing and this kind of cultivation, they wait until autumn and then gather a great quantity of this grain. They prepare it like millet and it is very good eating. This plant is that which is called 'beautiful savage lady' and which grows in all countries, but it needs a good soil, and however, good is the quality of any European soil it there reaches a height of only 1½ feet, while on this river sand without cultivation it reaches a height of 3½ to 4 feet [Swanton 1911:76].

ii. Melden (Possible Chenopodium sp.)

It has also been speculated that the melden, noted by Hariot, may be a species of cultivated *Chenopodium*, although it is more likely some species of amaranth (Sturtevant 1965:64-65). (See also melden under *Amaranthus* sp. [Section IV.B.2.h, below].)

b. Citrullus vulgaris (Watermelon), Cucumis melo (Muskmelon, Cantaloupe, Honeydew, etc.)

Melons are referred to fairly often in the literature. The occurrences of melons observed by early chroniclers of coastal Algonquian culture are certainly a result of European introduction (DeCandolle 1885:264).

The cultivation and consumption of watermelons was recorded for the Indians of the Maryland (Bushnell 1908:536) and Virginia region (Beverley 1705:123-125; Smith 1986:60; Strachey 1967:72), for the Indians of North Carolina (Hilton 1911:44; Lawson 1952:188), for the Iroquois (Potherie III:4), for the Delaware of Ohio (Heckewelder 1876:193), and for the Delawares more generally (Kalm 1966:II:115).

Among the mid-seventeenth-century Delawares, Lindeström mentions watermelons among foods that were traded with Swedish colonists (1925:223).

Their Water-melons were much more large, and of several Kinds, distinguished by the Colour of their Meat and Seed; some are red, some yellow, and others white meated, and so of the Seed, some are

yellow, some red, and some black; but these are never of different Colours in the same Melon. This Fruit the Muscovites call Arpus; the Turks and Tartars, Karpus, because the are extremely cooling: The Persians call them Hindnanes, because they had the first Seed of them from the Indies. They are excellently good, and very pleasant to the Taste, as also to the Eye; having the Rind of a lively green Colour, streak'd and water'd, the Meat of a Carnation, and the Seed black, and shining, while it lies in the Melon. . . Their Musk-melons resemble the large Italian Kind, and generally fill Four or Five Quarts [Beverley 1705:141-142].

Melons are also mentioned by Lawson (1952:188).

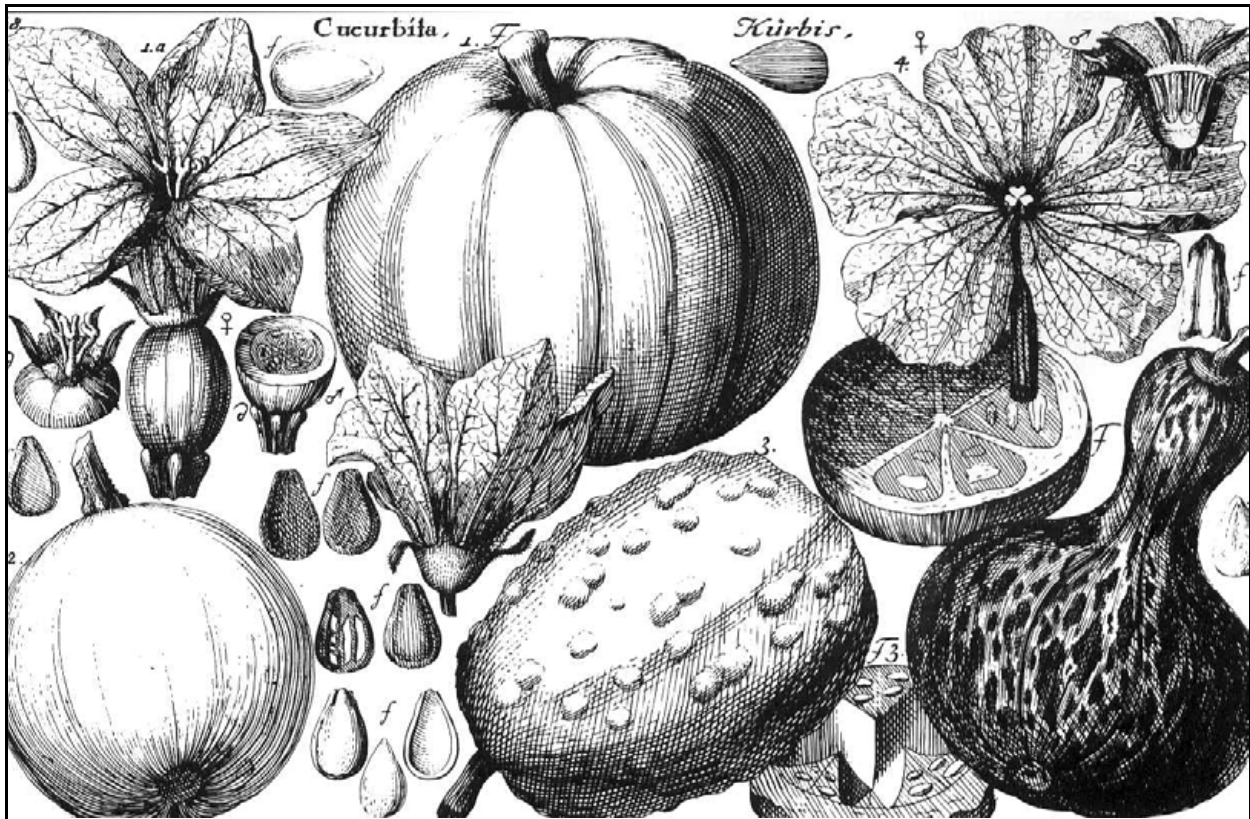


PLATE E-7: A Variety of Squash, Pumpkins, and Gourds, as Illustrated by Johannes Gessner in 1795

SOURCE: Reveal 1992

c. Cucurbita maxima, C. mochata, C. pepo, C. mixta (Squashes, Pumpkins)

Squashes and pumpkins of great variety and abundance were noted in early accounts of coastal Algonquian horticulture and diet (Plate E-7). However, it is not possible to recognize specific varieties in the historical accounts (De Candolle 1885:252).

In the following passages, Beverley describes squash varieties observed among the Indians of Virginia:

Their Pompions I need not describe, but must say they are much larger and finer, than any I ever heard of in England.

Their Cushaws are a kind on Pompoin, of a bluish green Colour, streaked with White, when they are fit for Use. They are larger than the Pompoins, and have a long narrow Neck: [Perhaps this is the Ecushaw of T. Hariot].

Their Macocks are a sort of Melopepones, or lesser sort of Pompoin, of these they have great Variety, but the Indian name Macock serves for all, which Name is still retain'd among them. Yet Clypeateoe are sometimes call'd Cymmels (as are some others also) from the Lenten Cake of that name, which many of them very much resemble. Squash, Squanter-Squash, is their Name among the Northern Indians, and so they are call'd in New York, and in New England. These being boil'd whole, when the Apple is young, and the Shell tender, and dished with Cream or Butter, relish very well with all sorts of Butcher's Meat, either fresh or salt. And whereas the Pompoin is never eaten till it be ripe, these are never eaten after they are ripe [1705:27].

Squashes are also mentioned by Lawson (1952:188), and Captain John Smith describes the cultivation of squash and pumpkins in Virginia:

In May also amongst their corne they plant Pumpeons, and a fruit like unto a muske millen, but lesse and worse, which they call Macocks. These increase exceedingly, and ripen in the beginning of July, and continue until September [Smith 1986:158].

In New England, *Cucurbita* provided a staple summertime food: "In Summer, when their corne is spent, Isquoutersquashes is their best bread, a fruite like a young Pumpion" (Wood 1865:76).

The summer (yellow) crookneck squash (*C. pepo*) is one of the oldest historically documented squash varieties (Woys Weaver 1997:291). Correspondence between Thomas Jefferson and the Philadelphia Quaker Timothy Matlack in the year 1807 suggests that the yellow crookneck is native to New Jersey, being developed and cultivated by the Lenape peoples of the Delaware Valley (Betts 1944:341).

Squashes also provided the raw materials for a variety of containers and utensils (see Section IV.B.2.f, below).

d. Cucumis sativus (Cucumber)

The cucumber originated in the East Indies, probably in Asia and Egypt (Sturtevant 1919:208). Numerous accounts of cucumbers were made by early observers. It seems that the cucumber was quickly appropriated by Native American gardeners and grown along the Atlantic coast from Canada to the Carribean Islands.

Cucumbers were grown by Columbus in Haiti in 1494 (Irving 1848:380). They are mentioned as being cultivated by Native Americans at Hochelaga (Montreal) (Pinkerton 1812:652), in Florida in the mid-sixteenth century (De Soto 1851:44; Hakluyt Society Publications 1850:102), and in Virginia in 1584 (Pinkerton 1812:6). They were described by Lawson in North Carolina in 1705 (1952:188). Cucumbers were among the Indian vegetables destroyed by General Sullivan in 1770 in New York (Conover 1879:45). They are mentioned in Massachusetts in 1629 (Massachusetts Historical Society Collections 1806:118), and by William Wood (1865:33).

e. Helianthus annuus (Sunflower)

Cultivation of sunflowers was recorded in Virginia by Hariot and Beverley, and for the Huron and Iroquois further north.



PLATE E-8: Detail from de Bry's Engraving of the Village of Secota

SOURCE: Lorant 1946

f. Lagenaria siceraria (Bottle Gourd)

The bottle gourd (*Lagenaria siceraria*) is the plant most often meant when the name gourd is used. *L. siceraria* originated in Africa, but spread to Asia and the Americas during prehistoric times, although the details of these introductions remain unknown. The large durable fruits of the bottle gourd have made it a very useful plant to human populations around the world, being used as containers and fashioned into bowls, ladles, instruments, etc. (Heiser 1979:8).

The early historical descriptions of coastal Algonquian culture include numerous references to the growing and use of gourds.

The Indians never eat the Gourds, but plant them for other Uses. Yet the Persans, who likewise abound with this sort of Fruit, eat the Cucurbita Lagenaria, which they call Kabach, boiling it while it is green, before it comes to it's full Maturity; For, when it is ripe, the Rind dries, and grows as hard as the

Bark of a Tree, and the Meat within is so consumed and dried away, that there is nothing left but the Seed, which the Indians take clean out, and afterwards use the Shells instead of Flagons and Cups; as is done also in several other Parts of the World [Beverley 1705:27].

There is also another great hearbe in the forme of a Marigolde, about sixe foote in height; the head with the floure is a spanne in breadth. Some take it to bee Planta Solis: of the seedes heerof they make both a kinde of bread and broth [Hariot 1893:23].

they make their Bred, of Indian Corn, Wild Oats, or the Seed of the Sunflower [Beverley 1705:15].

Sunflowers are clearly represented in engravings by de Bry depicting the villages of Pomeicooc and Secota (Plates E-8 and E-9) (Heiser 1951:432, 435).

Sunflower achenes may also have served to produce a black dye:

They can colour their Hair black, though sometimes it is reddish, which they do with the Seed of a Flower that grows commonly in their Plantations [possibly sunflower *Helianthus annuus*] [Lawson 1952:234].

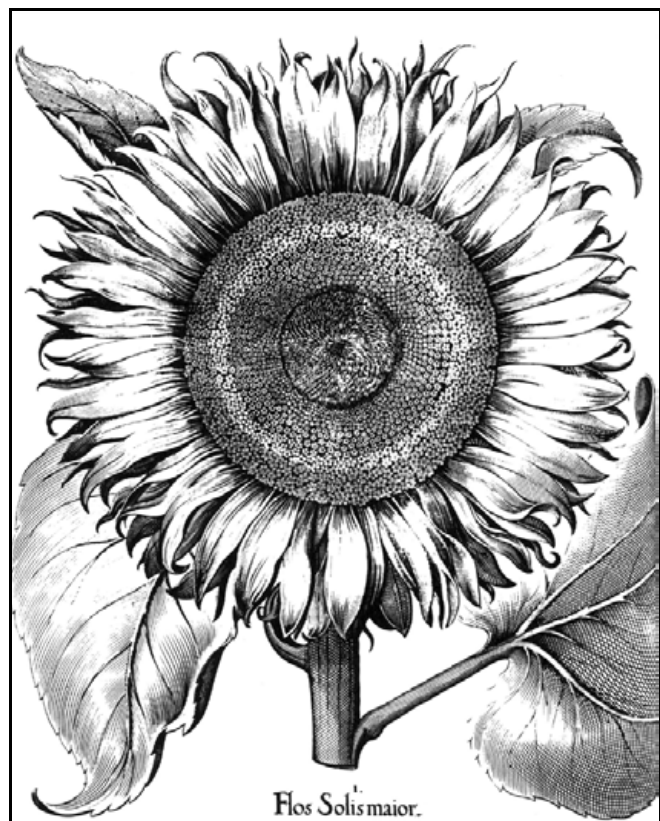


PLATE E-9: *Helianthus annuus* (Sunflower)

SOURCE: Reveal 1992



PLATE E-10: A Lady of Pomeiooc

SOURCE: Hariot 1893:VIII

In a description of a lady of Pomeiooc, Hariot mentions that they “. . . carye a gourde full of some kinde of pleasant liquour” (1893:VIII) (Plate E-10).

