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The Marketplace of Boston: Macrobotanical Remains from Faneuil Hall

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THE MARKETPLACE OF BOSTON:

MACROBOTANICAL REMAINS FROM FANEUIL HALL

A Thesis Presented

by

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ABSTRACT

THE MARKETPLACE OF BOSTON:

MACROBOTANICAL REMAINS FROM FANEUIL HALL

December 2011

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Residents of Boston in the eighteenth century utilized a wide range of botanical materials in their daily lives, navigating complex urban marketing systems and utilizing their own individual ingenuity to procure botanical resources. The one thousand eight hundred and eighty-three botanical remains recovered from a "community midden" underneath the present-day Faneuil Hall represents a diverse collection of taxa which encodes

information not only about the localized dietary practices of colonial urban residents, but also helps to illuminate the more subtle ramifications of Boston's participation in the Atlantic economy on the lives of its residents. These botanical remains represent taxa from a variety of sources; many could have been cultivated in home gardens, while others may have been gathered from the wild, brought to Boston from outlying farms, or imported and sold by merchants with strong connections to the trans-Atlantic commodities trade. Understanding the sources of these botanical materials allows us to reconstruct the numerous ways in which Boston's patchwork marketing system was provisioned, while at the same time clarifying the historical record of botanical use within Boston's urban center.

ACKNOWLEDGEMENTS

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CHAPTER I

INTRODUCTION

Residents of Boston in the eighteenth century utilized a wide range of botanical materials in their daily lives, navigating complex urban marketing systems and utilizing their own individual ingenuity to procure botanical resources. This research examines localized dietary practices of eighteenth-century Boston inhabitants, and the ways in which those dietary practices were linked to wider systems of regional and trans-Atlantic trade. The botanical remains recovered from a "community midden" in the center of Boston represents a diverse collection of taxa from a variety of sources. Tracing these sources through the documentary record allows us to reconstruct the numerous ways in which Boston's patchwork marketing system was provisioned, while at the same time clarifying the historical record of botanical use within Boston's urban center with new material data.

The range of botanical products available to urban consumers in eighteenth-century Boston reflects both agricultural practices in colonial New England during the eighteenth century, and the trade networks that connected the city of Boston with other Atlantic seaports. Urban and rural consumers in the colonial period often acquired these botanical goods from a wide range of sources (Bailyn 1995; Friedmann 1973; Kulikoff 2000 Landon 1996; Leighton 1970, 1976; Hammond 1984; Sumner 2004). Rural farmers

supplied the urban centers with both cultivated and wild produce, exchanging their crops for merchant credit, bartered goods, and occasionally specie. Urban consumers in eighteenth-century Boston cultivated backyard gardens while also patronizing marketplaces and individual farmers, who traveled to urban centers to sell their produce. Imported botanical goods such as nuts, figs, and olives were available from urban merchants. Trade networks stretching from London to the Caribbean linked producers, consumers and merchants in a complex web of exchange relationships up and down the Atlantic coast. As R.C. Nash (1979:3) notes, the Atlantic Ocean was "the highway connecting the Old World and the New," and seaport towns such as Boston were the "vital link" between them.

A portion of Boston's material history as a "vital link" is preserved within a landfill deposit which underlies the present-day structure of Faneuil Hall, constructed in 1742 in the center of Boston. This landfill was first excavated in 1990 by archaeologists from Louis Berger and Associates, Inc, (henceforth LBA), who identified the archaeological deposits underlying the building to represent a filling episode in the first half of the eighteenth century. A wide range of commercial and household refuse was recovered, including ceramics, leather and metal scrap, personal items, glassware, shipping ballast, and faunal and botanical remains (Alterman and Affleck 1999:i). Macrobotanical analysis confirmed the presence of imported almonds, English walnuts, pecans, peanuts, Brazil nuts, coconuts, and olives, in addition to local produce such as squash, pumpkins, cherries, plums, watermelons and peaches (Pipes 1999:16-20). In 2010, additional archaeological excavations were undertaken on the north side of Faneuil

Hall by URS Corporation, Inc (henceforth URS), the Andrew Fiske Memorial Center for Archaeological Research at the University of Massachusetts Boston, and the National Park Service under Section 106 of the National Historic Preservation Act. Over 6000 personal and household artifacts were recovered, including ceramics, glassware, architectural building debris, gun flints, leather and cloth scrap, buttons, smoking pipes, wig curlers and faunal and botanical remains. Archaeologists and graduate students from the Fiske Center also collected macrobotanical, palynological, entomological and parasitological samples in the field. The analysis of 39 macrobotanical samples collected during these excavations, as well as comparative botanical data from previous excavations conducted in the urban center of Boston, forms the basis for this thesis.

Examining the remains from Faneuil Hall within the larger context of these previous archaeological investigations helps to mitigate the methodological implications of attempting to draw broad conclusions from a single deposit that cannot be assumed to be statistically representative. But The Faneuil Hall deposits differ from many urban household sites in that they represent a "community midden," a communal deposit which represents the combined refuse of a diverse urban population, as opposed to a single family (Alterman and Affleck 1999; Bradley 1983:77-83; URS 2009). The use of this term emphasizes the ways in which the term ‘community’ must necessarily reflect multiple actors and events, as well as the reality of eighteenth-century Boston as an urban center home to individuals of varied races, classes, genders and ethnicities. Although individual variation obviously played a role in the discarding of refuse, overarching patterns of botanical consumption are still present in the botanical remains recovered.

Archaeological studies of botanical trade and commerce, such as the one undertaken in this thesis, are rare due to both the generally localized nature of food production and consumption in the pre-modern period (although see Ruhl 1997), and disciplinary assumptions that often overlook botanical remains as a significant class of artifacts (Helbaek 1959:365; Holt 1991:46; Miller 1989:50; Popper and Hastorf 1988:2). Additionally, while historians have often focused on macro-scale analyses of botanical trade networks such as rice, coffee and indigo, (Garrigus 1993; McDonald 2005; Morgan 1995) and archaeologists have examined the role of localized food procurement in diverse colonial contexts (Cheek 1998; Dudek et al. 1998; Janowitz 1993; Landon 1996; Pendery 1984, 1992), few studies have attempted to link the two together. Several major archaeological digs within Boston's historical urban center have recovered large amounts of botanical remains, but interpretation in these cases has been generally limited to the reconstruction of past diets, past sanitation practices, and cultural practices relating to food use (Dudek et al. 1998:66; Heck and Balicki 1998: 30; Kelso and Beaudry 1990; Patalano 2007:44-45). This thesis seeks to utilize botanical data in conjunction with the historical record in order to reconstruct systems of agricultural trade and commerce, shedding new light on the economic relationships between Boston's urban consumers, regional farmers, and merchant traders during the eighteenth century.

Reconstructing the pathways of botanical material through urban markets not only an understanding of how these botanical goods were grown, traded, and used, but also of the economic structure of colonial New England (Beaudry and Cochran 2006; Henry 1991; Horn 2000; Pendery 1992). The documentary history of Boston and its rural outlying provinces provides a historical and economic context for the Faneuil Hall

deposits (Bailyn 1955; Henretta 1965; Mancall and Weiss 1999; Shammas 1982; Shepard and Walton 1972), while more recent historical research has highlighted the importance of the Atlantic economy as a framework for understanding the transnational origin of material culture in colonial deposits (Breen 1988, 1993; Canny 1999; Hancock 1998; Morgan 1995; Nash 1992; Smith 2003; Zahedieh 1999). Landon (1996) has examined urban distribution systems in relation to zooarchaeological remains, while Friedmann (1973) has compiled a general overview of colonial Boston foodways. A wide range of sources, both primary and secondary, provides information about colonial American foodways in general (Booth 1971; Bridenbaugh 1932; Cheek 1999; Donovan 1975; Emerson 1808; Janowitz 1993; Lemon 1967; Wilson 1998; Smith 1994; Washington 1749 [1981]).

The macrofloral remains recovered from the landfill deposits at Faneuil Hall thus offer archaeologists a unique entrée into the personal lives of urban Boston residents in the eighteenth century, as well as a method of reconstructing past provisioning systems for urban communities. When contextualized with historical documentary research, these botanical remains showcase the wide range of local, regional, and global sources for the botanical produce which entered Boston's urban markets. The data also highlight the many ways in which Boston's local marketing economy was intimately tied to the complexities of historical process, as well as larger trans-Atlantic events. The resulting research seeks to clarify, expand upon, and in some cases correct the historical record as regards the functioning of Boston's urban agricultural provisioning systems in the eighteenth century.

CHAPTER II

THE HISTORY OF BOSTON

The construction of the Atlantic world in the age of European expansion is commonly theorized in two ways: as a predetermined outgrowth of European domination over the less civilized parts of the world, and as an active process of struggle and negotiation (Bailyn 1955, 1959; Benjamin, Hall and Rutherford 2001; Canny 1999; Elliott 2006; Meinig 1986; Paynter 2000; Pels 1997; Silliman 2005a, 2005b, 2009; Thornton 1992). The European conquest of the Americas is often broadly understood as the physical manifestation of a European worldview in which unchristianized lands could be rightfully claimed in the name of God and country, and the inhabitants of these lands subdued through any means necessary. But as D.W. Meinig (1986:4) notes, viewing macro-level scales of history from the position of the already-determined present risks creating "convenient symbolic concatenations in the larger structure of history." Rather than conceptualizing the age of European expansionism as the "crashing of Western history onto imaginary pristine shores," the colonial project in the Americas must be understood in the wider context of historical process (Silliman 2005: 273).

The creation of a European world on both sides of the Atlantic was neither predetermined nor singularly directed. Ship-by-European ship, letter by letter, transaction by transaction, cities such as Boston came into existence. Trans-Atlantic links

of commerce, shipping, trade, familial networks, and obligations created wide-ranging networks which encompassed European settlers, captive and free Africans, and the Native American populations who had resided in America for thousands of years. Boston's rise to prominence as the most important colonial port in North America must be understood within this context of far-flung networks of trade and consumption which linked Boston to both its surrounding rural areas and to the great seaports of the Atlantic trading network (Shepard and Walton 1972:128).

The Early History of Boston

In 1630, aboard the ship *Arabella*, future Massachusetts Governor John Winthrop gave a sermon entitled "A Model of Christian Charity," in which he admonished the future Massachusetts Bay Colonists that their settlement would be a "city upon a hill," a reference to Jesus' Sermon on the Mount (Beardsley 1997). Although Winthrop's sermon has often been understood as a precursor to American exceptionalism, John Winthrop and his followers were not entering an unknown landscape. The Americas had been known to Europeans for almost 150 years; trade relationships already stretched up and down the Atlantic coasts, from the fishing fleets of Newfoundland to the plantations of the West Indies. When the Puritans arrived on Massachusetts' shores, they were soon greeted by settlers from Plymouth, who had arrived ten years earlier. Native peoples were also well aware of European colonists. They knew how to navigate complex trading relationships for their own benefit and were themselves mired in intricate webs of alliances and disputes (Loren 2008; Silliman 2005b). Winthrop's words to the Massachusetts colonists were not intended to paint a picture of holy isolation, but one of constant interaction with

both the ‘civilized’ world they had left behind in Europe and the Native peoples they would encounter after settling on the Massachusetts coastline (Beardsley 1997; Elliot 2006:188; Nash 1979:161).

Although the first Puritan colonists settled in Salem, they quickly realized that the eastern side of the Shawmut Peninsula faced out on to the Boston Bay. A settlement on the peninsula would have both a large harbor and safe access to the maritime transportation networks of the Atlantic Ocean; it was also connected to the mainland by a small neck of land near the present-day site of Roxbury, allowing for easy entry by land. On the western side of the peninsula were the tidal marshes and mud flats of what is now Back Bay, and, beyond that, to the north was the Charles River (Figure 1). By 1630, the sole settler on the Peninsula, William Blackstone, had invited a group of settlers from Charlestown to join him in Shawmut, and by 1640 the population had risen to roughly 1,200.(Figure 2).

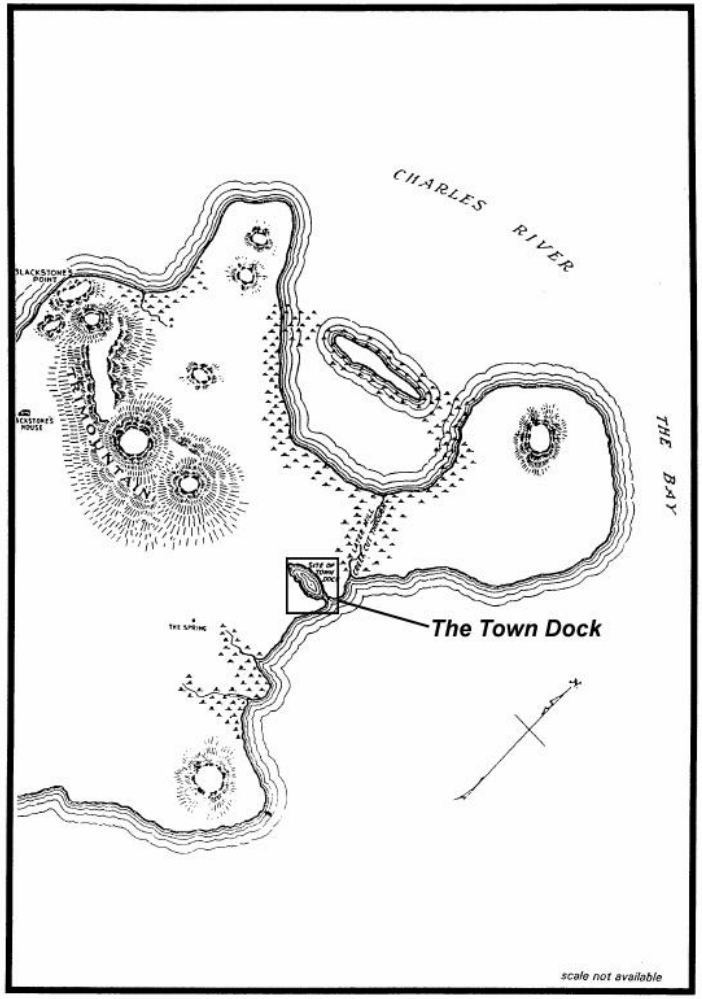

Figure 1: The Shawmut Peninsula circa 1630. *Source: Thwing 1920*

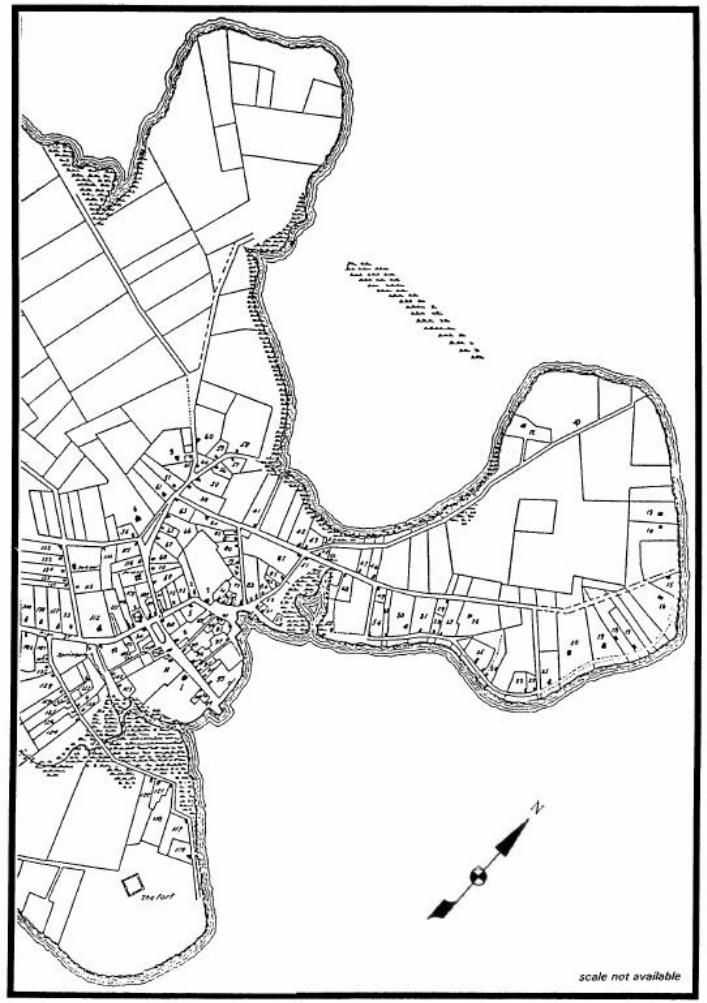

Figure 2: The Town of Boston circa 1635. *Source: Clough 1920*

Within the next 40 years, the population of both the Massachusetts Bay Colony and the city of Boston increased rapidly. By 1680 the population of Boston had risen to 4,500, comparable to many contemporary cities in England (Bridenbaugh 1938:6). Boston would continue to contain between ten and fifteen percent of the total population of the Massachusetts Bay Colony until 1760, when secondary urban centers in New England began to coalesce into small cities that were capable of challenging Boston's commercial dominance (Landon 1996:10).

Population growth alone does not explain Boston's rise to prominence. The increasing population density of Boston's urban center during the late seventeenth and early eighteenth centuries can only be understood as part of a reciprocal relationship between Boston's commercial core and the outlying peripheries of rural New England. Boston was the center of government for the Massachusetts Bay Colony, as well as one of the largest ports in British North America. Merchants built their homes in Boston because of the ease of access to imported goods; taverns and inns accommodated the influx of visitors and sailors. Farmers, artisans, drovers and day laborers were drawn to Boston to sell their wares, shop at the markets, secure credit, keep up with correspondence and look for paying work (Friedmann 1973:190). At the center of all of this commerce was Boston Harbor, providing a necessary link to the wider trans-Atlantic world.

Bendall's Cove

The site now occupied by the present-day structure of Faneuil Hall was a portion of Boston Harbor originally known as Bendall's Cove or Bendall's Dock, after Edward Bendall (Shaw 1817:60; Thwing 1920:127-128). Settlement in Boston concentrated around this area, and the wider network of coves and wharves known as Dock Square. The wharf was in use by 1631 as a docking area and, in 1641, Valentine Hill was granted the right to "use and improve the waste land" of Bendall's Cove. Hill constructed new wharves and warehouses throughout the cove and initiated infilling and dredging activities designed to extend the usable land of Boston's harbor. Hill and his associates also reserved the right to charge duties and "tonnage and wharfage," transforming access to the wharf into an economic commodity. After this period, the Bendall's Cove was known as Town Dock.

By the turn of the eighteenth century, Boston was in the process of outgrowing the wharves and docks which had been constructed in the previous century. The construction of Long Wharf in 1710 allowed even the largest vessels to dock at the pier next to the warehouses, and the Town Dock area fell into disrepair. In 1719, Boston resident Benjamin Colman described the area as full of "wretched old houses" and decaying wharves, and argued for the need to revitalize the area for the good of the city of Boston (Colman 1719, quoted in Shaw 1817:179). Colman, the conservative pastor of Old South Church on Brattle Street, may have been anticipating the coming conflict over the regulation of public markets, and by extension, over the control of urban Boston commerce. Colman, along with many others, was a vocal participant in the public

discussion of how best to serve the economic needs of Boston's urban community; a regulated public market had been experimented with in Boston as early as 1696, but it had never received the patronage or blessing of several prominent town merchants and only lasted until 1701. Elisha Cook, a prominent force in Boston politics in the beginning of the eighteenth century, was also against the concept of regulated public markets, arguing successfully for many years against what he saw as a targeted attempt by Boston's wealthiest merchants to fix market prices and institute hidden taxes in the form of market licenses and fees (Nash 1979:125).

On July 1, 1728, the Town Selectmen of Boston voted to fill the south side of the Town Dock after hearing from a committee appointed to review public submissions of the ways in which the land might be improved. By February 1729, six building leases were executed by the Boston Selectmen in the Town Dock area, indicating that the land had been filled and promptly given over to independent merchants as part of the current unregulated market system under a Selectman's Board still controlled by Elisha Cook's populist party. But by 1734 partisan politics had shifted yet again, and public opinion had begun to sway towards the possibility of regulated public markets after targeted and intense lobbying by a faction of wealthy merchants including Benjamin Colman's brother, John Colman, Thomas Hutchinson, and the current Governor of Massachusetts, Jonathan Belcher. The year 1734 also saw the passing of prohibitive duties by Parliament on molasses, rum, sugar, and sugar products, further increasing the tax burden on Boston merchants and consumers. It was in this tense political environment that Belcher's faction managed to pass a resolution to construct three public market buildings with public funds, although use of these markets would be voluntary and not mandatory. But as economic

conditions in Boston worsened again, culminating in a particularly severe winter of 1737, these market buildings became a symbol of the laboring classes' frustration with the wealthy merchants who seemed to be unable to halt inflation and rising food prices. All three market buildings were systematically demolished in the spring of 1737 by a relatively organized mob, who showed up to the scene of the crime with blackened faces and all the tools needed to destabilize and remove the structures (Nash 1979:133).

In July 1740, Peter Faneuil, a wealthy Boston merchant, offered to finance the construction of a second public market building if the town would regulate the merchants who used it and keep it in good repair. The motion passed by only 7 votes, with 367 in favor and 360 opposed. The building was completed on September 13, 1742, and named Faneuil Hall after its benefactor. The construction of Faneuil Hall marked a change in public attitudes towards the regulation of markets. From then on, the two-story, forty-foot by one-hundred foot building was used as both a market and a place to hold public meetings (Alterman and Affleck 1999:III.9). The first floor had an open floor plan and contained stalls erected by merchants; the second floor contained a large meeting hall, town offices, the Selectmen's chamber, and an armory (Alterman and Affleck 1999:III.12).

Atlantic Connections

Urban markets such as the one that operated at Faneuil Hall in the eighteenth century were viable economic structures only in the context of a complex land and sea-based economy which encompassed the whole of the Atlantic world. The growth of Boston as an urban center in the mid-to-late seventeenth century coincided with the

growth of other European-controlled ports on the Atlantic seaboard, such as Quebec to the north, and New York, Philadelphia, and Charlestown to the south (Nash 1979:54; Shepard and Walton 1972:133-138). Viable trade with other domestic and trans-Atlantic ports depended on reciprocal demand in both the colonies and Europe for the goods that were being produced, as well as geographical differences in the costs of production, transportation and distribution. The wide range of climates along the Atlantic coast created an interdependent network of trading relationships in which various botanical commodities were grown, harvested, and then sold to consumers to maintain the standards of European diet in America, as well as shipped back to Europe to increase the wealth of the mother colonies.

As the largest British-controlled port on the eastern seaboard of North America during the eighteenth century, Boston was a distribution center for agricultural produce which was destined for regional and trans-Atlantic markets. The high demand in Boston for agricultural goods contributed to the booming shipping economy; demand drove up prices, which in turn solidified Boston as a market for agricultural surplus in the New England area. Produce from Boston was sent both south and north to other colonies on the Atlantic seaboard, as well as to Europe, the West Indies, and to colonial outposts controlled by the Dutch, Spanish and Portuguese in the Atlantic and the Caribbean (Bridenbaugh 1938; Friedmann 1973:190; Landon 1996: 11; Nash 1979:54, 77; Shepard and Walton 1972:130-131).

While European settlers often took advantage of crops that were native to the Americas, non-native botanical resources such as domesticated European wheat, rice,

sugar, coffee beans and spices formed the basis for trading relationships which stretched across thousands of miles (Friedman 1973:190,199). But beyond the white pine stands which were so valuable to the shipbuilding industry, New England did not have any of the more valuable agricultural natural resources sought by the European powers, nor did it have the warm climate necessary to grow export staples like tobacco, sugar, or indigo (Shepard and Walton 1972:131). Instead of focusing on single cash crops, New England farmers in the late seventeenth century focused on small-scale diversified farming, shipping foodstuffs, provisions, timber and meat to West Indian sugar plantations (Shepard and Walton 1972:134-135, 144).

Despite the lack of a staple cash crop, by 1689 the region had developed a strong agricultural economy which contributed to the development of Boston's urban markets. But this economic stability was sorely tested with the onset of King William's War (1689-1697) and Queen Anne's War (1702-1713). These far-reaching trans-Atlantic conflicts not only had active theatres on New England soils which required the recruitment and provisioning of thousands of British and American troops, but they contributed to a boom-and-bust cycle of war profiteering in the shipbuilding and seafaring industries which eventually resulted in a prolonged economic depression after France withdrew from the conflict via the Treaty of Utrecht in 1713 (Nash 1979:79-83). This post-war recession lasted throughout King George's War (1744-1748) and was compounded in Boston through the events which led to the Siege of Louisbourg, a military action drawn almost entirely from the unemployed poor who had taken up residence in Boston, as well as successive waves of smallpox and diphtheria in 1721,

1730, 1735, and 1737 (Nash 1979:55-57, 103-104). The effects of Boston's economic decline was felt deeply within the agricultural community, even one which had diversified crop yields so as to more easily weather loss; as one resident noted in 1723, "all are merchants, yet have no trading nor one staple commodity in the whole country; we are all husbandmen, yet we want bread, drink, and flesh." (CSP Colonial 1934 [1723]:258). Increasingly depleted farm soils, a corresponding depression in the sugar market in the West Indies, and artificially manufactured grain shortages by wealthy merchants all contributed to a reduced and fractured economic system in which inflation was steadily rising and urban residents' access to agricultural produce was never guaranteed (Nash 1979:77-83, 113,447).

The Faneuil Hall deposits are a material reflection of this uncertain period in Boston's history. Originally created as part of a landmaking process in the late seventeenth century which extended the usable surface of the Town Dock area, and capped by the construction of Boston's first public marketplace in 1742, the Faneuil Hall deposits (ca. 1680-1742) thus represent years of both prosperity and hardship for Boston's residents and the rural farmers who supplied them with produce.

CHAPTER III

METHODS

Community and household botanical usage is often archeologically reconstructed through the examination of macrofloral remains (Dudek et al. 1998; Helbaek 1959; Hillman 1973; Miller 1989; Popper and Hastorf 1988). The presence or absence of specific plants in archaeological deposits may reflect cultural preferences in diet, relative access to botanical resources, medicinal use, or cultural proscriptions against certain classes of botanicals, as well as the realities of differential preservation in archaeological contexts (Holt 1991). The presence of imported plant remains in historic urban archaeological contexts also suggests the existence of trade networks which may have transported these plants to urban consumers. Reconstructing foodways and trade networks through this method of 'sourcing' is an underutilized approach in historical macrobotanical research, and provides an entrée not only into the social lives of urban residents, but to the wider economic structures which connected them to one another (Holt 1991:59; Ruhl 1997). Previous excavations at Faneuil Hall recovered macrobotanical remains from local, regional, and global sources, making Faneuil Hall an ideal candidate site for a more in-depth examination of how botanical trade and provisioning systems may have functioned in an eighteenth-century urban environment. This chapter outlines the stratigraphic and depositional history of the Faneuil Hall site, as

well as the methods used to collect, process, and analyze the macrobotanical samples which form the basis of this thesis.

Site Formation and Stratigraphy

The present site of Faneuil Hall was originally a section of Bendall's Cove, which became known as the Town Dock after improved wharves were constructed by Valentine Hill in 1641. The south portion of the Town Dock was filled at the direction of the Boston Selectmen in 1728. Affleck notes that this 1728 filling would have been a community affair, and that refuse may have been deposited both by area residents themselves, and by "cartmen" who would have been hired to travel door-to-door asking for refuse for the landfill (Alterman and Affleck 1999:XI.2).

By February 1729, six building leases had been executed within the footprint of this newly created land. Street maps of Boston from 1738 identify these shops as belonging to “a goldsmith, a saddler, a brazier, a tin plater, a painter/stainer, and a bookseller”(Alterman and Affleck 1999:III.9) (Figure 3).

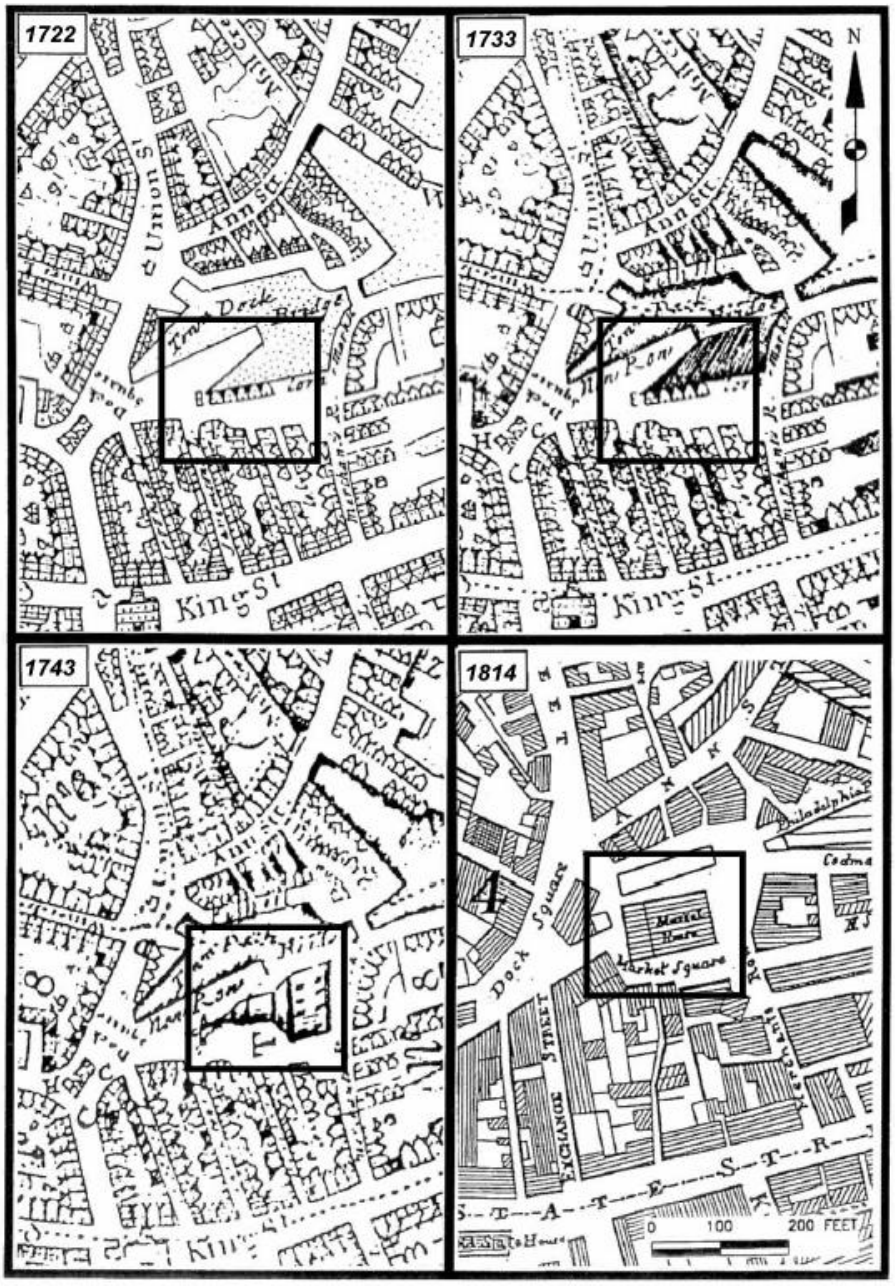

Figure 3: Comparison of the Town Dock Area in Historical Maps from 1722-1814. The six merchant shops are visible on both the 1722 and 1733 maps.
Sources: Bonner 1722, Hales 1814, Price 1733, 1743

Faneuil Hall was constructed in 1742, capping the area underneath it for refuse disposal (Figure 4). It is unknown whether the present structure rests on top of the

remains of some of these merchant stalls, or whether the building was merely constructed next to them.