Hariot also describes the use of gourd rattles in a ritual or celebration after escape from danger or return from war (1893:XVII). Rattles were made by cleaning the flesh and seeds from a dried gourd, filling the empty fruit with small stones or kernels, and mounting the gourd upon a stick to use as a rhythm instrument. Lawson mentions gourd rattles filled with corn used during ceremonial occasions in South Carolina (1952:35, 185), the use of gourd containers to catch sugar-maple sap (1952:107), and the use of “guords” as a food (1952:188).

The calabashes are a kind of gourd, which are planted in quantities by the Swedes and other inhabitants, but they are not fit for eating, and are used for making all sorts of vessels. They are more difficulty to raise than the squashes, for they do not always ripen here except when the weather is very warm. In order to make vessels of them, they are first dried well. The seeds, together with the pulpy and spongy matter in which they lie, are afterwards taken out and thrown away. The shells are scraped very clean within, and then large spoons or ladles, funnels, bowls, dishes and the like may be made of them. They are particularly fit for holding seeds which are to be sent over sea; for seeds keep their power of vegetating much longer if they be put in calabashes than by any other means. Some people scrape the outside of them before they are opened, dry them and then clean them within. This makes them as hard as bone. They are sometimes washed to keep their white color [Kalm 1966:183].

Their principle articles of furniture are a kettle, in which they boil their meat and some dishes or plates of bark and cedar wood, out of which they eat; for drinking, they use, commonly, the shell of the calabash . . . their plates were large leaves of trees that stood near them [DuPonceau 1834:124].

Lindeström mentions the use of cut-off calabashes as cups for eating or drinking (1925:255).

Lawson mentions “Vizards made of Gourds” worn by Wateree Chickanee men for ceremonial occasions (1952:35).

g. *Phaseolus vulgaris* (Beans)

The common bean, *Phaseolus vulgaris*, was cultivated prehistorically in eastern North America and was a dietary staple for late prehistoric populations. *P. vulgaris* was introduced to many areas of the eastern woodlands by AD 1000-1200, and along with corn and squash formed a Mesoamerican crop triad noted historically and archaeologically in varying degrees throughout the Eastern Woodlands (Smith 1992a:111).

Two kinds of native beans noted by Hariot in Virginia were called by the English “beans” and “peas,” respectively.

Okindgier, called by us Beanes, because in greatnesse and partly in shape they are like to the Beanes in England; sauing that they are flatter, or more diuers colours, and some pide. The leafe also of the stemme is much different. In taste they are altogether as good as our English peaze. Wickonzowr, called by us Peaze in respect of the beanes for distinction sake, because they are much lesse; although in forme they little differ; but in goodnesse of tast much, and are far better than our English peaze. Both the beanes and the peaze are ripe in tenne weekes after they are set. They make them victuall either by boyling them all to pieces into a broth; or boyling them whole vntil they bee soft and beginne to breake as is vsed in England, eyther by themselues or mixtly together: Sometime they mingle of the wheate with them. Sometime also beeing whole sodden, they bruse or pound them in a morter, and thereof make loaues or lumps of dowishe bread, which they vse to eat for varietie [Hariot 1893:22].

They plant also pease they cal Assentamens, which are the same they cal in Italy, Fagioli. Their Beanes are the same the Turkes cal Garnanses, but these they much esteeme for dainties [Smith 1986:I:157].

Lawson mentions finding “a great Store of Indian Peas (a very good pulse)” in an unoccupied Indian home in South Carolina (1952:13), and offers the following description of beans grown in North Carolina at the beginning of the eighteenth century:

Of the Pulse-kind, we have many sorts. The first is the Bushel-Bean, which is a spontaneous Product. They are so called because they bring a bushel of Beans for one that is planted. They are set in the Spring, round Arbors, or at the Feet of Poles, up which they will climb and cover the Wattling, making a very pretty Shade to sit under. They continue flowering, budding and ripening all the Summer long, till the Frost approaches when they forbear their Fruit and die. The Stalks they grow on come to the Thickness of a Man’s Thumb; and the Bean is white and mottled, with a purple Figure on each side it, like and Ear. They are very flat, and are eaten as the Windsor-Bean is, being an extraordinary well relished Pulse, wither by themselves or with Meat [1952:77].

The varieties of beans (pulse) grown along the Atlantic coast at the time of European contact appear to have been numerous and were probably suited to particular environmental conditions. Lawson offers the following description of bean varieties:

We have the Indian Rounceval, or Miraculous Peas, so called from their long Pods, and great Increase. These are later Peas, and require a long Summer to ripen in. They are very good; and so are the Bonavis, Calavancies, Nanticokes, and abundance of other Pulse, too tedious here to name, which we found the Indians possessed of, when first we settled in America, some of which sorts afford us two Crops in one Year; as the Bonavis and Colavancies, besides several others of that kind [1952:77].

They plant a great many sorts of Pulse, Part of which they eat green in the Summer, keeping great Quantities for their Winter-Store, which they carry along with them into the Hunting-Quarters and eat them. . . . The small red Pease is very common with them, and they eat a great deal of that and other sorts boiled with their Meat, or eaten with Bears Fat . . . [Lawson 1952:220].

Among the mid-seventeenth-century Delawares, Lindeström mentions “Turkish beans” among foods that were traded with Swedish colonists (1925:223).

Beverley mentions beans cultivated in Virginia in 1705 (Wright 1947:2:144).

There persists today an heirloom bean variety called the “Egg Bean” or “All-in-One Bean” (also known as “Dutch Caseknife” or “Fisher Bean”), which has been grown in the gardens of the Pennsylvania Dutch for centuries. This bean probably had its origins in the gardens of Algonquian Indians (Woys Weaver 1997:57).

Another bean variety, the Blue Shackamaxon, is a variety attributed to the Lenape peoples from the eighteenth century. In his book on heirloom vegetable varieties, William Woys Weaver notes that Blue Shackamaxon was cooked in a polenta-type dish called “black mush,” and suggests that the bean may have had ceremonial significance, since its color closely resembles the clamshell beads used as wampum (1997:54).

h. Amaranthus sp. (Melden)

Amaranthus species are starchy-seeded annual (or rarely perennial) herbs common to open settings. Species of amaranth, or pigweed, are opportunistic and weedy, and are abundant in cultivated fields and waste places. The seeds are very durable in the ground and remain viable for years (Brown and Brown 1984:425-427).

Many wild *Amaranth* species are native to the Atlantic Coastal Plain, and recent research suggests that a variety of now extirpated quasi cultivars were once grown in the pre-maize gardens of Native Americans (Yarnell 1987). The recovery of large caches of amaranth seeds from archaeological contexts has established the plant’s economic significance to prehistoric populations throughout much of the Eastern Woodlands of North America. However, little archeobotanical documentation exists for the Atlantic Coastal Plain where many early ethnohistoric accounts were focused. A single historical reference by Thomas Hariot to a cultivated herb called melden quite possibly refers to a domesticated amaranth cultivated by coastal Algonquian cultures (Sturtevant 1965:64-65):

There is an herbe which in Dutch is called Melden. Some of those that I describe it unto, take it to be a kinde of Orage; it groweth about foure or five foote high; of the seede thereof they make a thicke broth, and pottage of a very good taste; of the stalke by burning into ashes they make a kinde of salt earth, wherewithall many use sometimes to season their brothes; other salte they knowe not. Wee ourselves, used the leaves also for pothearbes [Hariot 1893:22-23].

(See also Melden under *Chenopodium* sp. [Section IV.B.2.a.ii above].)

i. Iva annua (Sumpweed)

Sumpweed is an oily-seeded annual plant common to a variety of wetland settings, favoring moist soils along streams, borders of ponds and sloughs, river bottoms, and frequently inundated floodplain areas. Sumpweed is an opportunistic edge species commonly occurring in dense, homogenous stands. The herbaceous weed germinates in April, and the edible achenes (dry, one-seeded, indehiscent fruits) ripen through October.

Sumpweed achenes are arranged in loosely packed clusters that dry attached to the plant, offering an effective harvest season of approximately two weeks in late October and early November. *Iva annua* achenes provide concentrated food energy due to their high fat content and low moisture content. Sumpweed achenes are rich in proteins, vitamins, minerals, and crude fiber (Plate E-11).

The recovery of *Iva annua* achenes from archaeological contexts provides evidence of the plant's economic importance to prehistoric populations throughout eastern North America. It is hypothesized (Anderson 1952; Asch and Asch 1978) that sumpweed flourished in open areas created by humans, with the plant colonizing disturbed, open habitats created by sedentary or semisedentary populations. In addition to the archaeological recovery of wild sumpweed achenes, a gradual increase in sumpweed achene size has been documented archeobotanically; this is considered evidence of the prehistoric domestication of sumpweed (Asch and Asch 1978, 1985; Yarnell 1978).



PLATE E-11: *Iva annua* (Sumpweed)

SOURCE: LeeDecker et al. 1996

Raw sumpweed achenes are inedible due to their bitter flavor and tough pericarp (similar to that of the sunflower), and it is speculated that processing was necessary prior to consumption. Asch and Asch (1985:302) suggest that the achenes were roasted or boiled to eliminate their objectionable raw taste, and that separation and winnowing was required to remove the achene's indigestible pericarp.

j. Nicotiana rustica (Tobacco)

The native tobacco was *Nicotiana rustica*, which was widely cultivated and used by coastal Algonquians at the time of European contact (Swanton 1946:381-386). The superior West Indian tobaccos imported and grown by European colonists quickly replaced the native varieties for all but ceremonial uses.

There is an herbe which is sowed a part by it selfe & is called by the inhabitants Vppowoc: In the West Indies it hath divers names, according to the several places & countries where it groweth and is used: The Spaniards generally call it Tobacco. The leaves thereof being dried and brought into powder: they use to take the fume or smoke thereof by sucking it through pipes made of claie into their stomacke and heade; from whence it purgeth superfluous fleame & other grosse humors, openeth all the pores & passages of the body; by which meanes the use thereof not only preserveth the body from obstructions; but also if any be, so that they have not bene of too long continuance, in short time breaketh them: wherby their bodies are notably preserved in health, & know not many greivous diseases wherewithall wee in England are sometimes afflicted.

This Vppowoc is of so preceious estimation amongst them, that they thinke their gods are marvelously delighted therwith: Whereupon sometime they make hallowed fires & cast some of the powder therein for a sacrifice: being in a storme upon the waters, to pacifie their gods, they cast some up into the aire and into the water: so a weare for fish newly set up, they cast some therein and into the aire: also after an escape of danger, they cast some into the aire likewise: but all done with strange gestures, stamping, sometime dauncing, clapping of hands, holding up of hands, & staring up into the heavens, uttering therewithal and chattering strange words & noises [Hariot 1893:25].

Captain John Smith mentions the ceremonial use of tobacco offered on alters or thrown into the water of rivers and bays (1986:II:124), and mentions “great cakes of Deere suet, Deare, and Tobacco he casteth in the fire” (Smith 1986:I:59).

There is here a great store of tovacco, which the salvages call apooke; howbiet yt is not of the best kynd, yt is but poore and weake, and of a byting tast, yt growes not fully a yard above ground, bearing a little yellow flower, like to hennebane, the leaves are short and thick, somewhat round at the upper end; whereas the best tobacco of Trynidado and the oronoque is large, sharepe, and growing two or three yardes from the ground, bearing a flower of the bredth of our bell-flowers in England: the salvages here dry the leaves of this apooke over the fier, and sometymes in the sun, and rumble yt into poulder, stalks, leaves, and all, taking the same in pipes of earth, which very ingeniously they can make [Strachey 1967:121-122].

According to Beverley, by the end of the seventeenth century the Virginia natives no longer cultivated their tobacco, depending chiefly upon the English for their supply:

How the Indians order'd their Tobacco, I am not certain, they now depending chiefly upon the English, for what they smoak. But I am inform'd, they used to let it all run to Seed, only succouring the Leaves, to keep the Sprouts from growing upon, and starving them and when it was ripe, they pull'd off the Leaves, cured them in the Sun, and laid them up for Use. But the Planters make a heavy Bustle with it now, and can't please the market neither [1705:145].

Tobacco is mentioned among gifts given to Pilgrims Miles Standish and Isaac Alderton on Cape Cod in 1620 (Cheever 1848:63).

The Swedish colonist Johannes Campanius remarked on the abundance of tobacco under cultivation in the Delaware region and mentions that tobacco was smoked by both men and women (Du Ponceau 1834:122). Tobacco pipes among the Delaware were made “out of reeds a bout a man's length; the bowl is made of horn, and to contain a great quantity of tobacco . . .” (Du Ponceau 1834:130). Lindeström mentions tobacco as a trade good (1925:226).