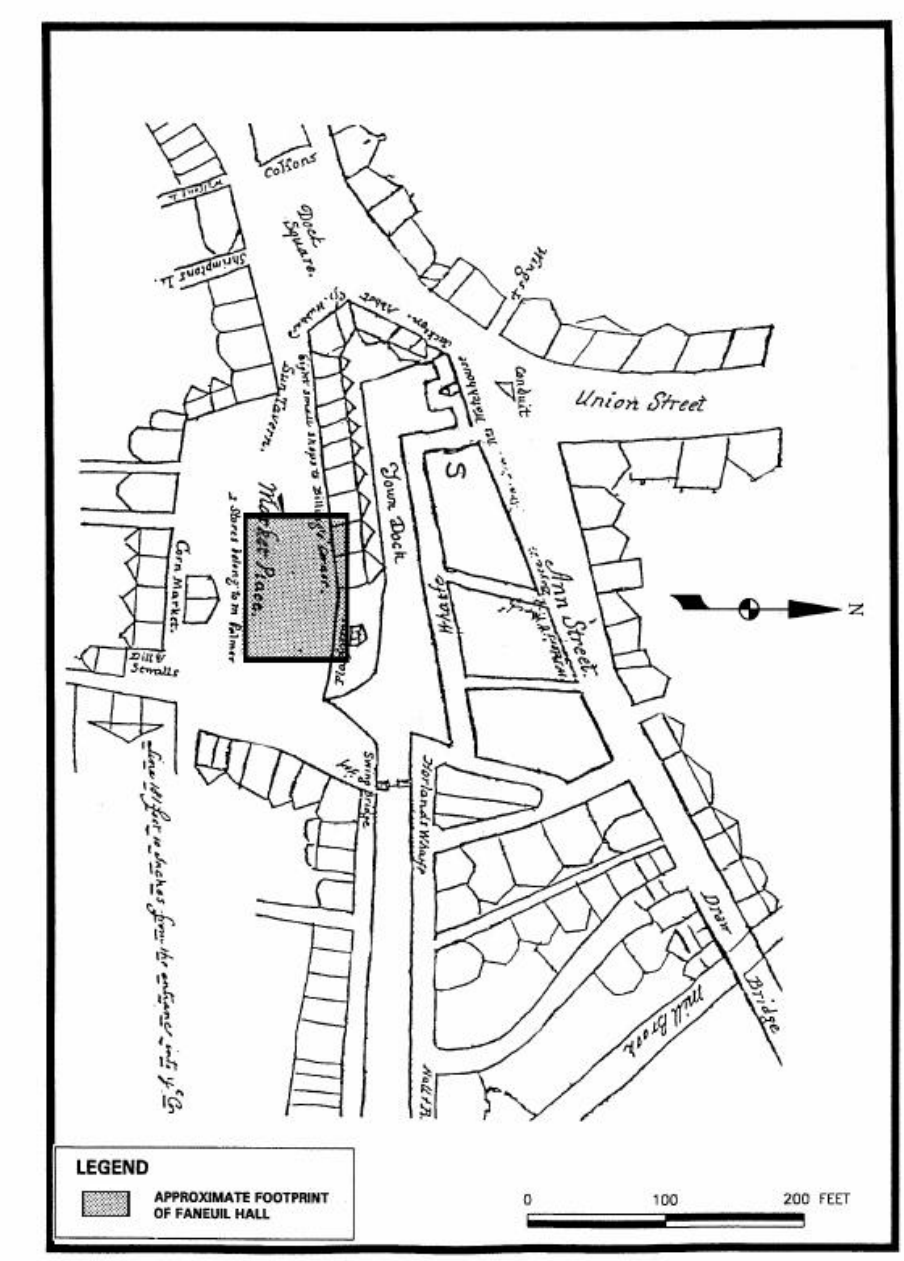

Figure 4: Map Detail showing Dock Square and Market just before construction of Faneuil Hall, circa 1738. *Source: Detwiller 1977*

LBA archaeologists determined that the foundation of Faneuil Hall was constructed on a bed of "relatively solid blue clay" at depths up to fifteen feet below

present street level (Alterman and Affleck 1999:XI.2). A large wooden platform (Feature 1) underlies the original 1742 footprint of the building, and the intact historic fill recovered in the 1990 excavations rested on top of this platform. Based on the results of the excavation, Alterman and Affleck proposed two possible methods of construction for the original foundation of the building; the excavation of a large basement using shoring to keep out seawater, or a series of large, hand-bailed trenches around the outside perimeter. They were unable to determine whether the fill associated with Feature 1 was deposited as part of the 1728 filling episode, accumulated gradually from 1728 until the capping of the area in 1742, or represented another distinct community filling episode just prior to the construction of the building in 1741 (1999:XI.3-7).

The recent archaeological investigations conducted by URS were located on the north side of the building, and sought to shed light some of these unanswered questions as well as to collect environmental and stratigraphic data from an area of the site which had not been excavated during the 1990 season (Figure 5). The field methodology undertaken by URS in the 2010 excavations was consistent with the concept of a "community midden" as a macro-scale proxy for examining the lifeways of colonial Boston. The previous excavations in 1990 had shown the archaeological deposits underlying Faneuil Hall to be characteristic of urban filling episodes, which are often internally inconsistent across space and time (Mrozowski 2006:161). Test Units 1 and ensuing extension yielded almost 10,000 discrete artifacts; in contrast, Test Unit 4 yielded only 426. This was understood by LBA archaeologists as evidence of possible discrete dumping episodes within the broader context of the filling of the Town Dock (Alterman and Affleck 1999:XI.6).

While the URS excavators were working in a much smaller physical space, the possibility existed that individual dumping episodes could be identified on the north side of the building as well. In order to provide a tighter level of horizontal control, the ten foot by ten foot unit was subdivided into quadrants. Preliminary preparation for the excavations required the hand removal of modern cobblestones and then machine-assisted removal of a thick concrete pad which overlies the entire excavation area.

URS archeologists identified 13 archeologically distinct strata within the 616 cubic feet of the excavation area. Although the original excavation area was intended to measure ten feet by ten feet and descend to a depth of fifteen feet below the present surface, modern features such as buried utility lines and stone security bollards restricted the excavation area on the north side of the site, while the southeast corner contained several buried architectural features dating to the historical period. The final footprint of the site was seven feet north/south by eight feet east/west, and excavations terminated eleven feet below modern ground level.

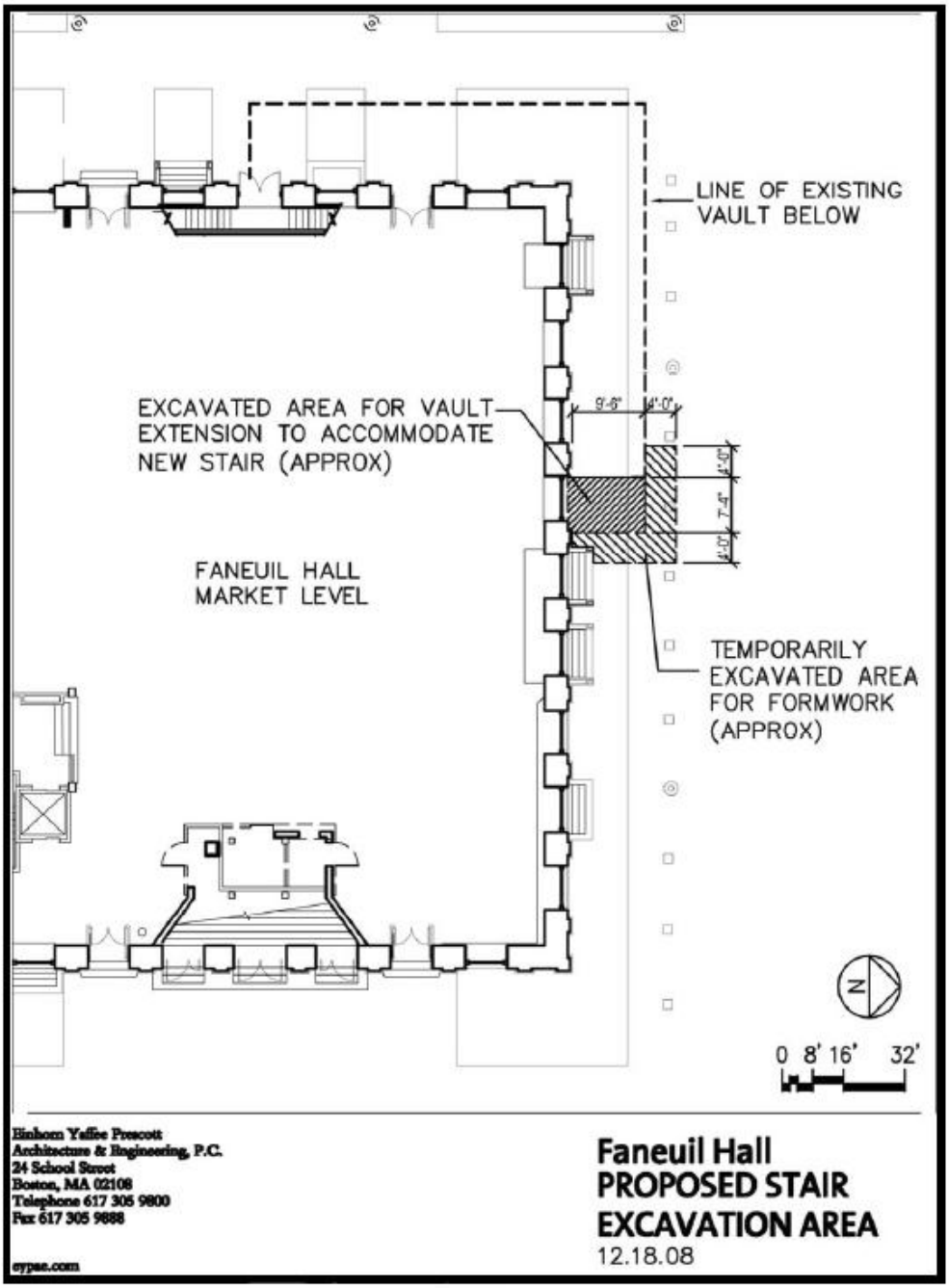

Figure 5: Approximate size and location of excavation unit on the North side of Faneuil Hall. *Source: URS, Inc*

Strata I and II comprised the upper four feet of material within the excavation unit. The modern cobblestones present at the site and the concrete bed underlying it was designated

Stratum I, while Stratum II consisted of gravelly fill that contained small quantities of modern trash, such as soda bottles and latex balloons. No botanical samples or archaeological samples were collected from these two strata.

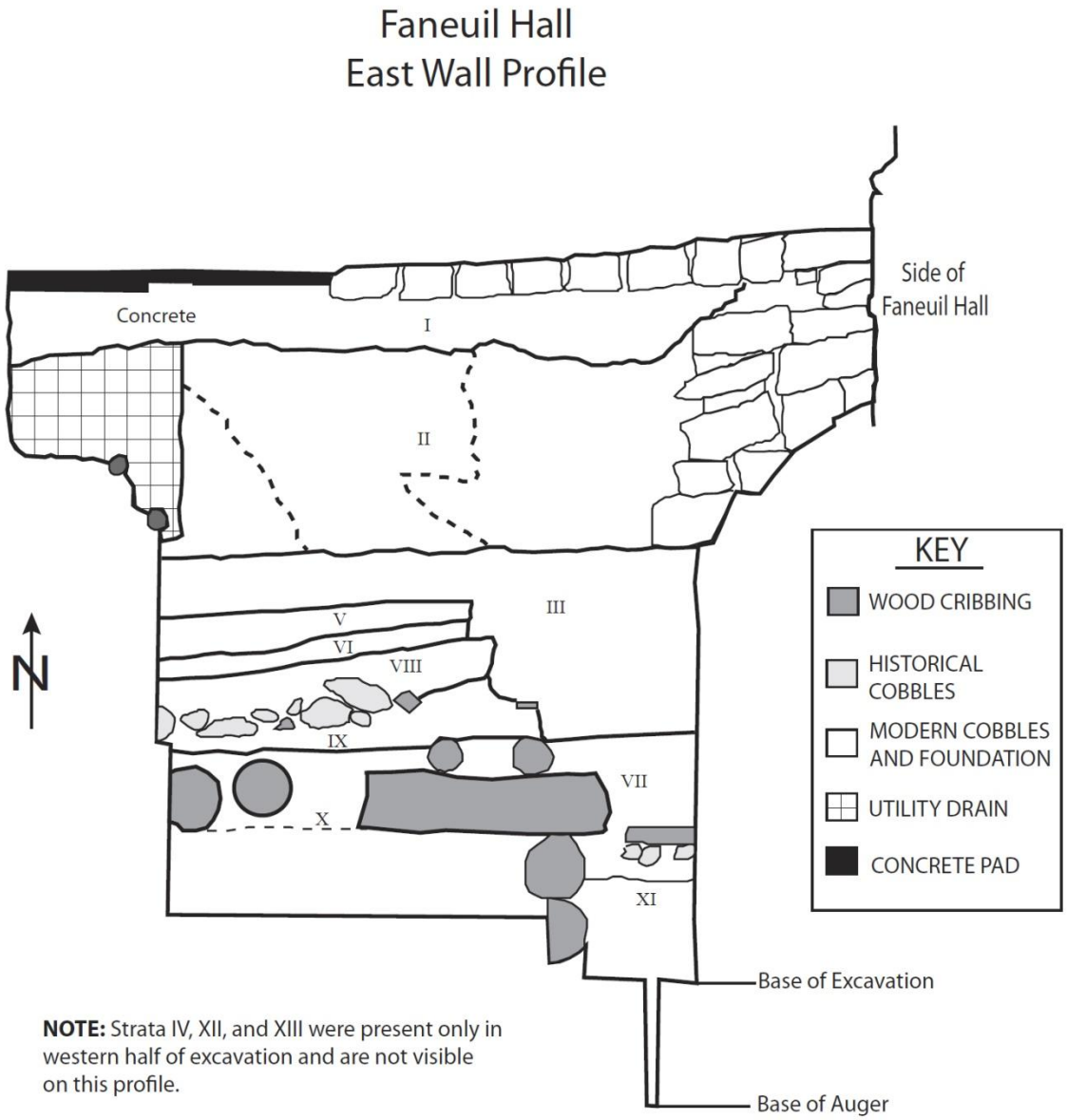

Figure 6: East Wall Stratigraphic Profile of Excavation Unit. *Source: URS, Inc*.

Stratum III, the first historical fill horizon encountered in the excavations, seemed to represent an original deposit which was then disturbed during the construction of Faneuil Hall's north addition in the early nineteenth century. Stratum IV was present as a sandy level mottled with brick and brick dust, overlying Stratum III only in the north-western part of the site. Strata V, VI and VIII were also present only in the north half of the site. Stratum V consisted of a relatively thin (0.6 foot maximum) layer of dense brick fragments and brick dust, while Stratum VI contained dense ash and charcoal deposits in a black sandy loam. These two levels may represent a historical burning episode, potentially the fire which destroyed Faneuil Hall in 1761.

Stratum VIII consisted of a dense olive gray clay and was located between Stratum IV and many well-preserved historical timbers which extended across the excavation unit. These hemlock timbers (*Tsuga* sp.) may represent elements of landmaking structures associated with the infilling and extension of the Town Dock in the late seventeenth and/or early eighteenth century (Flynt 2011:4). This stratum also included many rounded cobblestones, possibly the surface of a stone fill located above the timbers in historical times. The artifacts recovered from this stratum consistently dated to the early eighteenth century, including several well-preserved pipe bowls.

In the south half of the excavation unit, Strata VII and XI appeared below Stratum III but above the layer of historical timbers, and consisted of a greenish grey silt clay which consistently produced artifacts dating to the second half of the eighteenth century. Stratum VII also contained a well-preserved wooden board exhibiting parallel cross-cutting saw marks suggesting that it was cut in a mill.

The soil which capped the arrangement of historical timbers was designated Stratum IX. Three layers of timbers, arranged in alternating layer orientations for stability, were documented between 8.98 feet asl and 5.88 feet asl. The soil matrix between these timbers was designated Stratum X, and this layer yielded early-eighteenth and late-seventeenth century artifacts, including stone ship's ballast and imported coral. The deepest deposit, Stratum XI, originated at approximately 6.75 feet asl and continued to the base of excavation, with auger probes suggesting this stratum continued an additional two feet below the base of excavation. This deposit was abutted by Strata XII and XIII, which were located at the same depth in the north-west quadrant only.

Beginning with Stratum III, Level 1, each quadrant was hand excavated in arbitrary 20-centimeter levels and then the matrix was lifted out of the unit in buckets to be wet-screened through ¼ inch mesh. Assignment of levels was determined exclusively via depth from the surface of historical deposits, rather than the independent assignment of levels within each stratum. All artifacts were retained from Stratum III and successive levels, with the exception of bulk building debris, which were retained in representative samples from each provenience unit in which they were present.

Environmental Sampling

The environmental sampling strategy for the 2010 excavations was developed in conjunction with the Fiske Center. Flotation samples were taken from each of four quadrants in each arbitrary 20 cm level, in order to provide some level of both spatial and temporal control. Additional samples were collected on a judgmental basis from certain

features. The first eight flotation samples were taken by scraping several areas within the specified quadrant, strata and level with hand trowels; however, the small working space and high degree of foot traffic concerned the excavators, who noted that trampling of delicate botanical samples might accidentally occur. The remaining forty-three flotation samples were taken from buckets that were filled with dirt from the appropriate strata and then lifted out of the unit.

Flotation samples were assigned both a general Field Sample Number, in accordance with URS field procedure, and a separate Float Sample Number which was recorded in the Fiske Center Environmental Sampling log. Samples were labeled from 1 to 51 in order of excavation. Thirty-one flotation samples were transferred to the Fiske Center after excavations were placed on temporary hiatus in September 2010. The excavations were continued at the end of October, and an additional 19 flotation samples were transferred to the Fiske Center after excavation was completed (one sample was apparently lost in transit).

Matrix that remained in the buckets after all environmental sampling had been completed was then treated as a normal archaeological deposit and wet-screened through ¼" mesh with the rest of the fill. One hundred and ninety-seven botanical remains were also recovered by hand during wet screening. These remains were labeled with the appropriate stratigraphic information and separated from the general artifact population in order to be properly conserved at the City Archaeology Laboratory until the excavation was completed.

Laboratory Methods for Macrobotanical Analysis

Previous archaeological excavations by LBA used wet screening through ¼ inch mesh in order to separate botanical remains. The environmental sampling strategy proposed by the Fiske Center specified that flotation samples be processed in Fiske Center labs in order to increase the recovery rate and taxonomic breadth of the botanical materials. Machine-assisted screening of botanical materials has been shown to not only dramatically increase the recovery rate of plant parts smaller than ¼ inch in diameter, but also to help preserve fragile botanical remains that may be harmed by pressured jets of water such as those commonly used in on-site wet screening (Warnock 1998:242). Flotation of the samples with the Fiske Center's Dausman Flote Tech A1 began on October 23rd, 2010, and was completed in February 2010.

Before flotation began, all samples were inventoried and measured. A 10 gram sub-sample was removed from each bag for parasitological analysis, making the final size of each flotation sample slightly less than 2 liters. To facilitate flotation, some samples were soaked in water, but many were treated with a 1% to 4% solution of Calgon (sodium hexametaphosphate and sodium carbonate) to separate archaeological remains from the extremely thick clay matrix of the samples. Samples whose soil matrices were predominantly silt- or loam-based were not treated before flotation (see Appendix A).

The light fractions that resulted from the flotation process were then scanned using a dissecting microscope at magnifications ranging from 10x to 40x. Plant remains were removed from each sample, identified, and then placed in vials labeled with family,

genus (if applicable) and the Float Sample number of each flotation sample. Light fractions ranged in size from 1.48 grams to 38.61 grams, with an average of 17.75 grams of potential botanical material recovered from each sample. The anaerobic and waterlogged condition of the Faneuil Hall deposits meant that with the exception of six domesticated wheat grains (*Triticum aestivum*) and one plum pit (*Prunus americana*), most of the seeds recovered were uncharred. Although the recovery of uncharred seeds is rare in archaeological sites which have been continuously exposed to the environment, archaeological contexts such as privies, bogs, and waterlogged trash pits have been shown to slow degradation and preserve organic remains, especially when sealed on the surface by stone or concrete features (Miller 1989:50-51). Due to the unique preservation of the Faneuil Hall deposits, all seeds except those recovered by hand from Strata I and II were considered to be historical, despite the lack of charring.

The resources of the University of Massachusetts Boston Paleoethnobotany Laboratory aided in precise identification of the plant remains recovered from the flotation samples. Seed identification books such as Montgomery's *Seeds and Fruits of Plants of Eastern Canada and Northeastern United States,* Martin and Barkley's *Seed Identification Manual,* and Pearsall's *Paleoethnobotany: A Handbook of Procedures* as well as the hundreds of physical specimens available in the Laboratory comparative collection were important resources in the process of correctly identifying botanical remains. All identifications were made independently and then confirmed with Heather Trigg, Ph.D., director of the Paleoethnobotany Laboratory.

Documentary and Historical Research

The results of this analysis were compared with documentary sources comprising both primary and secondary source materials. Documents such as recipe books, farm journals, newspaper ads, academic papers, and published archaeological reports provided a rich comparative context for the botanical remains recovered from Faneuil Hall. Recipe books, farm journals, and primary source materials such as published pamphlets and newspaper ads provided information on which botanical resources were available to Boston residents in the eighteenth century, and served to bolster the archaeological integrity of the context by linking the presence of both local and imported foods with evidence of their use as part of colonial meals. Historical compendiums of herbal medicinal cures were a valuable resource in examining the varied uses of botanical resources during the colonial period. Other historical sources, both primary and secondary, helped to provide a more nuanced look at the economic structure of colonial New England during the seventeenth century, while archaeological site reports of similar excavations in the Boston area were used to incorporate the Faneuil Hall excavations into the broader framework of historical archaeology research in Boston.

CHAPTER IV

FINDINGS

Plant remains recovered from landfill assemblages, such as the one at Faneuil Hall, cannot speak to any specific use or specific household. Rather, these plant remains comprise the material history of a complex urban society which utilized many botanical resources in myriad ways. The plant remains in the Faneuil Hall collections have been divided into functional "working categories" based on the most common uses of these plants in the colonial period, but placement in a specific category is not intended as a definitive statement on how these particular archaeological remains were used during colonial times.

The beginning of this chapter presents general findings from the Faneuil Hall deposits and highlights broad statistical patterns present in the assemblage as a whole. The next section comprises a discussion of the edible fruits and berries, garden crops, domestic cereal grains, domestic nuts, herbs, medicinal plants, and exotic imported foodstuffs found in the Faneuil Hall deposits. These plants remains may be understood as "deliberate" deposits. Botanical remains may arrive in archaeological deposits through multiple venues and do not carry with them the element of "artifactual certainty" that links their deposition to human activity.

The delineation of "botanical artifacts…from botanical debris" is thus the first step in any paleoethnobotanical research (Holt 1991: 50). The third section of this chapter addresses the plant remains which may be understood as "non-deliberate" deposits. These weedy plants probably arrived at the site in the form of natural seed rain, and provide an indication of human action upon the environmental conditions of Boston in the context of a changing urban setting.

General Findings

The botanical remains recovered from Faneuil Hall included 1882 seeds, fruit pits, nutshells, conifer needles, preserved berries, and aquatic plant parts. Among these are 103 conifer needles and aquatic plant parts which were recorded before it became apparent that their presence in the float samples was ubiquitous – subsequently, their presence was merely noted. These 103 remains have been removed from the data analysis to avoid skewing counts of seeds and related plant parts. The 1798 plant parts were obtained from the 39 flotation samples, and the field screening from which 199 specimens which were recovered.

From these samples, a total of 61 taxa representing 32 botanical families, 50 genera, and 24 species were positively identified. Botanical remains were identified to the most specific taxonomic rank possible, and were present in every sample scanned except for Float Sample 5. The preservation of these remains was generally excellent, due to the water-logged, anaerobic, clay-heavy environment in which they had been preserved.

Of these 1798 remains, 27% (N=492) were categorized as natural seed rain, ad 73% (N=1306) were characterized as deliberate or economically useful. Forty-three economically useful taxa were identified among these 1306 seeds, making the Faneuil Hall collection taxonomically rich. A further 18 genera of non-economic plants were identified in the remaining 24% of the assemblage. Of the botanical assemblage, 5% (N=101) was unidentifiable to either family or genus due to incompleteness or lack of preservation.

The most ubiquitous remains present in the samples were remains from genus *Ficus* (fig). Fig seeds were present in 82% of all samples, or 32 out of 39 float samples scanned. Seeds from genus *Rubus* (raspberry/blackberry) were also present in 71% of the samples, or 28 out of 39 samples. Large numbers of *Rubus* and *Ficus* seeds are often linked in archaeological contexts with the presence of night soil, as both were common dietary supplements in use during the colonial period to combat the effects of intestinal parasites (Holt 1991:57-58). The ubiquity of these remains across all samples scanned (excluding Sample 5, which did not contain any remains) and the large number recovered (116 fig seeds and 85 raspberry/blackberry seeds total) suggests that the Faneuil Hall deposits may reflect not only the deposition of household and commercial food-processing waste but also the disposal of household night soil. Bridenbaugh (1955:23-24) records the 1658 construction of two privies at the Town Dock "for the accommodation of strangers and others;" if they were still in existence in the early eighteenth century, these privies would have emptied directly into the docks, providing another possible avenue for nightsoil deposition. Animal waste may also form a component of the landfill,

as horse, pig, and cow dung may have been collected from urban backyards along with household waste. Animal dung may contain both natural and economically useful seeds, depending on the diet of the animal and whether the animals in question were fed grain, were allowed to graze freely, or were fed household scraps (Holt 1991:49; Miller and Smart 1984).

Seed densities and total remains recovered were calculated for each scanned float sample, and then organized into groupings based on stratum and level to search for broad patterns in the range and density of seed deposition across time and space (Table 1).

Table 1: Overall Seed Densities and Percentages by Stratum

Stratum	Samples Scanned	Total Remains	Percent of Seeds Recovered from Site Present in Stratum	Seed Density per Liter of Soil
III	8	350	19%	43.75
IV	2	49	3%	24.50
V	2	52	3%	26.00
VI	4	46	3%	11.50
VII	4	222	12%	55.50
VIII	4	195	10%	48.75
IX	2	47	3%	23.50
X	5	188	11%	37.60
XI	5	306	17%	61.20
XII	1	40	2%	40.00
XIII	2	311	17%	77.75

The single richest float sample was FL 43 (Strat XIII), which contained 233 botanical remains, or 116.5 seeds per liter. The next richest sample, FL 2 (Strat III), contained 119 seeds, or 59.5 seeds per liter. The lowest density recovered (excluding FL 5, the only sample to have no seeds) was from FL24 (Strat IV), with an average of 1 seed per liter.

Stratum XIII, the oldest stratum recovered from the deposits, had the highest seed density overall with an average of 77.75 seeds per liter across two samples, comprising 17% of total remains recovered. Seeds recovered from Stratum III formed the largest single percentage of the total botanical remains recovered, with 19% (N=350) remains recovered from eight samples. However, the average density of samples from Stratum III was only 43.7 seeds per liter; the presence of FL 2, the second richest sample in the deposit, may have skewed the final percentage. Stratum XI was also noticeably rich, with 306 seeds recovered at an average of 61.2 seeds per liter of soil. Seeds from Stratum XI comprised 17% of the total remains recovered.

Fifty two percent of the of the botanical remains present (N=944) were recovered from samples taken from the south west quadrant. This unusually high percentage may be due to the sampling strategy employed, as all samples from the southwest quadrant were selected to be scanned in order to examine change over deposition within the landfill. The southeast quadrant was the second richest quadrant, with 323 botanical remains present. The two southernmost quadrants contained the remains of historical timbers associated with early landmaking structures and/or repairs to the town dock, and may have been a preferred place for trash disposal.

Examining the column of flotation samples taken from the southwest quadrant allows for a closer look at change over time within the lifecycle of the landfill deposit. Mean ceramic dates were calculated for each strata and level within the Faneuil Hall deposits. With very few exceptions, these dates cluster tightly within a roughly forty year period between 1707 and 1745 (Linda Santoro 2010, personal communication). These deposits from Faneuil Hall represent a 'slice of time' in the first half of the eighteenth century. Within this slice of time certain trends are apparent, mostly notably when examining changes in deposition rates for certain categories of plant remains.

The recovery of plant remains from the Polygonaceae (knotweed), Cyperaceae (sedge), and Ranunculaceae (buttercup) families varied greatly between strata. Many plants belonging to these families thrive in disturbed and urban environments. Members of the Polygonaceae family may thrive in both wet and dry conditions, while members of the Cyperaceae and Ranunculaceae families prefer wetter soils. The vast majority of Polygonaceae recovered from the deposits, however, belonged to genera such as *Rumex* or *Polygonum,* which also prefer moist soils. The co-occurrence of high numbers of seeds from all three families in certain strata would thus serve as an indirect indication of relative moisture conditions within the deposits (Figure 7).

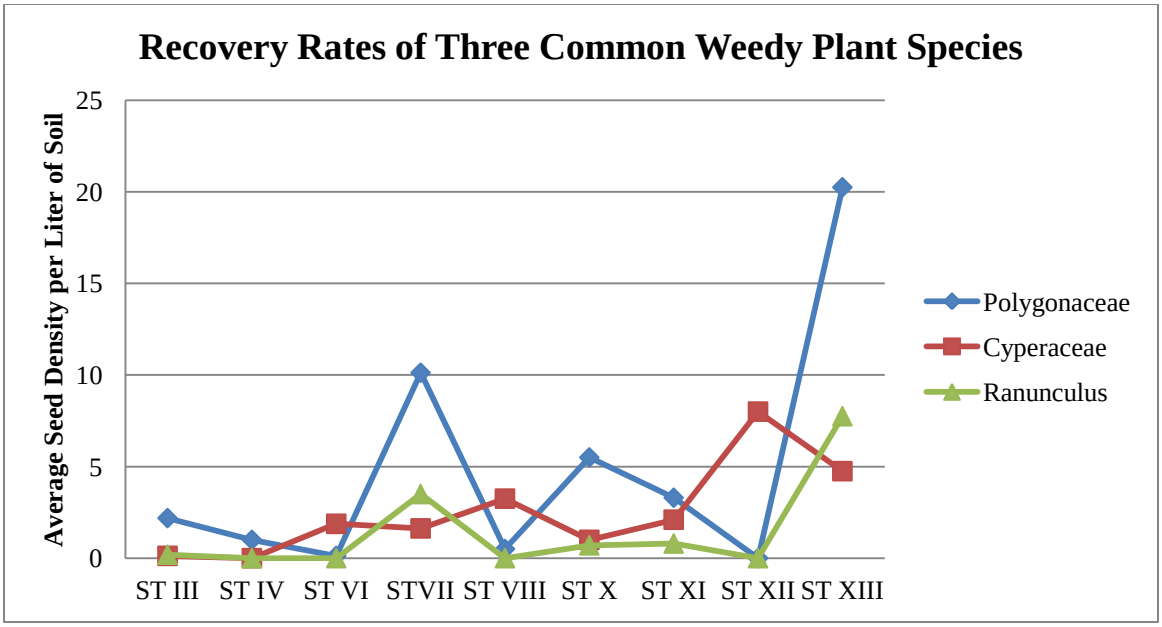

Figure 7: Recovery rates of three common weedy plant species, standardized as average seeds per liter of soil.

Instead of steadily increasing in frequency towards the bottom of the deposits, Polygonaceae remains increased sharply in Stratum VII, Stratum X, and Stratum XIII, while *decreasing* sharply in Stratum VIII and XII. Cyperaceae remains increased relatively steadily from the top to the bottom of the deposits, although a general decrease is observable in Stratum X. Those strata that showed high rates of Polygonaceae recovery also contained generally higher levels of seeds from the Ranunculaceae family, with the exception of Strata X and XI. This data may suggest varying cycles of wetter and drier periods over a forty-year span, possibly corresponding to more intensive utilization of the wharf area or even short-term environmental variability of climate. This utilization of the wharf area may have affected some plant families and not others, explaining the discrepancy between rates of Cyperaceae deposition versus Polygonaceae/Ranunculaceae deposition. These cycles may also represent different types of depositional activities; the

rapid infilling of wharf construction would include not only refuse from the wetter area around the docks but from farther inland, bringing to the deposit a slightly different spectrum of natural seed rain. This may explain patterns such as one seen in Stratum X and XI; the predominant genus present in those strata, *Rumex*, prefers slightly drier soils. It is worthwhile to note also that the Strata characterized by a surprising lack of Polygonaceae/Ranunculaceae seeds (Strata VIII and XIII, respectively) do not have particularly low seed densities per liter, suggesting that this pattern is not due to genera-specific preservation concerns.

Botanical remains from three economically useful genera—*Ficus* (fig), *Rubus* (raspberry), and *Vaccinium* (blueberry/cranberry), were plotted in a similar manner in order to test these results. If the landfill at Faneuil Hall is the result of a gradual accumulation of a ‘community midden,’ the pattern of small-scale deposition "spikes" should hold true over all categories of botanical remains, and not just weedy species (Figure 8).