In North Carolina, during the first years of the eighteenth century, Lawson discusses the native tobacco:

Their Teeth are yellow with Smoaking Tobacco, which both the Men and Women are much addicted to. They tell us that they had Tobacco amongst them before the Europeans made any Discovery of that Continent. It differs in the Leaf from the sweet scented, and Oronoko, which are the plants we raise and cultivate in America. Theirs differs likewise much in the Smell, when green, from our Tobacco before cured. They do not use the same way to cure it as we do, and therefore the difference must be very considerable in Taste; for all Men (that know Tobacco) must allow that it is the Ordering thereof which gives a Hogoo to that Weed rather than any Natural Relish it possesses when green. Although they are great Smokers, yet they never are seen to take it in Snuff or chew it [1952:183].

k. Zea mays (Corn, Maize)

By AD 1150, maize-centered field agriculture had come to dominate prehistoric settlements in river valleys throughout broad areas of the eastern United States. Along with beans and squash, (two other garden plants of Mesoamerican origin), a new agricultural economy was established that was rigorously noted by the early European chroniclers of the New World. Ethnohistoric accounts, however, show considerable disparity

in the types of maize being grown, the preparation of corn, and its dietary importance relative to native crops and wild plant food resources (Smith 1992a:111).

. . . Corn was the Staff of Food, upon which the Indians did ever depend; for when Sickness, bad Weather, War, or any other ill Accident kept them from Hunting, Fishing and Fowling; this, with the Addition of some Peas, Beans, and such other Fruits of the Earth, as were then in Season, was the Families Dependence, and the Support of their Women and Children [Beverley 1705:143].

In Aprill they begin to plant, but their chiefe plantation is in May, and so they continue till the midst of June. What they plant in Aprill they reape in August, for May in September, for June in October; Every stalke of their corne commonly beareth two eares, some 3, seldome any 4, many but one and some none. Every eare ordinarily hath beweixt 300 and 500 graines. The stalke being green hath a sweet juice in it, somewhat like a suger Cane, which is the cause that when they gather their corne greene, they sucke the stalkes: for as wee gather greene pease, so doe they their corne being greene, which excelleth their old . . . Their corne they rost in the eare greene, and bruising it in a mortar of wood with a Polt, lappe it in rowles in the leaves of their corne, and so boyle it for a daintie. They also reserve that corne late planted that will not ripe, by roasting it in hot ashes, the heat thereof drying it. In winter they esteeme it being boyled with beans for a rare dish, they call Pausarowmena. Their old wheat they first steep a night in hot water, in the morning pounding it in a mortar. They use a small basket for their Temmes (sieve), then pound againe the grout, and so separating by dashing their hand in the basket, receive the flower in platter made of wood scraped to that forme with burning and shels. Tempering this flower with water, they make it either in cakes covering them with ashes till they bee baked, and then washing them in faire water they drie presently with their owne heat: or else boyle them in water eating the broth with the bread which they call Ponap. The grouts and peeces of the cornes remaining, by fanning in a Platter or in the wind, away, the branne they boile 3 or 4 houres with water, which is an ordinary food they call Ustatahame. But some more thrifty then cleanly, doe burne the core of the ear to powder, which they call Pungnough, mingling that in their meale, but it never tasted well in bread, nor broth [Smith 1986:I:157-158].

Descriptions by Thomas Hariot regarding the diet of the Algonquian tribes in the Sound region of North Carolina (where the Raleigh Colony was settled in 1585-1587) feature the cultivation of three types of corn:

There are three sorts [of corn], of which two are ripe in an eleuen and twelue weekes at the most: sometimes in ten, after the time they are set, and are then of height in stalke about sixe or seuen foote, The other sort is ripe in fourteene, and is about ten foote hight, of hte stalkes some beare foure heads, some three, some one, and two; euery head containing fiue, sixe, or seuen hundred graines within a fewe more or lesse [Hariot 1893:22].

Kernels were all apparently of mixed colors, “some white, some red, some yellow, and some blew” (Hariot 1893:21). Lindström mentions that corn of all kinds was traded with the colonists of New Sweden in the mid-seventeenth century (1925:223).

Lawson mentions

Indian Corn, or Maiz, made into several sorts of Bread; Ears of Corn roasted in the summer, or preserved against Winter [Lawson 1952:188].

By the seventeenth century, corn was the staple crop among the Delaware. Corn was planted in small groups on hills, alongside beans and squash. Jaspas Dankers and Peter Sluyter describe corn cultivation and preparation, especially maize bread and hominy in Kent County, Maryland, in 1679-1680 (Dankers and Sluyter 1966:217).

At the beginning of the eighteenth century, Beverley writes of four varieties of corn being grown in Virginia:

There are Four Sorts of Indian Corn, Two of which are early ripe, and Two, late ripe; all growing in the same manner; every single Grain of this when planted, produces a tall upright Stalk, which has several Ears hanging of the Sides of it, from six to Ten Inches long. Each Ear is wrapt up in a Cover of many Folds, to protect it from the Injuries of the Weather. In every one of these Ears, are several Rows of Grain, set close to one another, with no other Partition, but of a very thin Husk. So that oftentimes the Increase of this Grain amounts to above a Thousand for one.

The Two Sorts which are early ripe, are distinguish'd only by the Size, which shows it self as well in the Grain, as in the Ear, and the Stalk. There is some Difference also in the Time of ripening.

The lesser Size of the Early ripe Corn, yields an Ear not much larger than the Handle of a Case Knife, and grows upon a Stalk, between Three and Four Foot high. Of this are commonly made Two crops in a Year, and, perhaps, there might be Heat enough in England to ripen it.

The larger Sort differs from the former only in Largeness, the Ear of this being Seven or Eight Inches long, as thick as a Child's Leg, and growing upon a Stalk Nine or Ten Foot high. This is fit for eating about the latter end of May, whereas the smaller Sort (generally speaking) affords Ears fit to roast by the Middle of May. The Grains of both these Sorts, are as plump and swell'd as if the Skin were ready to burst.

The late ripe Corn is diversify'd by the Shape of the Grain only, without any Respect to the accidental Differences in Colour, some being blue, some red, some yellow, some white, and some streak'd. That therefore which makes the Distinction, is the Plumpness or Shrivelling of the Grain; the one looks as smooth, and as full as the early ripe Corn, and this they call Flint-Corn; and the other has a larger Grain, and looks shrivell'd with a Dent on the Back of the Grain, as if it had never come to Perfection; and this they call She-Corn. This is esteem'd by the Planters, as the best for Increase, and is universally chosen by them for planting; yet I can't see, but that this produces the Flint-Corn, accidentally among the other [Beverley 1705:28-29].

Lawson notes that corn was stored by the Santee Nation in South Carolina (1952:13), and, among the Wateree Chickanee, he describes stewed peaches served with

green Corn, that is preserved in their Cabins before it is ripe, and sodden and boiled when they use it, which is a pretty sort of Food, and a great Increaser of the Blood [Lawson 1952:30].

He also offers the following praise of corn in North Carolina:

The Indian Corn, or Maize, proves the most useful Grain in the World; and had it not been for the Fruitfulness of this Species, it would have proved very difficult to have settled some of the Plantations in America. It is very nourishing, whether in Bread, sodden, or otherwise. . . . It refuses on Ground, unless the barren Sands, and when planted in good Ground, will repay the Planter, seven or eight hundred fold; besides the Stalkes and boiled, make very pleasant Beer, being sweet like the Sugar Cane [Lawson 1952:76].

Lawson in South Carolina also notes corn stalks "as thick as the Small of a Man's Leg" (1952:37).

In New England, Wood describes the manner of eating corn:

They seldom or never make bread of their Indian corne, but seeth it whole like beanes, eating three or four conres with a mouthful of fish or flesh, sometimes eating meate first, and cornes after, filling chinkes with their broth [Wood 1865:75-76].

He also describes how corn was used in the preparation of food for travel:

If their imperious occasions cause them to travell, the best of their victuals for their journey is Nocake, (as they call it) which is nothing but Indian Corne parched in the hot ashes; the ashes being sifted from it, it is afterward beaten to a powder and put into a long leatherne bag, trussed at their backe like a knapsacke; out of which they take thrice three spoonefulls a day, dividing it into three meales [Wood 1865:76].

They delight much to feed on Roasting-ears; that is, the Indian Corn, gathered green and milky, before it is grown to its full bigness, and roasted before the Fire, in the Ear. For the sake of this Dyet, which they love exceedingly, they are very careful to procure all the several sorts of Indian Corn before mentioned, by which means they contrive to prolong their Season. And indeed this is a very sweet and pleasing Food [Beverley 1705:180].

Lindeström noted during his 1654-1656 travels through the Delaware Valley that the native peoples living in the west-central New Jersey area traditionally grew a black corn (1925). It has been suggested (Woys Weaver 1997:146-147) that this corn variety was Sehsapsing (Oklahoma Delaware Blue) Corn. Based on the similarity between Sehsapsing and the black corn described by Lindeström, it may be that the historical variety found among the Caney River Delawares in Oklahoma originated in southeastern Pennsylvania and traveled with the Delawares to Oklahoma when the eastern tribe was removed there in the eighteenth and nineteenth centuries. Sehsapsing Corn is an unusual variety, standing no taller than 6 feet at most, and yielding a single 6- or 7-inch cob per stalk. Sehsapsing often sends out additional shoots at its base, forming clumps of two to eight stalks, and giving the plant a wild, grassy appearance. Corn and tobacco fields are clearly depicted in de Bry's engraving of the village of Secota (after John White) (Plate E-12) (Lorant 1946).

Corn was removed from the cob (shelled) by hand, as described by Lindeström:

They do not need to thrash their grain, the maize; but when it gets ripe and dry, then they rub the ears between their hands and brush off the kernels [Lindeström 1925:253].

Corn might also be beaten or rubbed from the cob in a wooden mortar. Plate E-13 is a photograph of a Nanticoke shelling mortar taken by Frank Speck in southern Delaware in 1911-1914. The hollow stump-mortar on the right has a suspended grating of wooden bars that allowed corn kernels to fall into a lower cavity when beaten from the cob with a wooden pestle (Plate E-14).

Mortar and pestle were used to pulverize corn into meal; the use of stones for grinding maize was recorded by De Vries (1909:156), Lawson (1952), and Hariot (1588).

... the meal for baking they pound asunder with a pestle and mortar, which they make in this manner, that for the purpose they cut a thick and large tree, 1 ½ ells from the root, in the stump of which they dig out a round hole and thus make a mortar which is suited for the purpose and in which they pound all their grain to meal [Lindeström 1925:153-154].

The Savage Men never beat their Corn to make Bread; but that is the Women's Work, especially the Girls, of whom you shall see four beating with long great Pestils in a narrow wooden Mortar; and every one keeps her Stroke so exactly, that tis worthy of Admiration [Lawson 1952:220].

Additional uses for corn by the Delaware are mentioned in Du Ponceau (1834:17):

... with the leaves of Indian corn and reeds, they make purses, mats and baskets, and everything else that they want. I can show a little purse of Indian corn leaves, and two large ones which my grandfather brought with him from that country.

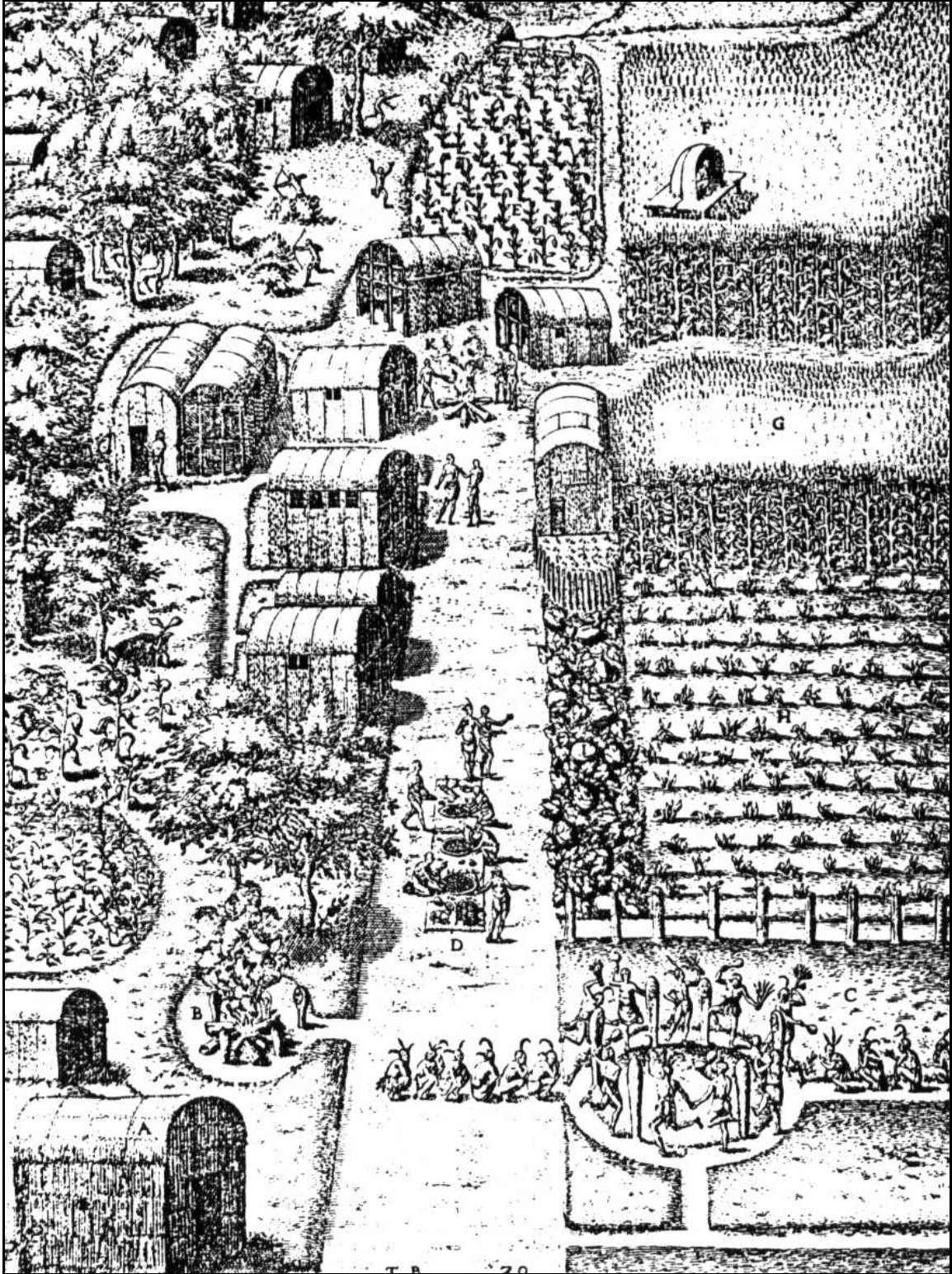


PLATE E-12: Tobacco and Corn Growing in the Village of Secota

SOURCE: Lorant 1946



PLATE E-13: Nanticoke Shelling Mortar

SOURCE: Trigger 1978 (Photograph by Frank Speck, 1911-1914)

Lawson mentions that young Indian corn was beaten to a pulp and used to the same effect as brains in tanning animal hides (1952:221).