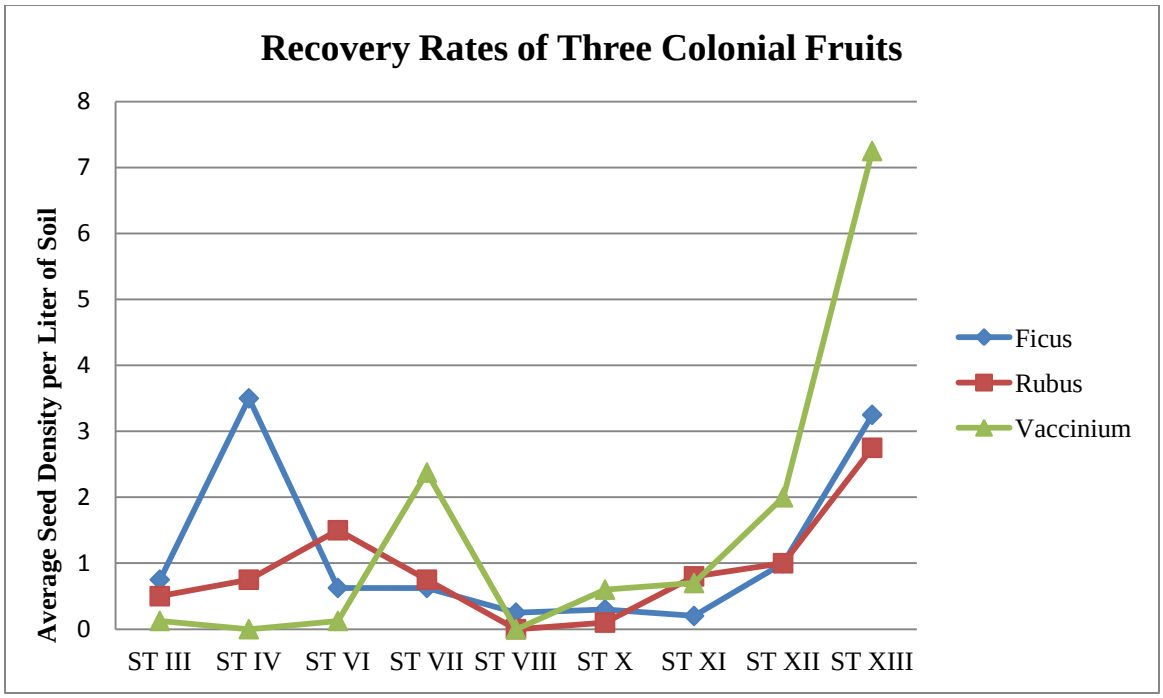

Figure 8: Recovery rates of three common colonial fruits, standardized as average seeds per liter of soil.

The data recovered from the southwest quadrant supports this hypothesis. *Ficus*, *Rubus* and *Vaccinium* are all plants which produce large amounts of economically useful berries and fruits, and all were popular components of colonial diets. *Ficus* and *Rubus* seeds are also used as an archaeological proxy for the presence of nightsoil, as these plants contain many small, hard seeds which can pass through the dietary and digestive tract relatively unscathed.

Like the wetland plants, the depositional pattern of these colonial fruits show distinct spikes in certain strata, although the sharp increase in Stratum XIII for both sets of data is most likely due to the high seed density and excellent preservation in this earliest stratum. But the increase in deposition in Strata III, IV, and VII, as evidenced by spikes on the graphic above, may be due to the dumping of household food waste or night

soil at different periods over the history of the landfill; it may also be linked to discrete dumping episodes during different seasons. Strata IV, VI and VII each display a spike of a different fruit, possibly suggesting increased consumption and discard of that particular fruit.

Overall, this data suggests that the fill recovered from Faneuil Hall does not represent a homogeneous matrix but instead may be the accumulation of many repeated, small-scale depositions composed of different types of debris, possibly on top of a deposition "core" related to the initial filling of the site. Unlike wells or privy sites, which often describe the botanical use of a single family, the deposits at Faneuil Hall were formed through the actions of a community upon a delineated space. This 'community midden' at Faneuil Hall was thus formed through a combination of large and small-scale dumping over a period of roughly fifteen to twenty years, increasing the likelihood of a robust representative sample.

Deliberately Deposited Plant Remains

Economically useful botanical remains belonging to 19 species, 27 genera and 18 taxonomic families were recovered from the Faneuil Hall deposits (Table 2). Botanical remains were identified to the most specific taxonomic rank possible based on the preservation of the specimens. Many remains were identifiable to genus and species level.

Table 2: Types of Economically Useful Plant Remains Recovered

Family	Genus	Species	Common Name	Count
Adoxaceae	*Sambucus*	*canadensis*	Elderberry	13
Arecaceae	*Cocos*	*nucifera*	Coconut	1
Apiaceae	*Coriandrum*		Coriander	3
Betulaceae	*Corylus*		Hazelnuts	28
Brassicaceae	*Brassica*	*nigra*	Black Mustard	16
Chenopodiaceae	*Chenopodium*		Goosefoot	63
Cucurbitaceae	*Citrullus*	*lanatus*	Watermelon	11
Cucurbitaceae	*Cucurbita*	*pepo*	Pumpkin	10
Cucurbitaceae	*Cucurbita*	*maxima*	Pumpkin	1
Ericaceae	*Vaccinium*		Blueberry	2
Ericaceae	*Vaccinium*	*macrocarpon*	Cranberry	36
Ericaceae	*Gaylussacia*		Huckleberry	55
Fagaceae	*Castanea*		Chestnut	1
Hypericaceae	*Hypericum*		St. Johns Wort	5
Juglandaceae	*Carya*		Hickory	27
Juglandaceae	*Juglans*	*regia*	English Walnut	1
Lamiaceae			Mint Family	1
Lamiaceae	*Mentha*		Mint	1
Moraceae	*Ficus*		Fig	116
Oleaceae	*Olea*	*europaea*	Olive	3
Papveraceae	*Papaver*		Poppy	1
Poaceae	*Triticum*	*aestivum*	Wheat	6
Poaceae	*Secale*		Rye	1
Rosaceae			Rose Family	3
Rosaceae	*Prunus*	*persica*	Peach	60
Rosaceae	*Prunus*	*cerasus*	Sour Cherry	39
Rosaceae	*Prunus*	*americana*	Plum	23
Rosaceae	*Prunus*	*spinosa*	Sloe	6
Rosaceae	*Rubus*		Raspberry	85
Rosaceae	*Fragaria*		Strawberry	41
Rosaceae	*Crataegus*		Hawthorn	1
Rosaceae	*Potentilla*		Cinquefoil	3
Polygonaceae	*Polygonum*		Knotweed	125
Polygonaceae	*Rumex*		Dock	352

Table 2: Types of Economically Useful Plant Remains, Continued

Family	Genus	Species	Common Name	Count
Portulacaceae	*Portulaca*		Purslane	138
Solanaceae	*Physalis*		Ground Cherry	8
Solanaceae	*Datura*	*stramonium*	Jimsonweed	1
Solanaceae	*Solanum*		Nightshade	6
Solanaceae	*Solanum*	*nigrum*	Nightshade	3
Solanaceae	*Capiscum*	*annuum*	Pepper	4
Solanaceae	cf. *Lycopersicum*		Tomato	1
Vitaceae	*Vitis*		Grape	4
Verbenaceae	*Verbena*		Vervain	1

Edible Fruits and Berries

Fourteen different types of edible fruits and berries were recovered from the samples. The majority of these (N = 9) belong to the Rosaceae family. This family is native to Asia, Europe and North and South America, and contains a wide range of plants that have been historically utilized by human populations for both their nutritional and medicinal value. Botanical remains of all of these fruits, with the exception of the sloe berries recovered (*Prunus spinosa*) have been recovered in previous archaeological contexts in and around Boston's urban center (Dudek et al. 1998:66; Kelso 1998:52-53; Patalano 2007:44).

Raspberries, strawberries, and blackberries were found growing wild in North America by the first English colonists, and both domestic and cultivated varieties were eaten during the colonial period (Leighton 1976:23-25). Raspberries and blackberries (*Rubus* sp.) were a mainstay of the colonial diet, and were present in large quantities in the Faneuil Hall deposits. They were eaten raw, cooked in pies and pastries, preserved

into jams and jellies, and used to flavor alcoholic beverages such as cordials, rum, and brandy (Sumner 2004:141; Cutler 1783:454). Cutler further noted that the fruit is "sub-acid, cooling, and extremely grateful," and could be eaten to soothe the stomach and to help remove the "tartarous concreations" of the teeth. Raspberries and blackberries soaked in milk and sugar were also given to young children as a treat (1783:452).

Strawberries (*Fragaria*) were used in a similar fashion—baked into pies, made into preserves, consumed raw with milk and sugar (Colonial Dames of America 1995:56; Leighton 1976:23-25). Cutler (1783:454) noted that strawberries "may be eaten in large quantities without offending the stomach," and were used by those with "stone or gout" to impart great relief . Sumner (2004:119) notes that strawberries were rare in markets because of their fragile nature, and were often grown in kitchen gardens or gathered wild for home consumption.

Peaches (*Prunus persica)* were brought to North America in the sixteenth and seventeenth centuries by Spanish colonists who settled in southern Florida (Sumner 2004:116-117). From Florida, peach trees were dispersed up the Atlantic coast by both natural and human means. They were a mainstay of the diet of Native peoples on the Atlantic coast, who preserved them for winter by drying them in the sun (Leighton 1976:23). William Blaxton or Blackstone, the first settler on the Shawmut peninsula, planted an orchard at the foot of Beacon Hill in Boston in 1625 that may have contained peach trees. George Fenwick, of Saybrook, Connecticut, was growing them in his orchard by 1641, as a letter exists detailing his pleasure with his peach crop for that year. By 1724, a writer in *Philosophical Transactions* noted that "our peaches do rather excell

(sic) those of England "(Colonial Dames of America 1995:1-2). Peaches were eaten fresh, dried, preserved, and soaked in brandy, and their popularity is reflected in the significant number of remains recovered from the deposits at Faneuil Hall (Sumner 2004:114-115).

Domesticated sour cherry (*Prunus cerasus*) was introduced to North America with European colonists, although wild cherries (*Prunus serotina*) had been utilized for centuries by the native population (Leighton 1976:23-24; Sumner 2004:116 Wood 1977 [1634]:41). Cherries were eaten raw, made into jellies, syrups and cordials, and baked into pastries and pies. Cherry wood was prized for its smooth texture and workability by carpenters, and the bark of the cherry tree was used medicinally by both Native peoples and colonists as an antitussive (Sumner 2004:116).

In addition to peaches and cherries, plums *(Prunus americana*) were a popular fruit. These wild plums were native to North America and eaten for centuries by Native peoples, although the European domesticated variety (*Prunus domestica*) was also introduced soon after European colonists arrived (Brickell 1731:77; Sumner 2004:116; Wood 1977[1634]:41). Plums were eaten fresh or baked into pies when available in the spring and summer months, and dried into prunes which could be stored for later consumption in the fall and winter. Prune juice was used medicinally as a laxative (Culpeper 2007[1653]:142).

Six sloe pits (*Prunus spinosa*) were recovered through wet-screening. The sloe is the fruit of the Blackthorn tree, a type of *Prunus* native to Europe, western Asia, and northwest Africa. The fruit can be eaten raw, but it is extremely tart. It was brought to the

British Isles sometime before the Norman Invasion, and was used in Britain for making brandy, preserves, and sloe gin. The wood was also prized as a low-smoking firewood and used for woodworking (Crawfurd 1867:274). John Brickell (1731:79) noted in 1731 that sloe trees grew plentifully in North Carolina but that the fruit of these trees were twice as large as the ones he was accustomed to in Ireland. He recommended a crushed paste made from the bark of the blackthorn tree as an antiseptic. The blackthorn, however, would eventually be used for more nefarious purposes; it was not uncommon for London merchants in the late eighteenth and early nineteenth centuries to dry the leaves and then use them to adulterate tea in order to increase their profits (Denyer 1893:35; Hoh-Cheung and Mui 1961:454;). It was also used as an anti-diarrheal for both people and livestock, as a colonial New England rhyme attests:

> By the end of October, go gather up sloes
> have them in readiness, plenty of those
> and keep them in bedstraw or still on the bow,
> to stay both the flixe of thy selfe and thy cow. (Snow 2001:42)

Sloe berries are not commonly recovered from macrobotanical samples in the historic northeast, although their close structural similarity to more common varieties of *Prunus* sp. suggests that their presence may be simply underreported.

One *Crataegus* specimen was also recovered from the float samples. The fruit of the hawthorn or white thorn tree, known as a haw, was eaten raw and used to make jellies, jams, and syrups. William Wood (1977[1634]:41) noted that early colonists preferred these haws to tart, wild American cherries. Brickell notes that haws available in North Carolina in 1731 were “considerably larger and longer” than the ones he was used

to, and had a "very agreeable taste" (1731:78). Hawthorn leaves and fruits were also used as an anti-diarrheal (1731:79).

Fruit remains from other plant families in addition to Rosaceae were also recovered. These include seeds from the Adoxaceae family (elderberry), Ericaceae family (blueberries, cranberries and huckleberries), and the Vitaceae family (grapes).

The fruit of the American Elder tree (*Sambucus canadensis*) is known as the elderberry. If the fruit is cooked, dried, or fermented it is safe to eat, but the raw fruit contains emetic alkaloids which induce laxative and cathartic expulsions (Moerman 1989:58-59). The fruit was often boiled in honey to create a medicinal tincture for this purpose (Culpeper 2007[1653]:68). Both the berries and the flowers of the Elder tree could be fermented into wine or used to flavor brandy, the berries were also eaten in jams and jellies, as Thomas Glover did on his visit to America from England in 1676 (Cleland 1755:200; Glover 1676:628; Harrison 1739:189). The leaves of the Elder tree contain antiseptic properties, and were used as a natural form of insecticide to protect crops in colonial gardens against pests (Cutler 1783:431; Hartwell 1982:105-106; Speck 1941:60).

Plant remains from three separate species in the Ericaceae family were recovered in large numbers. Members of the genus *Vaccinium* present in the samples include *Vaccinium* sp. (highbush blueberry) and *Vaccinium macrocarpon* (cranberry). Huckleberries (*Gaylussacia*) were also found. All of these plants are native to North America, and were eaten by Native peoples prior to the arrival of European colonists (Leighton 1976:25). The blueberries and huckleberries present in the sample may have been collected from the wild or grown in backyard gardens. Cranberries require a wetter

environment, and were either picked in the wild or cultivated in bogs. All of these berries were eaten raw, cooked into pies and pastries, dried for winter consumption, made into preserves, and added to puddings during colonial times (Sumner 2004:41,122).

Several seeds from plants in the *Physalis* genus (Cape Gooseberries or Tomatillos) were recovered in the deposits. This genus contains both weedy and intentionally cultivated species which are native to the Americas, and during colonial times they were grown for both their edible fruits and their ornamental presence in gardens. (Coffey 1993:180) The ripe fruits were eaten both raw and cooked in pies, jams, and preserves, although the vast majority of the plant itself, as well as the unripe fruit, was poisonous (Medve and Medve 1990:74-75).

Plant remains identified as grapes (*Vitis*) were also present in small numbers. Grapes are native to Eastern Asia, Europe, the Middle East, and North America. They were available in both wild and domestic varieties, although the three grape seeds present were not complete enough to identify to species, or distinguish between wild and domestic types. Grapes were fermented into wines and other alcoholic beverages, eaten raw, turned into jellies and jams, and dried as raisins for winter months (Leighton 1976:26; Sumner 2004:143).

Garden Crops

Colonial-era vegetable gardens were a staple of the agricultural economy. Even in the urban center, most households had a small plot under cultivation, while more outlying farms grew a wide variety of garden crops for home use, pickling, canning, and trade.

These vegetable gardens were managed by the women of the household, and many planted their crops not only for future use, but with an eye towards what might be sent to the urban market as a surplus (Kulikoff 2000:226-232; Snow 2001:22, 37). Vegetables from four different genera were recovered in the Faneuil Hall samples. These may have been grown by urban settlers in backyard plots, or arrived in Boston through land-based trade routes from outlying farms.

Pumpkin, squash, and gourd are native to North and South America and were staple food crops for many Native populations for thousands of years (Sumner 2004:19-20). They were quickly added to Old World recipes by colonists, and were eaten roasted, made into "standing dishes," and consumed in pies, breads, puddings and stews. Both *Cucurbita maxima* and *Cucurbita pepo* were found in the Faneuil Hall deposits, a finding which may speak to the wide variety of squashes, gourds, and pumpkins that were available to colonists during the colonial period (Leighton 1976:29; Sumner 2004:126-129).

Watermelons (*Citrullus lanatus*) are native to tropical and sub-tropical Africa. It arrived in North America with some of the first African slaves, who also introduced eggplant, yam, and *benne* (sesame) seeds to North America. Watermelons thrived in marginal and sandy soils, and quickly spread along the Atlantic seaboard as a summer crop. As Robert Beverly noted in 1705, naturalized American watermelons were "excellently good…very pleasant to the taste, and also to the eye" (Leighton 1976:29). Watermelons were eaten raw when in season, and the rinds of certain varieties were made into preserves, sweetmeats, and candy (Sumner 2004:132-133).

Green peppers (*Capsicum*) were another cultivar introduced to eastern North America through colonial means. Columbus brought *Capsicum* seeds from the New World tropics back to Europe in the mid-sixteenth century, and from there the genus spread rapidly into Asia, Africa, and North America along with the agents of European colonial powers. Many varieties of peppers were grown on colonial gardens, and they were eaten raw in salads, pickled in brine, and stuffed with cabbage and spices (Leighton 1976:204; Sumner 2004:142).

Tomatoes (*Lycopersicum*) were tentatively identified in the samples. Tomatoes are native to South and Central America, and they may have arrived in Florida with Spanish explorers as early the mid-sixteenth century. From there the plants were dispersed by both human and natural means, and they eventually arrived in Atlantic coastal gardens as a warm weather annual (Sumner 2004:134). Tomatoes did not become a culinary staple in America until the late eighteenth century, primarily because of their physical similarity to poisonous members of the Solanaceae family such as nightshade, belladonna, and henbane. If the remains present in the Faneuil Hall deposits are indeed tomato seeds, they may represent natural seed rain from wild tomato vines and not intentional cultivation for human culinary purposes. Sumner (2004:136) notes that early New Englanders were "most reluctant" to adopt tomatoes, either raw or cooked, into their diets, and often fed their accidental tomato crops to livestock rather than consuming it themselves.

Domestic Cereal Grains

Domesticated cereal grains have been a staple crop for human populations for many thousands of years. Two European domestic cereals were identified in the Faneuil Hall deposits: *Secale* (rye) and *Triticum aestivum* (bread wheat).

Bread wheat (*Triticum aestivum)* was introduced to North America by European settlers, who brought it with them to the New World as a staple crop. Wheat did not transplant easily, however, and during the eighteenth century many farmers did not succeed in growing and harvesting enough wheat to match the supply to which European settlers were accustomed. The wheat that was harvested was a valuable export and was traded for sugar, wine, cotton, tobacco, and indigo in Boston's urban markets (Sumner 2004:48). It was also brought to mills to be made into flour, which was then baked into bread loaves, pies, cakes and pastries by housewives and servants for household consumption. Bread and rolls were also produced commercially, and these were sold fresh to taverns and also directly to urban residents on street corners (Friedmann 1973:193).

Secale (Rye) was also introduced by European settlers, and like wheat, was easily grown in the colder climates of the North Atlantic seaboard. Rye flour, alone or mixed with cornmeal, was used to make "brown bread," a staple of New England diets well into the nineteenth century. These breads could be made in homes without proper ovens, "baked in covered iron frying pans over an open fire," and were a staple grain for poorer colonists who could not always afford wheat flour (Friedmann 1973:195). Rye could also

be distilled into whiskey, as George Washington did at Mount Vernon, or roasted and ground to make a cheap coffee substitute (Sumner 2004:181).

All of the domesticated cereal grains found in the Faneuil Hall deposits (N=7) were recovered as whole, charred grains. Friedmann notes that despite the proliferation of professional bakers, it was customary for Boston families to keep a small supply of grain on hand, to be ground at the mill when flour was needed. As early as the 1650's, Boston had so many grist mills that most households were within half a mile of one, and taking grain to the mill was a daily chore often entrusted to children (Friedmann 1973:192). The grains found in the Faneuil Hall deposits may have fallen into household cooking fires by accident, and then swept out with the trash to be dumped at the wharves; it may also have been stockpiled in one of the numerous warehouses located near the wharves, and burnt in one of the many fires that affected that area in the first half of the eighteenth century (Alterman and Affleck 1999:III.5-13). Neither wheat nor rye grains are common in privy deposits in the northeast although their pollen has been more frequently recorded (Kelso 1998). Landon (2007) suggests that this is because cereals came into households already ground as flour rather than as whole kernels.

Locally Available Nuts

While many trees native to eastern North American produce nuts, not all of these nuts are edible or were in demand by colonists. Plant remains from the Betulaceae (Birch), Fagaceae (Beech) and Juglandaceae (Walnut) families were among the nuts recovered from the Faneuil Hall deposits. Other nuts found in the Faneuil Hall deposits, such as English walnuts (*Juglans regia*) and coconut (*Cocos nucifera*), were probably

imported into the North American colonies and are discussed as exotic imports along with figs and olives.

Thirty hazelnuts (or Filbert nut) were recovered from the Faneuil Hall deposits. John Josselyn wrote of hazel trees growing wild in New England when he visited in 1672, but as Brickell noted, the American Hazel tree produced a nut with a much thicker shell than European varieties (Brickell 1731:80; Leighton 1976:63). European hazelnuts were thus imported into the colonies as luxury items; a writer to the Royal Society listed 1700 barrels imported from England from 1694-1695, and two barrels from Spain. But as Sumner (2004:149) notes, wild nuts were readily available, and cooks most often used what was on hand. Nuts were served on tables at the end of a proper meal, but they were also added to baked goods and used as a thickener for soups and stews (Leighton 1976:236). Hazelnuts were eaten both raw and cooked, and may have been pressed for oil (Sumner 2004:150).

One fragment of a nutshell from the genus *Castanea* (Chestnut) was recovered. Chestnut trees were native to North America, and John Josselyn recorded seeing many wild chestnut trees when he visited New England in 1672 (Leighton 1976:63; Sumner 2004:152). Chestnuts were a cash crop for many rural farmers; they were gathered from the wild and preserved for both family use and market sales. The nuts were stored both dried and pickled with spices, and were often eaten by roasting over an open fire (Sumner 2004:150).

Twenty-five whole and partial nuts hickory (*Carya*) nuts were also recovered from the deposits. The shagbark hickory (*Carya ovata*) is native to New England, and the

nuts of these trees were often gathered by children from the wild as a rural food source (Sumner 2004:151). The inner bark of these hickory trees also yielded a yellow dye that could be used for dying wools and linens, and the nuts were sometimes pressed to make a versatile oil (Salmon 1746:619; Sumner 2004:152).

Herbs and Medicinal Plants

Herbs, spices, and medicinal plants were a vital component of colonial diets. Many herbs and spices were grown in kitchen gardens and used for flavoring, pickling, and preserving; others, such as black pepper, cloves, and cinnamon were imported to the Americas via global trading networks that stretched from the Far East to the Atlantic coastline (Sumner 2004:25). Many of these herbs and condiments were also used as for medicinal purposes; in an age where medical professionals were scarce and often untrained, the use of herbal medicines was a common and accepted practice. Numerous herbals and compendiums existed to guide rural colonists in the use of medical plants common in Europe, and to this store of gathered knowledge colonists added the numerous herbal cures known to the Native populations of the Americas.

Fourteen taxa of plants which were predominantly used as culinary herbs and medicinal cures were recovered from the Faneuil hall deposits. It should be noted that the seeds of these plants, not the leaves or flowers (the parts most commonly used in many herbal remedies) were recovered. Moreover, many of the taxa such as *Chenopodium (*goosefoot*)*, *Portulaca* (purslane), and *Rumex* (sorrel) are weedy plants that grow easily in disturbed habitats such as those around Faneuil Hall. Many of these plants were gathered wild, although plants such as coriander, mustard and mint were often grown in

kitchen gardens. As Leighton (1976:197) notes, “the day of the ‘herb garden’ had not yet arrived,” and these plants were often sown in between rows of vegetable produce in colonial gardens.

Three *Coriandrum* seeds were recovered from Faneuil Hall. Coriander was one of the first herbs brought to America by European colonists, and it was easily cultivated in the temperate New England climate (Brickell 1731:20). John Josselyn listed coriander among such herbs as dill and sorrel as "Garden Herbs as do thrive here," suggesting that it was being cultivated for home use as early as 1670 (Leighton 1970:283; Sumner 2004:34). It was an ingredient in wheat-flour based “seed cakes” and added to vinegar-based pickling recipes to enhance the flavor of pickled vegetables. The Puritans also used coriander, caraway and anise seeds as “meeting seeds," chewing them during long church services to stay awake and suppress hunger (Sumner 2004:199). Coriander seeds have been recovered in Boston from a late seventeenth century archaeological privy associated with the Naylor family (Dudek et al. 1998:66) as well as from infilling activities at Mill Creek (Patalano 2007:44).

Mint (*Mentha*), mustard (*Brassica*) and purslane (*Portulaca*) were culinary herbs that were also cultivated in kitchen gardens, and all of which have been recovered in previous archaeological investigations within Boston's urban center (Dudek et al. 1998:66; Kelso 1998:52-53; Patalano 2007:44). The greens of all three plants were added to fresh salads, and used for flavoring dishes. One *Mentha* seed was recovered, as well as one seed that could only be identified to the Lamiaceae (Mint) family, which includes herbs such as marjoram, sage, rosemary, and thyme. These plants were valued for both culinary and medicinal purposes. Mint was a traditional remedy for coughs and colds and

helped to relieve congestion. It was used as a diuretic, and as a way for women to regulate their menstrual cycles. Pennyroyal (*Mentha* sp.) was used as a abortifacient in the case of unwanted pregnancy (Culpeper 2007 [1653]:38]; Sumner 2004:236).

In addition to the strong-flavored mustard greens eaten in salads, mustard seeds were a common ingredient in colonial recipes. The seeds were used both whole and ground, and "table mustard" was prepared by combining the ground seeds with boiled water or milk (Sumner 2004:200). Black mustard (*Brassica nigra*) is also the source of mustard oils and was used by colonial Americans in external antibiotic and anti-inflammatory poultices.

Purslane or Purslain (*Portulaca*) was noted by Culpeper as to be "so well known that is needs no description"; it was a common salad herb in colonial times and was both cultivated in kitchen gardens and gathered wild (Culpeper 1652:146). John Winthrop ordered an ounce of "pursland" seeds from England almost immediately after his arrival in America in 1631, and by the time of John Josselyn's visit to New England in 1672 the herb had escaped colonial gardens and was growing wild in the countryside (Sumner 2004:34). The seeds were "bruised and boiled in wine" and given to children as a vermifuge; tea made with purslane leaves was a remedy for nausea and congestion (Culpeper 1652:61). English colonists valued it as an easily cultivated substitute for spinach, and consumed it in both "spinach tarts" and "sallats" made with purslane, cucumbers, and edible flowers (Sumner 2004:72).

Goosefoot or wormseed (*Chenopodium*) was a useful cure for the intestinal parasites that plagued colonial settlers, as well as a salad green. Goosefoot seeds were eaten whole or powdered, and also made into an oil that could be added to teas and

tinctures. Goosefoot was a common weed that was equally available to all social classes. It was regarded as a panacea for the continual problem of roundworms and tapeworms, although the effective dose is dangerously close to the toxic dose and occasional fatalities did occur (Narva 1995; Sumner 2004:250-251).

Many seeds from the Polygonaceae (Dock, sorrel or snakeweed) family were recovered, with most seeds identified to either *Rumex* or *Polygonum*. While many members of the Polygonaceae family are common weeds which often colonize disturbed urban environments, the young shoots of plants in the *Polygonum* genus were edible and were often boiled, while the seeds could be ground into a substitute flour (Coffery 1993:56; Cox 1985:246). Other members of the *Polygonum* genus were used for their astringent and diuretic properties, and Cutler notes that the plant produces a yellow dye when applied to wool (Cutler 1783:440). Members of the *Rumex* genus were boiled to make a tea which treated liver problems, jaundice, dysentery and irregular menstruation (Cutler 1783:436; Speck 1941:56-57).

One seed tentatively identified to the opium poppy family (Papaveraceae) was recovered from the Faneuil Hall deposits. Poppy seeds also traveled to New England with European colonists, and were used for flavoring and baked in breads and comfits. The poppy plant contains a complex mixture of twenty-six alkaloids, and is the source of many modern analgesics such as morphine. Poppy leaves and capsules were boiled with sugar and water to make a sleep-inducing infusion, although the addictive properties of the plant were well-known and continual use was strongly discouraged (Sumner 2004:34). Botanical remains identified to the *Papaver* genus were also recovered from early eighteenth-century contexts at Mill Creek (Patalano 2007:44).

Many botanical remains were also recovered from genera which had no culinary uses in the colonial period, but were utilized solely for their medicinal properties. These plants were predominantly gathered from the wild during the colonial period, although many were not originally native to the Americas.

St. John's Wort (*Hypericum*) was introduced from Europe to America in the seventeenth century and quickly became naturalized in New England (Sumner 2000:73). Plants in the *Hypericum* genus are secondary successional plants, quick to colonized disturbed land and urban house lots. St. John's Wort was used to treat ulcers, burns, severe pain, open wounds, sciatica and "melancholy and madness," and was also used as a vermifuge (Sumner 2000:73).

Cinquefoils (*Potentilla)* are native to North America, although some European varietals were later naturalized. Cinquefoils were recommended for a wide variety of ailments such as poisoning, toothaches, "agues," ulcers, "ruptures," "bloody flux," and disease of the liver and lungs (Gérard 1975 [1633]:754). Culpeper recommended all varieties of cinquefoil as being generally useful for the above ailments, but also notes that a "wise man [must] have the handling of it;" without an experienced herbalist's aid in preparing it, even "a cartload" will have no effect on the patient (Culpeper 1652:241-242). Cinquefoils were sometimes used as a local, inexpensive substitute for imported *cinchona* bark, also a treatment for agues and fevers (Sumner 2004:247).

Nightshade (*Solanum nigrum*) and Jimsonweed (*Datura stramonium*), both members of the Solanaceae family, were also present in the assemblage. Nightshade is a weedy plant which often colonizes disturbed land. Some species contain the alkaloid solanine, a powerful poison with sedative and anticonvulsant properties. Levels of

solanine vary in different species of plants within the Nightshade family, and repeated exposure to the alkaloid can raise the user's immunity level, although high levels of solanine are always fatal (Sumner 2000:44-45, 72). It was growing wild in New England by 1672, and Lawton noted that "several kinds" of nightshades grew in North Carolina by 1709 (Leighton 1976:63; Sumner 2004:26). It was prepared as a tea by Native peoples to treat insomnia, and colonial uses included external poultices of the plant for shingles, ringworm, and ulcers, as well as a tincture which was mixed with vinegar and used as a medicinal mouthwash (Culpeper 1652:128). Nightshade has been recovered from several eighteenth century privy contexts in the New England area (Dudek et al. 1998:66; Reinhard et al. 1986).

Jimsonweed, or Jamestown Weed, contains several hallucinogenic tropane alkaloids, and is potentially poisonous if a large enough dose of the plant is ingested. The plant gained its common name from an incident which occurred in Jamestown, Virginia during Bacon's Rebellion, when hungry soldiers consumed the plant and then hallucinated for eleven days (Sumner 2000:96). It was used in small doses as a cure for asthma and alcoholism during colonial times (Sumner 2004:263).

One *Verbena* seed was also recovered. Plants in the Verbenaceae family are often referred to as vervain or hyssop, and Culpeper notes that it commonly grew in "the hedges and waysides" in England (1652:187). Some members of the vervain family are cultivated as ornamental garden plants, but others were used for "strengthening the womb," as well as for the treatment of jaundice, dropsy, and gout. Vervain was prepared in solutions of honey, rose oil, vinegar or "hog's grease," and could also be used as a vermifuge (Culpeper 1652:188). It was naturalized in America by 1737, when Brickell

recorded it growing "very large" in the roads and fields of North Carolina (Leighton 1976:20).

Exotic Imports

In addition to locally available plants, the landfill deposits at Faneuil Hall contained several types of nuts and seeds that would have been imported to Boston during the colonial era. These remains were considered to form their own distinct class of artifacts, and are summarized below.

Many *Ficus* (fig) seeds were recovered from the Faneuil Hall deposits. Figs have been cultivated by humans for over 4,000 years, and are among the oldest known plant domesticates in the world (Taylor 1959:36). Figs were brought to mainland America by Spanish colonists by 1520, and Thomas Glover recorded a few fig trees growing in Virginia as early as 1676. Bricknell writes of fig trees growing wild in North Carolina by 1731, but they could only bear fruit in the temperate climates of the mid-Atlantic states and farther south. Leighton notes that fruit-baring *Ficus* trees were a "source of seasonal correspondence and envy" in colonial times, with many botanists like James Winthrop attempting to grow them in New England only to find that they "put out leaves, and little else" (Leighton 1976:224, 419).

Despite the interest in growing and producing a viable American fig crop, the majority of figs available commercially during colonial times were imported to Boston via European shipping channels and arrived on the Atlantic seaboard already dried for sale. Figs were a popular food in colonial times because they soothed the symptoms of

intestinal parasite infection; they were eaten raw (when available), dried, cooked in pastries, made into preserves, and also used as a sweetener in the absence of sugar (Leighton 1976:31).