Peter Kalm mentions an account of an excavated Indian grave in eastern New Jersey in the year 1744, where corn cakes were found interred with the deceased (1966:74).

3. *Managing the Landscape*

The earth, the woods, and the rivers are the provision stores of the Indians; for they eat all kinds of wild animals and productions of the earth: fowls, birds, fishes, and fruits, which they find within their reach [De Ponceau 1834:16].

Prehistorically, coastal Algonquian populations made significant changes in the natural landscape of the Eastern Woodlands in the course of fulfilling their basic needs. As Helen Roundtree states of the Powhatans of Virginia, “[they] were Stone Age people in a region where stone is not plentiful” (1989:32). This fact is

critical to understanding and appreciating Native American technology in the Middle Atlantic region. In the absence of abundant stone resources, technologies for making tools relied upon a broad range of plant and animal products, and the form that these tools took prescribed the kinds of work possible with them.



PLATE E-14: Delaware Mortar and Pestle

SOURCE: *Trigger 1978*

Plant products provided food, clothing, shelter, tools, medicines, and ritual items to coastal Algonquians. Obtaining these plant products required a keen understanding of natural resource distribution, catchment areas, population ecology, and seasonal patterns.

European visitors clearly described the settlements and gardens of aboriginal peoples in the Middle Atlantic. The literature also provides considerable evidence for the “management” of greater “natural areas” of the Coastal Plain and Piedmont by native peoples. This evidence suggests that the “wilderness” of the New World had long been shaped by human activities.

The management of woodlands by the Delaware to facilitate hunting was documented by early chroniclers (Day 1953:34; De Vries 1909:15; Lindeström 1925:213-244). In the late autumn, after leaves had fallen, forest undergrowth was burned. This often accompanied fire-surrounds, which were used to drive and trap game. Open fields were also periodically burned to control forest succession.

Now as soon as the winter bids good night, they begin with their hunts, which is done with a fine innovation. Now at that time of year the grass which grows there, as

has been said, is as dry as hay. When now the sachem wants to arrange his hunt, then he commands his people [to take a position] close together in a circle of 1/2, 1 or 2 miles, according to the number of people at his command. In the first place each one roots up the grass in the position, [assigned to him] in the circumference, to the width of about 3 or 4 ells, so that the fire will not be able to run back, each one then beginning to set fire to the grass, which is mightily ignited, so that the fire travels away, in towards the center of the circle, which the Indians follow with great noise, and all the animals which are found within the circle, flee from the fire and the cries of the Indians, traveling away, whereby the circle through its decreasing is more and more contracted towards the center. When now the Indians have surrounded the center with a small circle, so that they mutually cannot do each other any harm, then they break loose with guns and bow on the animals which they then have been blessed with, that not one can escape and thus they get a great multitude of all kinds of animals which are found there [Lindeström 1925:214].

. . . Having found the Deare, they environ them with many fires, and betweixt the fires they place themselves. And some take their stands in the midst. The Deare being thus feared by the fires nad their voices, they chace them so long within that circle that many times they kill 6, 8, 10, or 15 at a

hunting. They use also to drive them into some narrow point of land; when they find that advantage and so force them into the river, where with their boats they have Ambuscadoes to kill them [Smith 1986:I:164].

. . . beginning at the coming in of the Winter; that is, when the Leaves are fallen from the Trees and are become dry. Tis then they burn the Woods by setting Fire to the Leaves and withered Bent and Grass, which they do with a Match made of the black Moss that hanks on the Trees in Carolina, and is sometimes above six Foot long. This, when dead, becomes black (though of an Ash-Colour) and will then hold Fire as well as the best Match we have in Europe. In Places where this Moss is not found, (as towards the Mountains) they make Lintels of the Bark of cypress beaten, which serve as well. Thus they go and fire the Woods for many Miles, and drive the Deer and other Game into small Necks of Land and Isthmuses where they kill and destroy what they please [Lawson 1952:219].

Similar hunting techniques were observed in Virginia and the Carolinas (Banister 1970:43; Smith 1986:II:164; Strachey 1967:83).

Smith noted the effect of large-scale burning of undergrowth on native forests:

Neare their habitations is little small wood or old trees on the ground by reason of their burning of them for fire. So that a man may gallop a horse amongst these woods any waie, but where the creekes or Rivers shall hinder [Smith 1986:I:162].

Ironically, the fire-hunting techniques that European settlers observed and recorded among the Native American's would be used by the descendants of those New World colonists in the 1700s to exterminate the native peoples by eliminating the wild game they relied upon for food (Lee 1984).

4. *Wild Resources*

European explorers of and early settlers to North America's Atlantic coast made many observations of the wild plants used by the native peoples they encountered. However, the ethnohistoric information regarding wild plant foods is sadly incomplete as a result of the intermittent and widely ranging nature of gathering practices, as well as the gender differences between the largely female Indian foragers and the male European observers, two populations whose realms did not overlap with frequency or ease (Roundtree 1989:44).

Below, discussions of wild plant resources are loosely organized by type of plant (i.e., trees, shrubs, vines, and herbs). Within these categories, particular species are discussed alphabetically by genus. The names by which aboriginally important plants were recorded or named by early European visitors to the Eastern Woodlands were often non-specific. For example, the native word "tuckahoe" may refer to as many as five different plant genera. To avoid redundancy, all historical references are given under the first "candidate" species, and are then referred to when later "candidates" are discussed. Refer to Table E-1 to find all locations in the text where documentation for the use of a particular common-named plant is given. Where historical references describe an unidentifiable plant or plant product, the passage is quoted directly.

Beauchamp Plantagenet describes the bounty of wild plant foods in the Delaware Bay region (New Jersey) in 1648):

For here is all Ches-nuts and Wall-nuts, and Mast berries, and March seeds wilde oats, and Vetches to feed them [animals and fowl]. Neer hand is also in August Custard apples and Papawes to make the best Perry English for 100 tun in a place, and all Plums, Hurtleberies, Black Cherries, wilde Anniseed, Persimenas, and other dianty fruits, and roots, are had . . . [Force 1836-1846:II:27].

a. *Trees*

i. *Acer sp. (Maple)*

Maple species have a tremendous north-south range throughout the eastern United States, and numerous species are native to the Atlantic Coastal Plain. Hariot's early accounts from Virginia mention the use of maple for fashioning bows (Hariot 1893:34). Lawson notes two sorts of maple in North Carolina in 1701 (1952:101). *Acer saccharum* (sugar maple) is native to western and northern portions of the Atlantic Coastal Plain.

Beverley and Lawson undoubtedly refer to *A. saccharum* when they describe the Sugar-Tree.

The Sugar-Tree yields a kind of Sap or Juice, which by boiling is made into Sugar. This Juice is drawn out, by wounding the Trunk of the Tree, and placing a receiver under the Wound. The Indians make One Pound of Sugar, out of Eight Pounds of the Liquor. Some of this Sugar I examined very carefully. It was bright and moist, with a large full Grain; the Sweetness of it being like that of a good Muscovada [Beverley 1705:136].

The Sugar-Tree . . . is found in no other parts of Carolina or America, that I ever learned, but in Places that are near the Mountains. It is most like one sort of Maple of any tree, and may be ranked amongst that kind. This Tree, which I am told, is of very tedious Growth, is found very plentifully towards the Heads of some of our Rivers. The Indians tap it and make Gourds to receive the Liquor, which Operation is done at distinct and proper times, when it best yields its Juice, of which when the Indians have gotten enough, they carry it home, and boil it to a just Consistence of Sugar, which grains of itself, and serves for the same Uses, as other Sugar does [Lawson 1952:107].

ii. *Aesculus Hippocastanum (Horse Chestnut)*

A member of the buckeye family, the horse chestnut is a small tree more common to Piedmont areas than to the Coastal Plain. The tree bears a brown spiny fruit containing inedible seeds (Brown and Brown 1984:218).

Medicinal uses of *A. Hippocastanum* are many. The Delaware Indians carried nuts in the pocket for rheumatism and ground the nuts with oil to treat earaches (Tantaquidgeon 1972:30).

Horse chestnuts were also ground and used in a fish poison, called "fish peyote," by both the Oklahoma and eastern Delawares (Tantaquidgeon 1942:25, 74, 1972:30).

iii. *Asimina triloba (Paw Paw)*

Paw paw is a deciduous, shrubby tree that grows in thickets and bears a tasty, edible, fleshy fruit. It grows in rich woodlands and is found infrequently. It is mostly confined to low altitudes and is present in deciduous forests on the Coastal Plain of Delaware (Brown and Brown 1972:108).

The Paupau is not a large Tree. I think I never saw one a Foot through; but has the broadest Leaf of any tree in the Woods, and bears an apple about the bigness of a Hen's-Egg, yellow, soft and as sweet as any thing can well be. They make rare Puddings of this Fruit. The Apple contains a large Stone [Lawson 1952:107].

Neer hand is also in August Custard apples and Papawes to make the best Perry English for 100 tun in a place . . . [Force 1836-1846:II:27].

(See also Force [1836-1846:II:27] in Section IV.B.4, above.)

iv. Betula sp. (Birch)

Birch are deciduous trees with slender twigs, common to rich woodlands. Species native to the Atlantic seaboard are specific to environmental conditions and include the four species listed below.

B. alleghaniensis (Yellow birch, gray birch, or silver birch) is found from southern Newfoundland south to extreme northeastern Georgia, westward to Iowa to 2,500 feet in the north and 3,000-6,000 feet or higher in the south.

B. lenta (sweet or black birch) is native from southern Maine southeast to northern Alabama and north to Ohio, nearly to sea level in the north, and at 2,000 to 6,000 feet in the southern Appalachians. Birch oil (also called “oil of wintergreen”) was once extracted from *B. lenta* by processing the bark and wood of young trees. Birch beer was made from the sap of the sweet birch, which was tapped like sugar maples in the early springtime (Brown and Brown 1972:58; Little 1980:366).

B. nigra (river birch) is the southernmost New World birch and is found from southwestern Connecticut south to northern Florida, west to east Texas, and north to southeastern Minnesota. It is found locally in Massachusetts and southern New Hampshire to 1,000 feet, and to 2,500 feet in the southern Appalachians.

B. papyrifera (paper birch) is native across North America from northwestern Alaska east to Labrador, south to New York, and west to Oregon. Paper birch prefers moist upland soils and cutover lands, and often grows in homogenous stands (Little 1980:369). It is from this species that bark canoes were constructed. Sheets of birch bark stripped from live trees were stretched over wooden frames and sewn together with the roots of Tamarack or some cordage; the gaps were sealed with pitch. The notes of Swedish colonist Johannes Campanius (Du Ponceau 1834:130) describe birch in the construction of canoes in the mid-seventeenth century (see Section IV.B.4.a.xiv), and Beverley details the construction of birch-bark canoes during travel.

When in their Travels, they meet with any Waters, which are not fordable, they make Canoes of Birch Bark, by slipping it whole off the Tree, in this manner. First, they gash the Bark quite round the Tree, at the length they woul'd have the Canoe of, then slit down the length from end to end; when that is done, they with their Tomahawks easily open the Bark, and strip it whole off. Then they force it open with Sticks in the middle, slope the underside of the ends, and sow them up, which helps to keep the Belly open; or if the Birch Trees happen to be small, they sow the Bark of two together; The Seams they dawb with Clay or Mud, and then pass over in these Canoes, by two, three, or more at a time, according as they are in bigness. By reason of the lightness of these Boats, they can easily carry them over Land . . . [Beverley 1705:186].