Three pits from olive fruits (*Olea europea*) were recovered in the deposit. Olives are among the oldest domesticated fruits in the world, and were originally native to the Mediterranean and North Africa. Olives were eaten as condiments as part of genteel meals, but they are also the source of olive oil, usually referred to as "sweet oil" or "Florence oil" in historical sources. While animal fat was a far cheaper and easier substitute for most cooks in colonial America, olive oil was also imported to America for use in cooking. *The Cooks and Confectioner's Dictionary* (1723) lists many uses and recipes for both olives and olive oil, and would have been available in America in the early eighteenth century. Thomas Jefferson planted olive cuttings at Monticello in 1774 and olive trees had been successfully grown in South Carolina by 1775, but yields were uniformly poor (Leighton 1976:143; Sumner 2004:228). During the first half of the eighteenth century, when the Faneuil Hall deposits were created, these olives would have arrived in Boston through trans-Atlantic trade routes and been available for sale from colonial merchants. Olives have been found in several previous archaeological investigations within the urban center of Boston (Dudek et al. 1998:66; Heck and Balicki 1998:30; Pipes 1999:IX.19).

Three pieces of an English walnut or 'Madeira Nut' (*Juglans regia*) were also recovered. Although northeastern North America had many native black walnut trees (*Juglans nigra*), the nuts produced from these trees were smaller, harder to crack, and

inferior in taste to the English walnuts that colonists were used to. English walnut trees were among the first trees introduced by colonists in Massachusetts, but most of the trees did not survive. Unlike many botanical commodities, however, walnuts had a long shelf life, making them easy to transport across sea-based trans-Atlantic trade routes. Walnuts were a popular snack and addition to fruit pies and pastries, and were eaten at the end of meals along with fruits and other nuts. In the second half of the eighteenth century they were often served with Madeira port, acquiring the nickname 'Madeira nuts' (Hancock 1998; Sumner 2004:150).

Finally, one medium-sized fragment of a coconut shell (*Cocos nucifera*) was recovered from the landfill deposit at Faneuil Hall. The coconut palm is native to tropical regions of the world and may have originated in the western Pacific. Coconuts were a valuable resource in tropical climates; they contained both an edible fruit and a milky syrup that could be drunk where fresh water was scarce. The fibrous outside husk was used to make mats, rope and brushes (Sumner 2004:160). The shell itself could also be used to fashion decorative items; John Hancock owned an exotic "Silver-mounted Coconut Drinking cup," that was probably not used for daily consumption (Sumner 2004:159). Coconuts arrived in the Atlantic New World as curiosities, but by the nineteenth century coconut flesh was used to flavor ice creams, puddings, custards, and cakes (Sumner 2004:160). The specimen recovered at Faneuil Hall may have been eaten by a Boston resident as an exotic delicacy; it may also represent discard waste from a craftsman working near the wharves.

Natural Seed Rain

Archaeological sites exist within the context of a changing botanical landscape. Archaeological sites, especially open-air sites, are exposed to the environment and thus accumulate a spectrum of botanical remains which may arrive at the site accidentally. These botanical remains may be "tracked in" by humans or animals, or arrive at the site as part of the natural process of aoelian or aquatic seed dispersal. They may also be deposited within the site in the form of animal feces which may have been dumped in the landfill or used for fuel (cf. Miller and Smart 1984).

Of the 1798 remains, 27% (N=492) were categorized as natural seed rain. These plant remains are summarized below (Table 3).

Table 3: Natural Seed Rain Taxa

Family	Binomial	Common Name	Habitat	Native/ Introduced	Count
Asteraceae	*Ambrosia artemisiifolia L.*	Ragweed	Non-Wetland	Native	3
Asteraceae	*n/a*	Asters	Non-Wetland	Both	4
Caryophyllaceae	*Stellaria sp.*	Catch-fly	Non-Wetland	Introduced	8
Cyperaceae	*Cyperus* sp.	Sedge	Wetland	Native	71
Cyperaceae	*Scirpus* sp.	Bulrush	Wetland	Native	175
Cyperaceae	*Eleocharis-type*	Sedge	Wetland	Native	10
Cyperaceae	*Carex* sp.	Sedge	Wetland	Native	14
Euphorbiaceae	*Euphorbia* sp.	Spurge	Non-Wetland	Both	4
Euphorbiaceae	*Acalypha virginica L.*	Virginia Copperleaf	Non-Wetland	Native	4
Fabaceae	*n/a*	Bean Family	Non-Wetland	Native	3
Fabaceae	*Trifolium*	Red Clover	Both	Both	2
Hydrocharitaceae	*Najas* sp.	Waternymph	Aquatic	Both	1
Molluginaceae	*Mollugo* sp.	Carpetweed	Non-Wetland	Native	2
Oxalidaceae	*Oxalis stricta L.*	Yellow Woodsorrel	Non-Wetland	Introduced	1
Poaceae	*n/a*	Grasses	Both	Both	48
Poaceae	*Panicum* sp.	Panic grass	Non-Wetland	Native	16
Polygalaceae	*Polygala* sp.	Snakeroot	Wetland	Native	5
Ranunculaceae	*Ranunculus* sp.	Buttercup	Wetland	Native	121

Source: *United States Department of Agriculture PLANTS Database, accessed online 2011*

These plant remains comprise a wide variety of both native and introduced species. In many cases, the botanical remains could only be identified to genus, and it is unknown whether the particular specimen represents a native or introduced species from that genus. The seeds recovered from the samples are a mix of weedy terrestrial plants

such as ragweed, catch-fly and copperleaf and wetland taxa represented by the variety of sedges. Many of the plant remains recovered are representative of the botanical process of secondary succession, in which cleared or disturbed land is colonized by small grasses, shrubs, and low-growing plants which reproduce through aoelian dispersion. These plants are often biologically resilient to changing environmental conditions. Other plant remains, such as the sedges and rushes of the Cyperaceae family, are representative of wetland conditions present in colonial Boston. The greater Boston area is a broad, partially submerged lowland, and the Shawmut peninsula is a natural wetland. The area near the docks and wharves of Town Dock would have been the natural habitat of multiple wetland plants which grew in the moist soils of Boston's network of estuarine coves and inlets.

CHAPTER V

DISCUSSION

The 1798 plant remains recovered from Faneuil Hall speak to the many uses of botanical products in the Colonial era. Although the precise nature of their deposition cannot be determined, their presence in Faneuil Hall's community midden provides evidence of the rich and varied networks through which Boston residents procured their foods and medicines. Rural farmers and urban residents garnered their foods from a variety of sources, participating in small-scale market economies while also tending subsistence gardens and purchasing imported items from local merchants. While the overall assemblage reflects the primacy of agricultural trade connections between rural producers and urban consumers, it also reflects the importance of both wild and imported plants in the colonial diet.

Agriculture and Commerce in Colonial Massachusetts

The history of colonial Massachusetts is often depicted in idyllic agrarian terms (Landon 1996:12). The image of the self-sufficient New England farmer is an enduring one, persisting in the cultural consciousness and often emphasized in local 'living history' museums. Small, local farms were indeed the backbone of the New England agricultural economy; they produced the grain, meat, butter, cheese, vegetables and fruits

that Boston's urban residents consumed, and many of the agricultural products recovered from the Faneuil Hall deposits were almost certainly grown on these small farms. What is often overlooked is the complex relationships that these farmers maintained with local, regional and global economies. The historical illusion of self-sufficiency among New England farmers tends to hide complex community relationships of barter, credit and trade which often acted as both a buffer against undue economic risk and a much needed source of credit and currency (Kulikoff 2000:204). Examining these small farms within a broader economic framework helps to both contextualize Boston's place in the New England economy, and to illuminate wider patterns of trans-Atlantic trade and commerce in the colonial period. It also forms a point of entry into the complex procurement system which operated in and around Boston's urban center, eventually culminating in the historical refuse deposits recovered from Faneuil Hall.

In the aftermath of King Phillip's War in 1676, land had become easy to obtain for newly-arriving European settlers. While land conflicts often characterized Native-European interactions during the seventeenth century, by the early eighteenth century many of the Native peoples living in New England had been decimated by disease, war and genocide. Faced with the choice between living on reservations in the English way or giving up their lands entirely, many Native populations moved west to take refuge with allies, traveling to areas such as the Great Lakes that were still sparsely settled by Europeans. Other native groups, such as the Pequot, the Nipmuc, and the Wampanoags remained in New England, utilizing varied strategies of community resistance to attempt

to retain ancestral lands, often with little success (Law 2008; Silliman 2005a; Silverman 2003).

Lands which were forcibly taken from Native populations of the Northeast were often quickly resettled by English colonists. Between 80 and 90 percent of Massachusetts Bay Colonists lived on farms which produced a diversified crop yield aimed towards subsistence farming. Farms were operated by family units, sometimes with the help of indentured servants, slaves, and day laborers, and were passed down through familial ties.

The fluidity of labor exchange during this period often strengthened connections between neighboring farmers. In her work on seasonality and subsistence in rural New England, Bowen (1990) has examined the webs of exchange relationships present among rural New England farmers, and the complex interconnectedness that characterized their daily existence. Farms were often disparate in terms of size and wealth; community relationships of exchange developed as a result, in which larger and more prosperous farmers would lend surplus to their less-wealthy neighbors in exchange for goods and labor. Despite an economic standard of diversifying risk, small farms were often only sustainable within the wider network of community bartering and labor exchange practices which allowed for a safety net in times of economic crisis, such as the twenty-four year period when the Faneuil Hall deposits were created (Kulikoff 2000:204; Landon 1996:14).

Many of these larger farms may have tailored their production more specifically to the market, focusing on export commodities such as wheat, beef, and pork (Landon 1996:13). For small farmers, however, the lack of a stable cash-based economy meant

that tailoring production to a rapidly changing market was unwise. A single-commodity farm would almost certainly fail without a large economic buffer to absorb the loss of a harvest, or a drop in the value of the commodity, or a rapid spike in currency inflation (Kulikoff 2000:203). These cash-poor farms focused on diversified farming practices, producing their own vegetables, butter, milk, cheese, meat and grain first, before selling off any additional surplus for cash or credit with local merchants.

The marketing cycle for rural farmers began with local merchants, who would extend credit to farmers in exchange for future agricultural goods (Snow 2001:38). These local merchants were themselves dependent on credit supplied by wealthier merchants in major urban seaports such as Boston, New York and London. When the harvest was ready, merchants would be paid what they were owed for the season's purchases. Surplus produce would be sold directly to consumers, or traded back to local merchants in exchange for future credit.

While the value of goods received and services performed was generally recorded in British pounds sterling, these complex networks of credit allowed for a commercial barter economy in which very little currency actually changed hands. While the sale of livestock brought in additional income, most medium-sized homesteads averaged "two or three swine or cattle," not enough for a continual flow of livestock to Boston's butchers (Landon 1996:13). Surplus commodities produced by the women of the family—pickled and fresh vegetables, jams, jellies, cheese, eggs and butter—were often the only source of cash for a small farm which paid creditors, merchants, and Massachusetts state taxes in grain (Friedmann 1973:190; Snow 2001:37). Farmwives were astute producers for the

market, managing their resources in order to both feed their families and produce agricultural commodities that could be sold in urban centers like Boston. These women were colonial New England's "invisible farmers," largely absent from the documentary record but responsible for much of the flow of credit and currency which reached small rural farms (Snow 2001:22).

These interconnected economic systems of credit, trade, barter, market sales and agricultural production formed the hidden backbone for Boston's participation in the shipping industry, and contributed to the early establishment of Boston's economic presence among the seaports of the Atlantic coast. Trans-Atlantic trading vessels and fishing boats had to be provisioned from city markets before leaving for long journeys; one vessel heading for the West Indies listed "3 barrels flour, 1,100 pounds of bread, 4 bushels of beans, 3 bushels of cornmeal, 4 bushels of turnips, 2 bushels of potatoes and 16 bushels of corn," among the stocks for the journey (Russell 1976:60-61). Boston's shipbuilding industry was almost entirely dependent on local agricultural resources to construct, outfit, and stock vessels for trans-Atlantic journeys. It was also dependent on networks of credit which provided the initial outlay for the construction of new vessels and the maintenance of old ones.

Overall, this system of borrowing and lending and credit sustained local trade, mitigated the impact of recessions and crop failure, and helped to reduce the impact of 'feast and famine' periods associated with seasonal cycles of agricultural production as well as war, recession, and inflation (Kulikoff 2000:220; Nash 1979:82-83). It also connected farmers with trans-Atlantic networks of commerce at multiple levels: through

the physical sale of surplus agricultural produce destined for global markets, and through their access to lines of mercantile credit which ultimately originated in London. Despite their rural physical location, farm families were active participants in a complex trans-Atlantic economic system which treated agricultural goods as both a physical commodity and as a proxy for access to credit and capital.

A Market Society, or a Society of Markets?

The complex connections which linked rural farmers to urban households and markets form an essential core of agrarian history (Kullikoff 2000:204). Boston's urban markets, such as the one later constructed at Faneuil Hall, were the vital link which connected rural farmers to wider global networks of trade and commerce; they were also an important outgrowth of the processes of urbanization taking place within the city itself. By 1690, the Shawmut Peninsula had been deforested (Landon 1996:10). While herb and vegetable gardens were nearly ubiquitous, and many households kept small numbers of goats, cows, and pigs, Boston's small farmers became unable to provide for themselves agriculturally as the population density rapidly increased (Benes 1995:40; Henretta 1965:451). From 1690 to 1740, the population of the urban center more than doubled, specialization in non-agricultural professions increased dramatically, and most of the small farms disappeared (Landon 1996:10). Urban Bostonians had to rely on land- and sea-based trade networks which supplied the city with flour, milk, butter, cheese, tobacco, imported luxury goods, and wild and domestic plants, as well as the broader classes of material goods necessary for daily life. These goods were largely available in

Boston's urban markets, as well as in warehouses and shops belonging to Boston's many merchants.

But as Kulikoff (2000:205) notes, a theoretical distinction must be retained between "the market" as a physical presence in urban landscapes, and the economic concept of "the market" as it relates to a commodity-based historical market economy. Commodity-based markets are economic structures based on fluctuating values of supply and demand, and whose influence extends over multiple scales of economic activity in determining prices (and profits) related to the sale of traded goods. While these heavily commercial market societies were active in southern areas of the Atlantic seaboard such as the Carolinas from the early seventeenth century on, colonial New England is perhaps better understood as a "society of markets" (Kulikoff 2000:205-206; Snow 2001:38). A true "market society" would be one in which economic demand drove agricultural production to the exclusion of all else, a model which New England farmers rejected in favor of diversified crop production and subsistence farming. Snow (2001:38) notes that one of the definitive characteristics of a 'society of markets' is the way in which "commercial exchanges in the countryside…benefitted not only the individual, but the community." While Snow is referring primarily to rural agricultural economies, her analogy may be extended to the whole of Boston's complex trade networks. While individual merchants and farmers may certainly have benefitted in the short term, the "society of markets" present in Boston during the colonial period amounted to a self-sustaining agricultural and economic system in which farmers, merchants, and urban

residents “participated in markets without being dominated by them” (Kulikoff 2000:206).

While the botanical signature of a single-commodity export market system would not necessarily be represented in the daily refuse of an urban center, the taxonomic range of both the 2010 and the 1990 Faneuil Hall excavations (70 combined distinct taxa, including 45 types of edible or economically useful plants) seems to reflect a diversified crop production strategy among those farmers and merchants who helped to supply Boston's urban markets (Pipes 1999:IX.19). It also adds clarity to the often partial and incomplete documentary record which exists detailing the produce of such farms; many extant letters were not intended for posterity, and often list only the problems encountered with raising a specific crop, or, less frequently, a great success in selling a particular item (Brickell 1731:20, 77-80; Colonial Dames of America 1995:1-2, 56; Leighton 1976:20, 23-25, 143, 224, 419; Sumner 2004: 228). The presence of these plants in the Faneuil Hall deposits speaks to the range of produce which arrived in Boston and which was consumed by Boston residents, and indirectly confirms the historical record which details most, if not all of these plants being grown by eighteenth century New England farmers.