Birch bark was also commonly used in the construction of homes (see Section IV.B.4.a.vii, below).

Ethnohistoric descriptions of birch species include the following excerpt from Lawson (1701):

The Birch grows all on the Banks of our River, very high up. I never saw a tree on the Salts. It differs something in the Bark, from the European Birch. Its Buds in April are eaten by the Parrakeetos, which resort from all Parts at that Season to feed thereon. Where this Wood grows we are not yet seated; and as to the Wine or other Profits it would yield, we are, at present, Strangers to [Lawson 1952:102].

v. *Carya sp. (Hickory)*

The hickories (*Carya sp.*) include a variety of native species divided generally into two types: the “true” or “thick-walled” hickories, and the “pecan” or “thin-walled” hickories (Panshin and deZeeuw 1980:541). These species occupy a variety of ecological zones and produce a heavy nut crop that ripens during September and October (Munson 1986). A dominant tree in the southern forest region (Eyre 1980), the prevalence of hickory remains in prehistoric archaeological contexts attests to the importance of the species to human subsistence and the accessibility of the resource to local prehistoric populations. It is estimated that minimum annual hickory nut yields average 30,000 bushels per square mile from upland forests (Zawacki and Hausfater 1969:63).

Hariot describes the walnut trees of Virginia:

. . . as I have saide before very many, some have bene seen excellent faire timber of foure & fuve fadome, & above fourescore foot steight without bough [1893:34].

Hickory nuts (referred to as “walnuts”) are mentioned in early historical accounts of Algonquian diets (Lorant 1946:250; Quinn 1991:351), and the prevalence of hickory trees in the virgin forests of the eastern United States is noted by Hariot: “. . . there are vary many walnuts; we saw some growing above fourscore feet, straight and without a bough. They make excellent timber four or five fathoms long” (Lorant 1946:256). Hickory wood has a high caloric value and serves as an excellent firewood (Graves 1919).

There are two kindes of Walnuts, and of them infinit store: In many places where very great woods for many miles together the third part of trees are walnuttrees. The one kind is of the same taste and forme or litle differing from ours of England, but that they are harder and thicker shelled. . . . Besides their eating of them after our ordinarie maner, they breake them with stones and pound them in morters with water to make a milk which they use to put into some sorts of their spoonmeate; also among their sodde wheat, peaze, beanes and pompains which maketh them have a farre more pleasant taste [Hariot 1893:27-28].

Hickory nuts are of several Sorts, all growing upon great Trees, and in an Husk, like the French Walnut, except that the Husk is not so thick, and more apt to open. Some of these Nuts are inclosed in so hard a Shell, that a light Hammer will hardly crack them; and when they are crack'd, their Kernel is fasten'd with so firm a Web, that there's no coming at it. Several other Sorts I have seen with thinner Shells, whose Kernel may be got with less Trouble. There are also several sorts of Hickories, call'd Pig-nuts, some of which have as thin a Shell as the best French Walnuts, and yield their Meat very easily [Beverley 1705:132].

The pig-nuts described by Beverley appear to be *C. illinoensis* (pecan hickory), rather than the pignut (*C. glabra*) we know today.

The kernels of the Hiccories they beat in an Mortar with Water, and make a White Liquor like Milk, from whence they call our Milk Hickory [Beverley 1705:181].

Besides their eating of them after our ordinarie maner, they breake them with stones and pound them in morters with water to make a milk which they use to put into some sorts of their spoonmeate; also among their sodde wheat, peaze, beanes and pompains which maketh them have a farre more pleasant taste [Hariot 1893:27-28].

The walnuts, Chesnuts, Acornes, and Cheechinquamens are dryed to keepe. When they need them they breake them betweene two stones, yet some part of the walnut shels will cleave to the fruit. Then doe they dry them again upon a mat over a hurdle. After they put it into a mortar of wood, and beat

it very small: that done they mix it with water, that the shels may sinke to the bottome. This water will be coloured as milke, which they cal Pawcohisora, and keepe it for their use [Smith 1986:I:152].

The Hicory is of the Walnut-kind, and bears a Nut as they do, of which there are found three sorts. The first is that which we call the common white hicory. It is not a durable Wood; for if cut down and exposed to the Weather, it will be quite rotten, and spoiled in three Years, as will likewise the Beech of this Country. Hicory Nuts have very hard Shells, but excellent, sweet Kernels, with which, in a plentiful Year, the old Hogs, that can crack them, fatten themselves, and make excellent Pork. These Nuts are gotten in great Quantities, but the Savages, and laid up for Stores, of which the make several Dishes and Banquets. One of these I cannot forbear mentioning; it is this: They take these Nuts, and break them very small betwixt two Stones, till the Shells an kernels are indifferent small; And this Powder you are presented withal in their Cabins, in little wooden Dishes; the Kernel dissolves in your Mouth, and the Shell is spit out. This tastes as well as any Almond. Another Dish is the Soup which they make of these Nuts, beaten, and put into Venison-Broth, which dissolves the Nut and thickens, whilst the Shell precipitates, and remains at the bottom. This Broth tastes very rich. There is another sort, which we call the red Hicory, the Heart thereof being very red, firm and durable; of which Walking-Sticks, Mortars, Pestils, and several other fine Turnery-wares are made; The third is called the Flaying-barked Hicory, from its brittle and scaly Bark. It bears a Nut with a bitter Kernel, and a soft Shell, like a French Walnut [Lawson 1952:101].

Early accounts of the fruits of Virginia mention walnuts (possibly referring to *Carya* sp.):

. . . grapes and wallnuts innumerable; the vines being as common as brambles, the walnut trees as the elms in England . . . [Force 1836-1846:II:13].

Plantagenet in mid-seventeenth-century Delaware writes:

Here the Land lieth covered seven moneths with Beech, and Oke Mast, Walnuts, chestnuts, and three moneths with Groundnuts, Seg and other roots, and wilde Pease [Force 1836-1846:II:34].

Hickory branches were used in home construction (see Section IV.B.4.a.xxvii, below).

vi. Castanea dentata (American Chestnut)

The American chestnut is nearly extinct today as a result of the ravages of the chestnut blight, a disease caused by the ascomycete fungus, *Endothia parasitica*. The fungus was introduced to New York City in 1904 and quickly decimated the American chestnut throughout the Eastern Woodlands of the United States (Little 1980). *Castanea dentata* was once a major component in the oak/chestnut forest dominating Piedmont areas of the Middle Atlantic region, and a minor component in oak/hickory forests of the Coastal Plain. The nuts were either eaten raw or crushed and boiled to extract the oil, and the boiled nutmeats were used to make a bread dough. The wood of the species is poor as a fuel source (Graves 1919).

Of their Chesnuts and Checkinquamens boyled 4 houres, they make both broath and bread for their chief men, or at their greatest feast [Smith 1986:I:153].

Chestnuts, there are in divers places great store: some they use to eate rawe, some they stampe and boile to make spoonemeate, and with some being sodden they make such a manner or dowe bread as they use of their beanes . . . [Hariot 1893:27].

Beauchamp Plantagenet mentions chestnuts in his account of wild plant foods in seventeenth-century Delaware (Force 1836-1846:II:27, 34) (see Section IV.B.4, and IV.B.4.a.v, above).

Robert Wintour writes of the quality of native mast for feeding livestock in Maryland's seventeenth-century forests:

the means of feeding them as easier (for the goodness of the acornes, chestnutts and other sorts of mast and fruits of that country whereof the woods are infinite full . . . [Krugler 1976:36].

Jaspar Dankers and Peter Sluyter's description of Bohemia Manor in Kent County on the eastern shore of Maryland features American chestnut:

It is a noble piece of land, indeed the best we have seen in all our journey south, having large, thick and high trees, much black walnut and chestnut, as tall and straight as a reed [Dankers and Sluyter 1966:194].

Chestnuts are mentioned by Lindeström as a food that was traded with the Swedish settlers (1925:223).

Lindeström describes the treatment of the dead in Delaware society during the mid-seventeenth century, citing the use of chestnut in the ceremony:

Now when this time has passed (one month) . . . each one takes a knife and thus cuts the flesh off the bones of the dead one, wrapping the flesh in chestnut bark, which they place on the second shelf or rack, wrapping in like manner the bones into chestnut bark . . . [1925:250].

Chesnuts are found upon very high Trees, growing in barren Ridges. They are something less than the French Chesnut; but, I think, not differing at all in taste [Beverley 1705:131].

The Chesnut-Tree of Carolina grows up towards the hilly Part thereof, is a very large and durable Wood, and fit for House-Frames, Palisado's Sills, and many other Uses. The Nut is smaller than those from Portugal, but sweeter [Lawson 1952:103].

Chestnut bark was also used in home construction (see Section IV.B.4.a.vii, below).

vii. Chamaecyparis thyoides (Atlantic White Cedar, Southern White Cedar)

Cedar is an aromatic evergreen tree with a thin bark that is divided into narrow, flat ridges and becomes shaggy on older trunks. It is common to freshwater swamps along streams in a narrow coastal belt from central Maine south to Florida and west to Mississippi (Little 1980:306-307).

White Cedar, so called because it nearly approaches the other Cedar in Smell, Bark and leaf; only this grows taller, being as straight as an Arrow. It is extraordinarily light and free to rive. Tis good for Yard, Top-Masts, Booms and Bolt-sprits, being very tough. The best Shingles for Houses are made of this Wood, it being no Strain to the Roof and never rots. Good Pails and other Vessels free from Leakage, are likewise made thereof. The Bark of this and the red Cedar, the Indians use to make their Cabins of, which prove firm and resist all Weathers [Lawson 1952:98].

Robert Evelin in mid-seventeenth-century New Jersey in the vicinity of Delaware Bay mentions cedar:

There are Cedars, Cypresses and Sassafras, with wilde fruits, pears, wilde cherries, pine-apples, and the dainty Parsemenas . . . [Force 1836-1846:II:23].

The bark of both the Atlantic white cedar and the eastern red cedar were commonly used as a building material in the construction of native homes. The type of aboriginal dwelling most often observed by the early writers was a round or oblong wigwam measuring 12 to 15 feet in diameter (Nabokov and Easton

1989:52). The Algonquian villages observed by the early writers contained both domed and barrel-vaulted structures. On the Coastal Plain of the Middle Atlantic region, tree bark seemed to be the preferred material for covering homes (Strachey 1967:78). The bark of tulip poplar, black walnut, oak, birch, elm, pine, ash, chestnut, or hemlock trees was also commonly used. Tree bark is most easily removed in the spring when the sap begins to run. It was stripped from living trees in large sheets, then rolled, dried, and stored for later use. (See also Section IV.B.4.a.xxvii, below.)

viii. *Cornus florida* (*Common Dogwood*)

This small, flowering tree with a short trunk and spreading crown is a common understory species in deciduous forests. The wood is hard, close-grained, and nearly white (Brown and Brown 1972), and is extremely shock resistant, making it useful for spools, pulleys, mallet heads, spoons, cogs of wheels, and blocks. A red dye can be produced from dogwood root (Little 1980), and a black ink can be produced with the bark. The bark of the root, stem, and branches was used historically as a tonic, astringent, antiseptic, corroborant, and stimulant. This powdered bark had medicinal uses in treating fevers, typhus, and febrile disorders, and also in veterinary applications (Erichsen-Brown 1979:141).

Dog-Wood is plentiful on our light Land, inclining to a rich Soil. It flowers the first in the Woods; its white Blossom making the Forest very beautiful. It has a fine Grain, and serves for several Uses within doors, but is not durable. The Bark of this Root infused, is held an infallible Remedy against the Worms [Lawson 1952:96].

Zeisberger, writing of the Delaware Indians, stated that:

Dogwood is also found in these parts. The rind of the root is used in the apothecary shops in place of Jesuit-bark (quinine) [1910:133].

ix. *Diospyros virginiana* (*Persimmon*)

This native tree is common to moist alluvial soils. The date-like fruit of the persimmon was a dietary staple of historic Native American populations and continued to be eaten throughout historic times (Little 1980:635-636). The fruits were eaten fresh during the months of October and November when they ripen, and were dried and stored for later use (Smith 1986:152).

Captain John Smith thought persimmon was a type of wild plum (1986:I:151), and describes the plant in some detail:

. . . Putchamins [persimmons] grow as high as a Palmeta: the fruit is like a medler; it is first greene then yellow, and red when it is ripe; if it be not ripe it will drawe a mans mouth awrie, with much torment, but when it is ripe, it is as delicious as an Apricock. . . . The fruit like medlers they call Putchamins, they cast upon hurdles on a mat and preserved them as Prunes [Smith 1986:I:151, 152].

The persimmon was called the Indian plum by Hariot (1588), Smith (1986), Purchas (1613, 1625), and de Laet (1633).

They are of several Sizes, between the Bigness of a Damasine and a Burgamot Pear. The Taste of them is so very rough, it is not to be endured, till they are full ripe, and then they are a pleasant Fruit. Of these some Veruosi make an agreeable kind of Beer; to which Purpose they dry them in Cakes, and ley them up for Use. These, like most other Fruits there, grow as thick upon the Trees, as Ropes of Onion; the Branches very often break down by the might Weight of the Fruit [Beverley 1705:130].

Persimmons is a tree that agrees with all Lands and Soils. Their Fruit, when ripe, is nearest our medlar; if eaten before, draws your Mouth up like a Purse, being the greatest Astringent I ever met withal, therefore very useful in some Cases. The Fruit if ripe will presently cleanse a foul Wound but causes Pain. The Fruit is rotten, when ripe, and commonly contains four flat Kernels, called Stones, which is the Seed. 'Tis said the Cortex Peruvianus comes from a Persimmon-Tree that grows in New-Spain. I have tried the Drying of this Bark, to imitate it, which it does tolerably well, and agrees therewith. It is binding enough to work the same Effect. The Tree in extraordinary Land, comes sometimes to two foot Diameter, though not often. There are two sorts of this Fruit; one ripe in Summer, the other when the Frost visits us [Lawson 1952:104].

Robert Evelin in mid-seventeenth-century New Jersey in the vicinity of Delaware Bay mentions persimmons (Force 1836-1846:II:23) (see Section IV.B.4.a.vii, above).

Peter Kalm describes *D. virginiana* in detail, noting:

... I must own that those who praised this fruit as an agreeable one have but done it justice. It really deserves a place among the most palatable fruits of this land, when the frost has entirely removed its bitterness [Kalm 1966:69].

x. Fagus grandifolia (American Beech)

American beech is a tree that grows to 35 meters tall and has a trunk diameter of 1 meter or more. It bears four-valved prickly burs containing two nuts (Plate E-15). The nuts are edible and are widely used by wildlife. Good seed crops are usually several years apart (Brown and Brown 1972:64).

Plantagenet mentions the beech forests of Delaware in describing wild plant foods of the region (Force 1836-1846:II:34) (see Section IV.B.4.a.v, above).

The working properties of beech wood are noted by Hariot (1893:34).

Beech is here frequent, and very large. The Grain seems exactly the same as that in Europe. We make little Use thereof, save for Fire-Wood. 'Tis not a durable Timber. It affords a very sweet Nut, yet the Pork fed thereon (though sweet) is very oily, and ought to be hardened with Indian Corn, before it is killed. Another sort called Buck-Beech is here found [Lawson 1952:96].

xi. Fraxinus sp. (Ash)

Ash is a group of deciduous trees with a furrowed bark. The fruit is a winged samara, and the seeds are eaten by wildlife (Brown and Brown 1972:278).

Hariot mentions the fine working qualities and strength of ash (1893:34).

Of ash we have two sorts, agreeing nearly with the English in the Grain. One of our sorts is tough like the English, but differs something in the Leaf, and much more in the Bark. Neither of them bears Keys. The Water-Ash is brittle. The bark is Food for the Bevers [Lawson 1952:95].

Robert Evelin in 1648 describes plant resources of the Delaware Bay region (see Force [1836-1846:II:23] in Section IV.B.4.a.xix, below).

Ash bark was commonly used in home construction (see Section IV.B.4.a.vii, above).



PLATE E-15: Beech Nuts Harvested from the Puncheon Run Site

xii. Gleditsia triacanthos (Honeylocust)

Honeylocust is a leguminous tree, 20 to 30 meters tall, with a trunk 30 to 60 centimeters in diameter. The pod is dark brown, 20 to 40 centimeters in length, and filled with a sweet, edible pulp. The honeylocust is native to the central portion of the United States, but it was spread eastward through intentional cultivation of the tree for its edible pulp (Brown and Brown 1972:186). Honeylocusts were grown by early colonists in Virginia (Lawson 1952:100) and may have also been propagated prehistorically.

The Honey-Tree bears a thick swelling Pod, full of Honey, appearing at a Distance like the bending Pod of a Bean or Pea [Beverley 1705:136].

Honeylocust is mentioned with interest by Lawson in North Carolina and Virginia (1952:47).

The Honey-Tree bears as great a Resemblance to the Locust, as a Shallot does to an onion. It is of that Species but more prickly. They bear a Cod, one side whereof contains the Seed, the other the Honey. They will bear in five years from the Kernel. They were first brought (by the Indian Traders) and propagated by their Seed, at the Apamaticks in Virginia. Of the Honey, very good Metheglin is made, there being Orchards planted in Virginia for that intent [Lawson 1952:100].

xiii. *Juglans nigra* (Black Walnut)

Black walnut nutmeats were heavily relied upon and favored by historic Indian tribes throughout the range of the species (Gilmore 1919:74; Yanovsky 1936:17); they were commonly used by European settlers and rural folk through recent times (Plate E-16). Hariot comments on the use of black walnuts in his accounts of Virginia: “The kernels of the fruit are very oily and sweet. The inhabitants either eat them or make a milk of them by breaking the nuts with stones and grinding the powder in a mortar with water. This they add to their spoon-meat, their boiled wheat, pease, beans, and pumpkins, thus giving the food a far more pleasant taste” (Lorant 1946:250). Nutmeats would have been available for harvest during September and October from local woodlands.

Chestnuts are mentioned by Lindeström as a food that was traded with the Swedish settlers (1925:223). It is unclear whether he refers to the black walnut or to hickory nuts.

Jaspar Dankers and Peter Sluyter’s description of Kent County on the eastern shore of Maryland features black walnut:

It is a noble piece of land, indeed the best we have seen in all our journey south, having large, thick and high trees, much black walnut and chestnut, as tall and straight as a reed [Dankers and Sluyter 1966:194].

Beauchamp Plantagenet mentions walnuts (an unclear reference to either *J. nigra* or *Carya* sp.) in his description of the wild fruits of Delaware and New Jersey (1648) (Force [1836-1846:II:23], see Section IV.B.4, and Force [1836-1846:II:34], Section IV.B.4.a.v, above).

Beverley distinguishes *J. nigra* from the *Carya* species:

They have a sort of Walnut they call, Black-Walnuts, which are as big again as any I ever saw in England, but are very rank and oily, having a thick, hard, foul Shell, and come not clear of the Husk, as the Walnut in France doth [Beverley 1705:132].

The Walnut-Tree of America is called Black Walnut. I suppose that Name was, at first, to distinguish it from the Hiccories, it having a blacker Bark. This Tree grows in good Land, to a prodigious Bigness. The Wood is very firm and durable, of which Tables and Chests of Drawers are made, and prove very well. Some of this is very knotty . . . Tis a very good and durable Wood, to bottom Vessels for the Sea withal; and they say that it is never eaten by the Worm. The Nuts have a large Kernel,



PLATE E-16: *Juglans nigra* (Black Walnut)
SOURCE: Reveal 1992

which is very oily, except lain by, a long time, to mellow. The Shell is very thick, as all the native Nuts of America are. When it has its yellow outward Coat on, it looks and smells much like a Lemon [Lawson 1952:101].

Husks of the black walnut provide a rich, durable purple-brown dye for fabric, leather, and basketry (Brooklyn Botanic Garden 1964:29).

Uses of *J. nigra* among the historic Delaware were many: juice from the green hull of the fruits was used topically to treat ringworm; the sap was used in applications for inflammation; and tea made from the bark was administered to remove intestinal bile (Tantaquidgeon 1972:29). In Oklahoma, the Delaware used the sap, green fruit hulls, and bark for similar purposes, and leaves were scattered about living quarters to dispel fleas (Tantaquidgeon 1942:24, 76).

Crushed walnut or walnut bark was cast in the water to stupefy fish by the Oklahoma Delaware (Harrington 1913:222) and traditionally by the Pamonkey, Mattaponi, and Chickahomini (Speck 1927:364-365).

Black walnut bark was also used in home construction (see Section IV.B.4.a.vii, above).

xiv. Juniperus virginiana (Eastern Red Cedar)

This species is the most widely distributed eastern conifer. Eastern red cedar is renowned for its attractive color, durability, and excellent working qualities. It possesses a pungent fragrance and reputed insect-repelling properties (Panshin and deZeeuw 1980:499-500). The wood is extremely durable, and historically was the principle taxon used for fenceposts and the construction of pole-built structures due to its durability in the ground.

Campanius describes dishes or plates of bark and cedar wood (Du Ponceau 1834:124).

The bark of the eastern red cedar was used by the Ojibwa and Potowatomi for weaving mats and bags, and by Indians of the Missouri River region for constructing shelters (Gilmore 1919:11; Smith 1928:234). Ethnohistoric accounts also document the use of cedar for a variety of medicinal purposes (Tehon 1951:195). The species has been identified as having possible ritual importance in late prehistoric Mississippian settlements in Illinois (Johannessen 1984; Whalley 1982).

The notes of Swedish colonist Johannes Campanius describe cedar in the construction of both dugout and bark canoes in the mid-seventeenth century:

Their boats are made of the bark of cedar and birch trees, bound together and lashed very strongly; they carry them along wherever they go; and when they come to some creek that they want to get over, they launch them and go whither they please. They also used to make boats out of cedar trees, which they burnt inside and scraped off the coals with sharp stones, bones or muscle shells [Du Ponceau 1834:130].

Hariot (1893:16) describes cedar as “. . . a very sweet wood and fine timber,” and Lawson mentions the growth habit and usefulness of the species.

The red sort of Cedar is an Ever Green of which Carolina affords plenty. That on the Salts grows generally on the Sand-banks, and that in the Freshes is found in the Swamps. Of this Wood Tables, Wainscot and other Necessaries are made, and esteemed for its sweet smell. It is as durable a Wood as any we have, therefore much used in Posts for Houses and Sills; likewise, to build Sloops, Boats,

&c., by reason the Worm will not touch it for several Years. The Vessels built thereof are very durable and good Swimmers. Of this Cedar Ship-loads may be exported. It has been heretofore so plentiful in this Settlement, that they have fenced in Plantations with it, and the Coffins of the Dead are generally made thereof [Lawson 1952:98].

The bark of the eastern red cedar was used by natives of the Middle Atlantic region in the construction of their homes (Lawson 1952:187) (see also Section IV.B.4.a.vii, above, and Section IV.B.4.a.xxvii, below).

Robert Evelin in mid-seventeenth-century New Jersey in the vicinity of Delaware Bay also mentions the species (Force 1836-1846:II:23) (see Section IV.B.4.a.vii, above).

Cedar is featured in other descriptions of the forests of the Delaware Bay region of New Jersey:

. . . with the goodliest woods of Oaks and all Timber for ships and Masts, mulberries for sillk, sweet Cypresse, Cedars, Pines and Firres . . . [Force 1836-1846:II:20].

xv. *Liquidambar styraciflua* (Sweet Gum)

Sweet gum is a deciduous tree which grows 30 to 40 meters tall, with a trunk diameter to 120 centimeters. It is a widely distributed species, ranging from coastal Connecticut to Guatemala.

Sweet gum is mentioned by Lawson in the following passage:

The sweet Gum-Tree, so called Because of the fragrant Gum it yields in the Spring-time upon Incision of the Bark or Wood. It cures the Herpes and Inflammations, being applied to the Morpew and Tettars. 'Tis an extraordinary Balsam, and of great Value to those who know how to use it. No Wood has scarce a better Grain; whereof fine Tables, Drawers, and other Furniture might be made. Some of it is curiously curled. It bears a round bur, with a sort of Prickle, which is the Seed [1952:97].

xvi. *Liriodendron tulipifera* (Tulip Poplar, Yellow Poplar)

Tulip poplar is a native deciduous tree that grows to 60 meters in height and 2 meters or more in diameter (Plate E-17). The wood is soft; the heartwood is yellowish to olive, and is easily worked. The timber is not durable in contact with the soil (Brown and Brown 1972:107).

Rakíok, a kind of trees so called that are sweet wood of which the inhabitants that were neere unto us doe commonly make their boats or Canoes of the form of trowes; only with the helpe of fire, hatchets of stones, and shel; we have known some so great being made in that sort of one tree that they have carried well xx. men at once, besides much baggage: the timber being great, tal, streight, soft, light, & yet tough enough I thinke (besides other uses) to be fit also for masts of ships [Hariot 1893:34].

The Tulip-Trees, which are, by the Planters, called Poplars, as nearest approaching that Wood in Grain grow to a prodigious Bigness, some of them having been found One and twenty foot in Circumference. I have been informed of a Tulip-Tree, that was ten Foot Diameter; and another wherin a lusty Man had his Bed and Household Furniture, and lived in it till his Labour got him a more fashionable Mansion. He afterwards became a noted Man in his Country for Wealth and Conduct. One of these sorts bears a white Tulip, the other a party-coloured, mottled one. The Wood makes very pretty Wainscott Shingles for Houses, and Planks for several Uses. It is reckoned very lasting, especially under-Ground for Mill-Work. The Buds made into an Ointment, cure Scalds, Inflammations, and Burns . . . as a proper remedy . . . for Distemper [Lawson 1952:96, 237].

Tulip poplar was used in home construction (see Section IV.B.4.a.vii, above).



PLATE E-17: *Liriodendron tulipifera* (Tulip Poplar)

SOURCE: Reveal 1992

xvii. Morus rubra (Mulberry)

This native tree is often described as spreading and shrub-like, but in fact it can grow to 70 feet in height and more than 4 feet in diameter in the southern Appalachians (Peattie 1991). The tree bears numerous small fruits that form a multiple fruit that ripens in the summer months. The fruits are edible and delicious either eaten fresh or dried and stored for later consumption (Medsger 1966). The fruits are also a favorite food for many songbirds, who aid in propagating the trees.

Here are different species of mulberry trees which grow wild in the forests of North and South America. In these parts the red mulberry trees are more plentiful than any other. However, Mr. Bartram assured me that he had likewise seen the white mulberry trees growing wild, but that they were scarcer [Kalm 1966:66].

During somer there are either strawberries which ripen in April; or mulberries which ripen in May and June . . . [Smith 1986:1:92].

Beverley mentions three kinds of mulberries in Virginia, although only one, *M. rubra*, is native. The white mulberry (*M. alba*) was introduced to the New World from England during the colonial period in an unsuccessful effort to establish a silk trade in the colonies. It is uncertain what Beverley refers to as two types of black (red) mulberries.

Our Mulberries are of Three sorts, two Black and one White; the long Black sort are the best, being about he Bigness of a Boy's Thumb; the other Two sorts are the Shape of the English Mulberry, short and thick, but their Taste does not so generally please, being of a faintish Sweet, without any Tartness. They grow upon well spread, large bodied Trees, which run up surprizingly fast [Beverley 1705:130-131].

Robert Evelin mentions mulberries in 1648: "There the barren grounds have four kinds of Grapes and many Mulberries . . ." (Force 1836-1846:II:23).

Forest descriptions of the Delaware Bay region of New Jersey feature mulberry (Force 1836-1846:II:20, see Section IV.B.4.a.xiv, above).

In 1635, Robert Wintour claims of Maryland, “the country is extremely stored with mulberies fitt for it [silk]” (Krugler 1976:36).

Lawson also describes three species of *Morus* in North Carolina at the beginning of the eighteenth century.

We have three sorts of Mulberries, besides the different Bigness of some Trees’ Fruit. The first is the common red Mulberry, whose Fruit is the earliest we have (except the Strawberries) and very sweet. These Trees make a very fine Shade to sit under in Summer-time. They are found wild in great Quantities, wherever the Land is light and rich; yet their Fruits is much better when they stand open. They are used instead of Raisins and Currants, and make several pretty Kickshaws. They yield a transparent Crimson Liquor, which would make a good Wine; but few People’s Inclinations in this Country tend that way. The others are a smooth leaved Mulberry, fit for the Silk-Worm. One bears a white Fruit, which is common; the other bears a small black Berry, very sweet. They would persuade me there, that the black Mulberry with the Silk-Worm smooth leaf, was a white Mulberry, and changed its Fruit. The Wood herof is very durable, and where the Indians cannot get Locust, they make use of this to make their Bows. This Tree grows extraordinary round and pleasant to the eye [Lawson 1952:105-106].

Captain John Smith describes the mulberry in Virginia in 1608:

By the dwelling of the Savages are some great Mulberry trees, and in some parts of the Countrey, they are found growing naturally in prettie groves [Smith 1986:I:151].

Early accounts of the natives of Louisiana (Le Page du Pratz 1758) mention the manufacture of cloaks from the pounded inner bark of young mulberry shoots.

xviii. Nyssa sylvatica (Black Gum)

Black gum is a deciduous tree common to moist or dry soils and is often found in swamps (Brown and Brown 1972:238).

Of the Black Gum, there grows with us two sorts, both fit for Cart-Naves. The one bears a black, well tasted Berry, which the Inidians mix with their Pulse and Soups, it giving them a pretty Flavour and scarlet Colour. The Bears crop these Trees for the Berries, which they mightily covet, yet killed in that Season, they eat very unsavory, which must be occasioned by this Fruit, because at other times, when they feed on Mast, Bears-Flesh is a very well-tasted Food. The other Gum bears a berry in shape like the other, though bitter and ill taste. This Tree (the Indians report) is never wounded by Lightening. It has no certain Grain, and is almost impossible to split or rive it [Lawson 1952:97-98].

xix. Pinus sp. (Pine)

Hariot may have been referring to pine species when he wrote the following: “Firre trees fit for masts of ships, some very tall & great” (1893:34).

Lawson mentions pitch pine as being used as a prime fuelwood and for ceremonial purposes (1952:17, 45).

Of Pines, there are in Carolina, at least four sorts. The Pitch-Pine, growing to a great Bigness, most commonly has but a short Leaf. Its Wood (being replete with an abundance of Bitumen) is so durable, that it seems to suffer no Decay, though exposed to all Weathers, for many Ages; and is used in several Domestic and Plantation Uses. This Tree affords the four great Necessaries, Pitch, Tar, Rosin and Turpentine; which two last are extracted by tapping and the Heat of the Sun, the other two by the Heat of the Fire.

The white and yellow Pines are sawed into Planks for several Uses. They make Masts, Yards, and a great many other necessaries therewith, the Pine being the most useful Tree in the Woods.

The almond-Pine serves for Masts very Well. As for the Dwarf-Pine, it is for Shew alone, being an Ever green, as they all are [Lawson 1952:100].

Lawson describes the use of a variety of pitch pine materials in a ceremonial burial:

At last the Corps is brought away from that Hurdle to the Grave by four young Men, attended by the Relations, the King, old Men, and all the Nation. When they come to the Sepulcre, which is about six Foot deep and eight Foot long, having at each end (that is, at the Head and foot) a Light-Wood or Pitch-Pine Fork driven close down the sides of the Grave firmly into the Ground; (these two Forks are to contain a Ridge-Pole, as you shall understand presently) before they lay the Corps into the Grave, they cover the bottom two or three times over with Bark of Trees, then they let down the Corps (with two Belts, that the Indians carry their Burdens withal) very Leisurely upon the said Barks; then they lay over a Pole of the same Wood in the two forks, and having a great many Pieces of Pitch-Pine Logs, about two Foot and a half long, they stick them in the sides of the Grave down each End and near the Top thereof, where the other Ends lie on the Ridge-Pole, so that they are declining like the roof of a House. These being very thick placed, they cover them (many times double) with Bark. . . [Lawson 1952:192].

Lawson mentions pine bark being used in home construction when the bark of more desirable tree species was unavailable (Lawson 1952:187). (See also Section IV.B.4.a.vii, above, and Section IV.B.4.a.xxvii, below).

Pine was also documented as being used for making dugout canoes:

Their Cannows be made either of Pine-trees, which before they were acquainted with English tooles, they burned hollow, scraping them smooth with Clam-shels and Oyster-shels, cutting their out-sides with stone-hatchets: These Boates be not above a foot and a halfe, or two feete wide, and twenty foote long. Their other Cannows be made of thinne Birche-rines, close-ribbed on the in-side with broad thinne hoopoes, like the hoopoes of a Tub; these are made very light, a man may carry from River to River, and Bay to Bay, to shorted Land-passages [Wood 1865:102].

Robert Evelin mentions some pine species in his account of the Delaware Bay area of New Jersey (1648):

There the barren grounds have four kindes of Grapes and many Mulberries with Ash, Elms, and the tallest and greatest Pines and Pitch trees that I have seen [Force 1836-1846:II:23].

Other descriptions of the forests of the Delaware Bay region of New Jersey also feature pine (Force 1836-1846:II:20, see Section IV.B.4.a.xiv, above).

xx. *Prunus persica* (Peach)

A fruit tree native to the Orient (Sturtevant 1919:462), *P. persica* is thought to have been introduced to England about the middle of the sixteenth century, probably from France (McIntosh 1855:485). The earliest empirical reference to peaches in North America is a record of peach seeds ordered by the Massachusetts Bay Colony in New England in 1629 (United States Patent Office Reports 1853:284).

Many historical accounts mention peach fruits and the cultivation of peach orchards by coastal Algonquian groups, some suggesting that peaches were a native fruit. Swanton (1946:263-264) suggests that the original

“Indian peach” was probably introduced by the Spaniards through Florida, and that the trees, easily propagated from the pit, quickly spread along the eastern seaboard.

Lawson (1714) mentions peaches, barbecued peaches, stewed peaches, and peach bread among the natives of South Carolina (1952:13, 30). He comments,

. . . the Peaches, which are the only tame Fruit, or what is Foreign, that these People enjoy . . . [1952:180].

Peaches are mentioned as a trade good among the mid-seventeenth-century Delawares (Lindström 1925:223). Beauchamp Plantagenet in Delaware in 1648 wrote, “Peaches better then Apricots by some doe feed Hogs” (Force 1836-1846:II:31).

xxi. Prunus sp. (Cherries, Various)

Cherry species native to the Eastern Woodlands of North America include the pin cherry (*Prunus pensylvanica*), black cherry (*P. serotina*), and chokecherry (*P. virginiana*) (Little 1980:504-507). Cherries are widely mentioned in the literature, although particular species are not often distinguished. Considering that cherries were an orchard favorite in English gardens, explorers to North America were at first delighted to find a country teeming with wild cherries. This initial excitement faded quickly as the fruits of the wild cherry were tasted. Early colonial gardeners warned of the wild cherries “furring” the throat and being “as wild as the Indians” (Leighton 1986). Although suitable for making wines, cordials, and preserves, it was quickly obvious that the American cherries would not serve colonial gardens, and that importing cherry stock from Europe was imperative. Early accounts seem to focus on comparing wild fruits to varieties that were known from the chronicler’s homeland, and actual accounts of aboriginal use of cherries are limited.

Smith describes choke cherries (*Prunus virginiana*) in Virginia in 1612:

They have Cherries and those are much like a Damsen, but for their tastes and colour we called them Cherries . . . [Smith 1986:I:152, 154].

Cherries are more broadly noted in Virginia, South Carolina, and New Jersey:

Of cherries natural to the Country, and growing wild in the Woods, I have seen Three Sorts. Two of these grow upon Trees, as big as the common English white Oak, wherof one grows in Bunches like Grapes. Both these Sorts are black without, and but one of them is red within; that which is red within, is more palatable than the English black Cherry, as being without its bitterness. The Other, which hangs on the Branch like Grapes, is Water-colour’d within, of a faintish Sweet, and greedily devour’d by small Birds. The Third sort is call’d the Indian Cherry, and grows higher up in the Country, than the Others do. It is commonly found by the Sides of Rivers, and Branches, on small slender Trees, scarce able to support themselves, about the Bigness of the Peach-Trees in England. This is certainly the most delicious cherry in the World; it is of a dark Purple when ripe, and grows upon a single Stalke, like the English Cherry, but is very small; though, I suppose, it may be made larger by Cultivation, if any body wou’d mind it. These too are so greedily devour’d by the small birds, that they won’t let them remain on the Tree, long enough to ripen; by which Means, they are rarely known to any, and much more rarely tasted; though perhaps at the same time, they grow just by the Houses [Beverley 1705:129-130].

The Cherries of the Woods grow to be very large Trees. One sort of which is rarely found, is red, and not much unlike the Cornel-Berry. But the common Cherry grows high and in Bunches, like our English Currants, but much larger. They are of a bitterish, sweet Relish, and are equally

valuable with our small Black-Cherries for an Infusion in Spirits. They yield a crimson Liquor and are great Bearers [Lawson 1952:106].

Neer hand is also in August Custard apples and Papawes to make the best Perry English for 100 tun in a place, and all Plums, Hurtleberies, Black Cherries, wilde Anniseed, Persimenas, and other dianty fruits, and roots, are had . . . [Force 1836-1846:II:27].

Robert Evelin in mid-seventeenth-century New Jersey in the vicinity of Delaware Bay mentions cherries (Force 1836-1846:II:23, see Section IV.B.4.a.vii, above).

xxii. *Prunus americana* (American Wild Plum), *P. alleghaniensis* (Porter, Alleghany Plum, or Sloe), *P. angustifolia* (Chickasaw Plum), *P. maritima* (Beach Plum)

Plums are small, deciduous, or, rarely, evergreen trees that produce an edible, tasty fruit (drupe) that can be eaten fresh or dried and stored for later use (Brown and Brown 1972:176). Plum species found on the Coastal Plain of Delaware include the beach plum (*P. maritima*) and the Chickasaw plum (*P. angustifolia*). *P. maritima* is a native plant. *P. angustifolia* is native to Texas and Oklahoma, and is now naturalized in isolated patches. It is thought that *P. angustifolia* was spread through cultivation by Native Americans.

The following descriptions of native plums may also refer to the American wild plum (*P. americana*), the Porter, Alleghany Plum, or Sloe (*P. alleghaniensis*), which are species more common to piedmont and mountain regions. Unfortunately, as is the case with many early botanical descriptions, it is not possible to conclusively match the fruits described in the early records with particular species. To further confuse the issue, stone fruits (including plums) were a familiar and much-adored type of fruit to Europeans, and were quickly appropriated and incorporated into colonial orchards. Native trees provided the stock for grafting varieties imported from Europe, and American orchards provided a productive nursery for breeding new varieties.

Europeans met the native wild plums with enthusiasm, and they were noted by early visitors to the Eastern Woodlands. Some early accounts of American plums are provided below.

Captain John Smith mentions three sorts of wild plums (1608) (Smith 1986:I:151).

Lindeström mentions “plums” and “bullace plums” as being among the foods that were traded with Swedish colonists during the mid-seventeenth century (1925:223).

The Plums which I have observ'd to grow wild there, are of Two sorts, the Black, and the Murrey Plum, both which are small, and have much the same Relish with the Damasine [Beverley 1705:130].

The wild Plums or America are of several sorts. Those which I can give account of from my own Knowledge, I will, and leave the others till a farther Discovery. The most frequent is that which we call the common Indian Plum, of which there are two sorts, if not more. One of these is ripe much sooner than the other, and differs in the Bark; one of the Barks being very scaley, like our American Birch. These Trees, when in Blossom, smell as sweet as any Jessamine, and look as white as a Sheet, being something prickly. You may make it grow to what Shape you please; they are very ornamental about a House, and make a wonderful fine Shew at a Distance, in the Spring, because of their white Livery. Their Fruit is red, and very palatable to the sick. They are of a quick Growth, and will bear from the Stone in five Years, on their Stock. The English, large black Plum thrives well, as does the Cherry, being grafted thereon [Lawson 1952:108].

The American Damsons are both black and white and about the Bigness of an European Damson. They grow anywhere if planted from the Stone or Slip; bear a white Blossom, and are a good Fruit. They are found on the Sand-Banks all along the Coast of America. I have planted several in my Orchard, that come from the Stone, which thrives well amongst the rest of my Trees. But they never grow to the Bigness of the other Trees now spoken of. These are plentiful Bearers [Lawson 1952:108].

There is a third sort of Plum about the Bigness of the Damsons. The Tree is taller, seldom exceeding ten Inches in Thickness. The Plum seems to taste physically, yet I never found any Operation it had, except to make their Lips sore, that eat them. The Wood is something Porous, but exceeds any Box, for a beautiful Yellow [Lawson 1952:108].

Neer hand is also in August Custard apples and Papawes to make the best Perry English for 100 tun in a place, and all Plums, Hurtleberies, Black Cherries, wilde Anniseed, Persimenas, and other dianty fruits, and roots, are had . . . [Force 1836-1846:II:27].

xxiii. Pyrus coronaria (Wild Crab Apple)

Pyrus coronaria is a small, many-branched tree that grows to 6 or 8 meters tall and to 35 centimeters in diameter. It bears a subglobose or somewhat flattened fruit that is yellowish green and very sour. It is a common tree that blooms (Brown and Brown 1972:134).

Hariot mentions “applecrabs” (1893:28). Captain John Smith writes, “we see some few Crabs, but very small and bitter” (Smith 1986:I:152). Peter Lindeström among the Delawares mentions “skinless apples” as a trade item (1925:223).

xxiv. Quercus sp. (Oak Species)

The oaks indigenous to the Eastern Woodlands are numerous, and together they formed a dominant component in native forests. The following species of oak, which occupy diverse habitats defined by soil conditions, climate, and moisture, are native to the Eastern Woodlands: white oak (*Quercus alba*), swamp white oak (*Q. bicolor*), scarlet oak (*Q. coccinea*), durand oak (*Q. durnadii*), southern red oak (*Q. falcata*), Georgia oak (*Q. georgiana*), bear oak (*Q. ilicifolia*), shingle oak (*Q. imbricaria*), bluejack oak (*Q. incana*), turkey oak (*Q. laevis*), laurel oak (*Q. laurifolia*), overcup oak (*Q. lyrata*), bur oak (*Q. macrocarpa*), blackjack oak (*Q. marilandica*), swamp chestnut oak (*Q. michauxii*), chinkapin oak (*Q. muehlenbergii*), scrub oak (*Q. myrtifolia*), water oak (*Q. nigra*), pin oak (*Q. palustris*), willow oak (*Q. phellos*), chestnut oak (*Q. prinus*), northern red oak (*Q. rubra*), shumard oak (*Q. shumardii*), post oak (*Q. stellata*), black oak (*Q. velutina*), and live oak (*Q. virginiana*).

The wood that is most common is Oke and Walnut, many of their Okes are so tall and straight, that they will bear two foote and a halfe square of good timber for 20 yards long; Of this wood there is 2 or 3 severall kinds. The Acornes of one kind, whose barke is more white, then the other, is somewhat sweretish, which being boyled halfe a day in servall waters, at last afford a sweete oyle, which they keep in goards to annoint their heads and joints [Smith 1986:I:151].

Okes, there are as faire, straight, tall and as good timber as any can be, and also great store, and in some places very great [Hariot 1893:33].

There are also three seueral kindes of Berries in the forme of Oke akornes, which also by the experience and use of the inhabitants, wee finde to yeelde very good and sweete oyle [Hariot 1893:16].

There is a kind of berie or acorne, of which there are five sorts that grow on severall different kinds of trees; the one is called Sagatémener, the second Osámener, the third Pummuckóner. There kind of acorns they use to drie upon hurdles made of reeds with fire underneath almost after the maner as we dry malt in England. When they are to be used they first water them until they be soft & then being sod they make a good victuall, either to eate so simply, or els being also pounded, to make loaves or lumpes of bread. These be also the three kids of which, I said before, the inhabitants used to make sweet oyle.

An other sort is called Sapúmmener which being boiled or parched doth eate and taste like unto chestnuts. They sometime also make bread of this sort.

The fifth sort is called Mangúmmenauk, and is the acorne of their kind of oake, the which beeing dried after the maner of the first sortes, and afterward watered they boile them, & their servants or sometime the chiefe themselves, either for variety or for want of bread, doe eate them with their fish or flesh [Hariot 1893:29].

Lawson in North Carolina describes the following oak species in some detail:

Timber that the woods afford, for the most part, consists of Oaks of four or five Sorts, all differing in Leaves, but each bearing very good Acorns. We measured many of the Oaks in several Places, which we found to be in bigness, some Two, some Three, and others almost four Fathom in Height, before you come to Boughs or Limbs; forty, fifty, sixty Foot and some more; and those Oaks very common in the upper Parts of both Rivers . . . [1952:67-68].

Chesnut-Oak is a very lofty Tree, clear of boughs and Limbs for fifty or sixty Feet. They bear sometimes four or five foot through all clear Timber; and are the largest Oaks we have, yielding the fairest Plank. They grow chiefly in low Land, that is stiff and rich. I have seen of them so high, that a good Gun could not reach a Turkey, though loaded with Swan-Shot. They are called Chestnut, because of the Largeness and Sweetness of the Acorns.

White, Scaly-Bark Oak: This is used, as the former, in building Sloops and Ships. Though it bears a large Acorn, yet it never grows to the Bulk and Height of the Chesnut-Oak. It is so called, because of a scaly, broken, white Bark, that covers this Tree, growing on dry Land.

We have Red Oak, sometimes, in good Land, very large and Lofty. Tis a porous Wood, . . . Tis not very durable . . .

Spanish Oak is free to rive, bears a whitish, smooth Bark, . . .

Bastard-Spanish is an Oak betwixt the Spanish and Red Oak; the chief Use if for Fencing and Clap-boards. It bears good Acorns.

The next is Black Oak, which is esteemed a durable Wood under Water, but sometimes it is used in House-work. It bears a good Mast for Hogs.

White Iron or Ring-Oak, is so called from the Durability and lasting Quality of this Wood. It chiefly grows on dry, lean Land, and seldom fails of bearing a plentiful Crop of Acorns. This Wood is found to be very durable . . .

Turkey-Oak is so called from a small Acorn it bears, which the wild Turkeys feed on.

Live-Oak chiefly grows on dry sandy Knolls. This is an Evergreen and the most durable Oak all America affords . . . The Acorns hereof are as sweet as Chesnuts, and the Indians draw an Oil from

them, as sweet as that from the Olive, though of an Amber-Colour. With these Nuts or Acorns, some have counterfeited the Cocoa, whereof they have made Chocolate, not to be distinguished by a good Palate . . .

Willow-Oak is a sort of Water-Oak. It grows in Ponds and Branches, and is useful for many things. It is so called from the Leaf, which very much resembles a Willow [1952:95].

Lawson also mentions obtaining baskets of acorns to use as food (1952:69, 71).

The Pilgrims exploring Cape Cod in the year 1620 observed caches of parched acorns stored in subterranean pits and hung inside of homes (Cheever 1848:39).

Beauchamp Plantagenet notes the abundance of acorns as both an animal and human food source in Delaware (1648) (Force 1836-1846:II:23, see Section IV.B.4).

how plentifully may a quiet industrious man live here, . . .with Ches-nuts, and four other nuts, and mast for Deer . . . [Force 1836-1846:II:30].

Descriptions of forest in the Delaware Bay region of New Jersey feature oak:

. . . with the goodliest woods of Oaks and all Timber for ships and Masts . . . [Force 1836-1846:II:20].

Robert Wintour writes of the quality of native mast for feeding livestock in Maryland's seventeenth-century forests:

the means of feeding them as easier (for the goodness of the acornes, chestnutts and other sorts of mast and fruits of that country whereof the woods are infinite full . . . [Krugler 1976:36].

Oak bark was commonly used in home construction (see Section IV.B.4.a.vii, above). Beverley describes the use of white oak species in building:

The manner the Indians have of building their Houses, is very slight and cheap; when they would erect a Wigwang, which is the Indian name for a House, they stick Saplings into the ground by one end, and bend the other at the top, fastening them together by strings made of fibrous Roots, the rind of Trees, or of the green Wood of the white Oak, which will rive into Thongs. The smallest sort of these Cabbins are conical like a Bee-hive; but the larger are build in an oblong form, and both are cover'd with the Bark of Trees, which will rive off into great flakes. Their Windows are little holes left open for the passage of the Light, which in bad weather they stop with Shutters of the same Bark, opening the Leeward Windows for Air and Light [Beverley 1705:175].

xxv. Robinia pseudoacacia (Black Locust)

R. pseudoacacia is a leguminous tree that grows to 30 meters in height and 1 meter in diameter, and has a thick, deeply furrowed bark. Common in old fields and woodlands, it is a rapid-growing species that often reproduces by sprouts from the roots. The wood is hard, close-grained, and heavy, and is very durable in the soil (Brown and Brown 1972:192).

The Locust for its enduring in the Weather, is chosen for all sorts of Works that are exposed thereto. It bears a Leaf nearest the Liquoric-Plant. Tis a pretty tall Tree. Of this the Indians make their choicest Bows, it being very tough and flexible [Lawson 1952:99].

xxvi. *Salix sp. (Willow)*

Willows are deciduous trees or shrubs. The bark of many species of willow contain tannin and salicin, a bitter glucoside used in medicine for similar purposes as salicylic acid (the active ingredient in aspirin) (Brown and Brown 1972:25-18).

All species of willow have been used medicinally (Erichsen-Brown 1979:90-95). The leaves, root, bark, and root bark are widely used. Willow bark is useful as an antiseptic, tonic, astringent, and a sedative. Topically, willow is useful for its antiseptic, antipruritic, and fungicidal qualities.

Various species were used for basketry material (Gilmore 1933:126). Among the Algonquians of the Great Lakes region, black willow (*S. nigra*) was used as a fiber plant for making bags, pouches, fish nets, and cordage (Whitford 1941:11; Yarnell 1964:187).

Willow is mentioned by Lawson in North Carolina (1952:102), and Hariot recorded the following:

Willowes good for making of weares and weeles to take fish after the English manner, although the inhabitants use only reedes, which because they are so strong as also flexible, do serve for that turne very well and sufficiently [Hariot 1893:34].

xxvii. *Sassafras Albidum (Sassafras)*

This aromatic tree is native to the Eastern Woodlands of North America. The species prefers moist, sandy soils, and often colonizes old fields, clearings, and forest openings (Little 1980:450-451). The roots and root bark provide oil of sassafras, which historically has had a multitude of medicinal applications.

Hariot describes the use of sassafras in Virginia:

Sassafras, called by the inhabitantes Winauk, a kinde of wood of most pleasand and sweete smel, and of most rare vertues in phisick for the cure of many disceases. It is found by experience to bee farre better and of more vses than the wood which is called Guaiacum, or Lignum vitae [1893:15, 34].

The Bark of the Sassafras-Tree has been experimented to partake very much of the Virtue of the Cortex Peruviana [Beverley 1705:141].

Robert Evelin in mid-seventeenth-century New Jersey in the vicinity of Delaware Bay mentions sassafras (Force 1836-1846:II:23, see Section IV.B.4.a.vii, above).

Sassafras is mentioned medicinally by Lawson (1952:40, 96).

The Vertues of Sassafras are well known in Europe. This Wood sometimes grows to be above two Foot over, and is very durable and lasting, used for Bowls, Timbers, Post for Houses, and other Things that require standing in the Ground. 'Tis very light. It bears a white Flower, which is very cleansing to the Blood, being eaten in the Spring with other Sallating. The Berry, when ripe, is black; 'tis very oily. Carminative and extremely prevalent in Clysters for the Colick. The Bark of the Root is a Specific to those afflicted with the Gripes. The same in Powder, and a Lotion made thereof, is much used by the Savages to mundify old Ulcers, and for several other Uses, being highly esteemed among them [Lawson 1952:96, 236].

Lawson in South Carolina describes the use of sassafras wood for carving bowls (1952:96).