Urban Marketing in Eighteenth Century Boston

When viewed as a whole, the food provisioning and production system that supplied Boston’s urban markets often appears as a “mosaic of transactions” (Friedmann 1973:204), encompassing not only the economic participation of regional farmers but also that of local Boston residents. These continual small-scale transactions kept Boston’s

urban populations supplied with the foods they were accustomed to, and which they considered necessary for day-to-day existence. The staple diet of colonial New Englanders was heavily dependent on 'single dish' meals such as pottage and vegetable and meat stews, often served with bread, pudding, or cakes (Cheek and Balicki 2000:261). Other basic dishes followed this single-dish model; porridges, gruels, and hasty pudding were all grain or stock-based main dishes which could accommodate almost any additive, from meat and fish to vegetables and herbs. Traditional New England "Johnny Cakes" were cornmeal cakes either cooked in an oven or deep-fried in animal fats, and provided a starchy compliment to soups and stews. Fruits, vegetables and domestic and imported nuts were inexpensive staples of the colonial diet, along with dairy products such as cheese, butter and milk. Even in urban centers such as Boston, most households cultivated kitchen gardens to supply their own produce, often supplementing these fruits and vegetables with purchased crops or gathered botanical resources when household demand exceeded available supply.

Anonymous editorials published in the *New England Weekly Journal* and the *Boston News-Letter* in 1728 provide primary source documentation of the 'lowest-common denominator' of acceptable foodways in colonial Boston. For a frugal middle-class family, breakfast and supper would consist of bread soaked in milk, while dinner would be a simple meal of "Meat, Roots, Salt, Vinegar," with beer (Bridenbaugh 1938:803). A second respondent to this editorial argued that pottages and puddings, herbs, "Cabbage or Roots," pepper, pickles, butter, cheese, cider, sugar and molasses were also necessary for even those Boston residents who belonged to the lower middle

class (1938:806). A third respondent noted the importance of fruit in the colonial diet, especially as treats for children; he felt that a proper dinner must also include raisins, currants, "cramberries," apples, eggs and suet (Bridenbaugh 1938:809). All of these respondents noted that these meals were "[by] no means designed for families of the lower rank, or of daily laborers, which may be expected to live somewhat lower…but for families of a middling figure, who bare the character of being genteel" (Bridenbaugh 1938:809). Diet in colonial Boston, as in other urban centers, was responsive to class-based economic distinctions which restricted access to certain foods for some residents and allowed for the consumption of imported luxury goods for others.

While many of these foods were available in the centralized market area near the Town Dock, others were sold by street peddlers and door-to-door salespeople, prompting Benjamin Colman to publish a pamphlet in 1719 which complained about both the frustrations of trying to find specific produce and the "debasement" of the street peddlers who stood on corners calling out their wares (Friedmann 1976:202). While Mr. Colman may have had distinct political reasons for criticizing the unregulated sale of market commodities, his words do shed light on the common marketing practices of the times. These street peddlers and door-to-door salespeople were often farm wives selling country butter, cheese, and surplus farm and garden produce to urban residents, although this practice was banned by colonial authorities for brief periods from 1710-1742 in response to the rise and fall of public sentiment regarding regulation of the public market (Friedmann 1976:198, 200; Nash 1979: 130-132). Even after Faneuil Hall was constructed in 1742, many sellers simply ignored the restrictions on selling market

produce directly to the consumer, preferring to set up their carts, stands, benches and baskets outside the building rather than submit to official regulations. In 1764 a Massachusetts law was passed imposing fines on these independent entrepreneurs, but it is uncertain how stringently it was enforced (Friedmann 1976:204).

Botanical commodities were also available from several professional nurserymen and women who owned commercial gardens within the city of Boston. Benes (1995:40) lists twelve professional gardeners and seed importers active in Boston from 1720 to 1740, many of whom operated both a professional shop in the commercial section of town and an associated garden in one of Boston's three horticultural districts. Many of these gardens advertised hot beds, glazed frames and other accoutrements which ensured the quality of their produce to the consumer. Some gardeners, such as Evan Davies, sold plants to consumers for transplantation in their own gardens; an advertisement he placed in the Boston Gazette in 1719 informed any interested Boston residents that he had many "roots, layered plants, and berry bushes" for sale near the Powder House. Other gardeners operated on a more direct commercial model; currents, cherries, gooseberries, grapes and other "pie fillings and garden berries" were often so in demand during the summer months that gardeners such as James Dean literally sold admission tickets to their gardens. Mr. Dean, who owned a garden on Cambridge Street in the 1730's, would allow Boston residents to enter his garden and pick their fill of his berries for eight pence per person, although he placed limits on how many berries could be carried away for home consumption (Benes 1995:43).

City gardens were also occasionally a source of medicinal plants. In the early 1720's Doctor Zabdiel Boylston stocked his apothecary shop in Dock Square with the plants he grew in Cole's Garden, noting that in addition to medicinal cures he grew "a great number of Gooseberry and Currant Bushes, a very large Asparagus bed, Fruit trees of various sorts and sundry other Plants & Roots of value to a gardener" (Benes 1995:38). While many plants used for medicinal cures were gathered in the wild, certain domesticated herbs, most notably those introduced from Europe, were easily grown in backyard gardens and were available to the urban consumer through multiple avenues.

This documentary research suggests that many of the plants found in the Faneuil Hall deposits could also have come from agricultural businesses within the city center, as well as home gardens. The blueberries, raspberries, strawberries, cherries and grapes found in the deposit may have originally been grown in commercial gardens like the ones belonging to Evan Davies and James Dean. Medicinal plants such as mint, nightshade, vervain, St. Johns wort, poppy and cinquefoil could have come from Dr. Zabdiel Boylston's garden, as well as peaches and plums ("Fruit trees of various sorts") and garden crops such as watermelon, pumpkins, and green peppers (Benes 1995:38).

The Importance of "Wild" Plants in Colonial Diets

A third avenue for possible incorporation into the Faneuil Hall deposits is that of "wild" or "semi-wild" plants which could have been gathered from disturbed urban contexts within the urban center of Boston. Many of the plant remains recovered from Faneuil Hall may be considered "wild" plants in the sense that they are non-domesticates. Recent scholarship in the field of paleoethnobotany, however, has highlighted many of

the problems inherent in using terms such as "wild" or "semicultivated," to describe plants which are utilized by human populations for their nutritional or medicinal values, but which are cultivated outside of gardens and farms. Etkin (1994:2) notes that the use of such terms "implies a peripheral role in diet, as well as similar nutrient composition," and has a tendency to relegate these plants to marginal status in the literature. Part of the problem lies within the common conflation of different botanical models by archaeologists; determining if a plant is "wild" or "domesticated" involves examining a plant's genetic characteristics, while terms such as "gathered" "cultivated" and "tended" refer to a continuum of interactions between plants and people (Ford 1985:1-7). Any and all of these categories may exist simultaneously, further complicating the issue for archaeologists.

The plant remains recovered from Faneuil Hall include both "wild" and "domestic" taxa, although these terms should be understood as general descriptives and not as commentary on specific historic growing conditions or genetic markers (Figure 9).

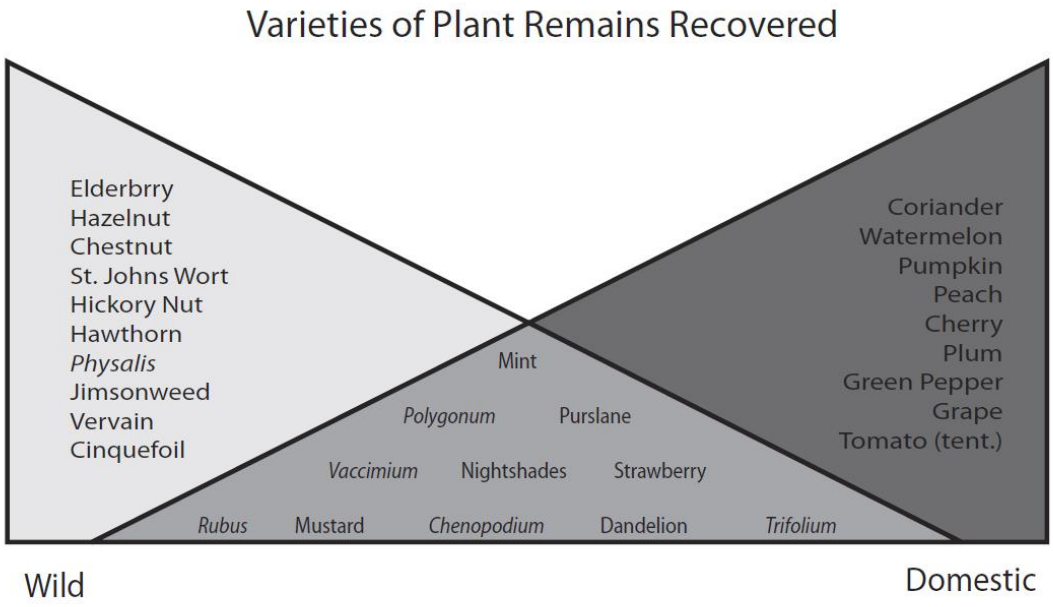

Figure 9: The continuum of "wild" and "domestic" plant remains recovered from Faneuil Hall.

Many of the plants recovered from Faneuil Hall were gathered from both wild and cultivated contexts. Fragile berries, such as strawberries and raspberries, travelled poorly to markets; urban residents may have acquired them from their own backyard gardens, or through local gardeners within the urban center of Boston (Benes 1995:50). Rural farmers, however, gathered many of these berries in the wild for home use, possibly tending particularly rich patches to ensure future crop yields (Ford 1985:4). Sturdier wild crops, such as the hickory nuts, hazelnuts, and chestnuts recovered from the deposits, may have been gathered from the wild in rural contexts and then brought to Boston to be sold.

Off-site gathering was not the only way of acquiring the non-domesticates recovered from the Faneuil Hall deposits. Wild greens such as mustard, dandelion and

purslane were often intentionally sown to provide ease of access and to enrich colonial diets; John Parkinson noted in the seventeenth century that purslane was sown in the "waies and allies"[sic] between houses, and in the garden beds of "cowcumbers, melons and pompions" (Leighton 1970:371-372; Kelso 2000:2 Sumner 2004:72). Dandelion roots were brewed into tea and coffee substitutes when imported coffee beans and tea leaves were too expensive for every-day consumption. The petals of dandelion flowers can be easily fermented into an inexpensive alcoholic drink, and the entire plant was often eaten raw in salads (Sumner 2004:26, 181). Mints, wild mustards, and nightshades colonized urban gardens next to deliberately planted species, and it is doubtful that eighteenth-century residents of Boston spent much time pondering whether these useful plants which had sprung up in their garden plots were "wild." Romani (1995:33) notes that red clover (*Trifolium*) was deliberately introduced by European colonists such as William Pynchon in the early seventeenth century as a more nutritious fodder for grazing livestock, but by the early eighteenth century most colonists considered it to be a natural part of the New England landscape.

Examining the spectrum of human-plant interactions within urban colonial settings highlights the value of gathered and encouraged weedy plants in the colonial diet. Twenty-one of the forty-three economically valuable taxa recovered from the Faneuil Hall deposits could have come from "wild" sources, a not insignificant portion of the total taxa recovered. However, it should be noted that diversity of taxa does not automatically equal increased values of human consumption; domesticated garden produce probably dominated the physical diet of colonial settlers, precisely because of the ease of cultivation and access which garden crops afforded busy housewives and

servants. Some of the plants listed above, such as deadly nightshade (*Solanum*), St. Johns Wort, vervain and cinquefoil were used primarily as medicines and their consumption probably was not equal to those plants which were gathered daily to be prepared for colonial tables. Yet "wild" or "semiwild" plants represent fully 51% of the macrobotanical remains recovered, suggesting that eighteenth century Boston residents utilized a wide range of local botanical resources in order to feed their families, treat illnesses, and increase their overall quality of life.

A predominance of wild or semi-wild plants within a macrobotanical collection may also indicate rising levels of economic stress, as wild alternatives are found to replace produce which has become harder to obtain through conventional means (Bowes 2009: 69-70; Trigg and Bowes 2007:19-20; Patalano 2009:60). While the high occurrence of wild or semi-wild plants may certainly be linked to the post-war economic recession during the creation of the deposits at Faneuil Hall, without a comparative baseline of wild produce usage in the pre-war years it is difficult to identify a what "normal" level of wild plant consumption would look like in the archaeological record at Faneuil Hall. Archaeological investigations at the Katherine Naylor Privy (1652-1724), The Cross Street Back Lot (late 17th century), Scottow's Dock (17th to early 19th century), and Mill Creek (1640-1833) also recovered high levels of wild and semi-wild economically useful produce, suggesting that the utilization of wild resources may have been a common strategy even during times of non-economic stress (Dudek et al. 1998:66; Heck and Balicki 1998: 30; Kelso and Beaudry 1990; Patalano 2007:44-45). Without a comparative baseline at the Faneuil Hall site, it is difficult to argue that wild plant usage increased in response to economic stress in the lives of urban Boston residents. When

placed within a comparative context, the high level of wild taxa found in the Faneuil hall deposits instead highlights the many strategies used by urban Bostonians to feed their families, treat illnesses, and increase their overall quality of life during the late seventeenth and early eighteenth century.

'Affordable Luxuries': Imported Botanical Goods in Boston

Imported botanical commodities also form a small but important subset of the remains recovered. The figs, coconuts, English walnuts and olives recovered from Faneuil Hall provide material evidence of the networks of trade and commerce which linked the economies of the north Atlantic seaboard to the Caribbean, Northern Europe and the Mediterranean. The remains recovered are items which travel well on long trans-Atlantic voyages such as dried fruits and nuts. When these remains are examined along with other species recovered from previous archaeological excavations at Faneuil Hall, these networks of trade encompass the whole of the North and South Atlantic.

LBA archaeologists recovered 2,115 botanical remains during the 1990 excavations, most of which were picked by hand from the deposits or recovered through on-site wet-screening using ¼ inch mesh. No soil was conserved for flotation, heavily biasing the final collection towards large macrofloral remains such as nuts and peach pits. These remains comprised twenty-one economically useful species, many of which were staples of the colonial diet. Overall, domesticated garden crops, such as peach, cherry, watermelon, and pumpkin dominated the assemblage in number of seeds recovered. But in addition to these expected food crops, several nut species were recovered which may represent additional classes of botanical imports.

Fourteen almonds (*Prunus amgydalus*), three peanuts (*Arachis hypogaea*) and ten pecans (*Carya illinoinensis*) and one brazil nut (*Bertholletia excelsa*) were identified among the botanical remains, none of which are native to New England. Almonds are a Mediterranean crop, while peanuts and brazil nuts require a tropical or semi-tropical climate. Pecans are native to central and southeast North America. LBA archaeologists noted that it is possible that some of these nuts were intrusive to the deposits in which they were found, as no historical records exist of their consumption in New England until the late-eighteenth or early-nineteenth century. The deposits which underlie Faneuil Hall, however, are less likely candidates for bioturbation due to their sealed, waterlogged, and relatively anerobic environment. Miller (1989:55-56) noted the presence of pecans and Brazil nuts dated to ca. 1760 at the Calvert site in Maryland, although she was unable to determine their origin.

Table 4: Imported Botanical Produce in Colonial Boston

Common Name	Scientific Name	Source	Site (s)
Coconut	*Cocos nucifera*	Tropical and Semi-Tropical Environments	FH 1990, FH 2010
English Walnut	*Juglans regia*	Northern Europe	FH 1990, FH 2010
Olive	*Olea europaea*	Mediterranean	FH 1990, FH 2010
Fig	*Ficus*	Southern Europe, Mediterranean	FH 2010
Brazil Nut	*Bertholletia excelsa*	South and Central America	FH 1990
Peanut	*Arachis hypogaea*	South and Central America	FH 1990
Pecan	*Carya illinoinensis*	Central North America	FH 1990
Almond	*Prunus amgydalaus*	Mediterranean	FH 1990

These remains signify not only the existence of trading relationships between disparate parts of the globe in the colonial era, but also the success of these economic partnerships in creating a New England market for these commodities. Purchase of these imported goods required not only a cultural understanding of the desirability of these items as part of accepted New England foodways, but also a viable buyer's market which made the shipping costs worthwhile for the merchants who stood to profit from the sale. *Ficus* seeds were present in almost every sample analyzed, providing material evidence which confirms documentary records of the widespread consumption of figs as both a food and a medicine. The presence of a single piece of coconut shell could be dismissed as a unique occurrence, had Affleck and Alterman not documented the ubiquity of

coconut husk and shell throughout their 1990 excavations (Pipes 1999:18). English Walnuts and olives were recovered from both Faneuil Hall excavations as well as from the Naylor privy (Dudek et al. 1998:66), suggesting that these foods may have been considered an ‘affordable luxury’ for middle class urban residents. Side dishes such as olives, figs and imported nuts were often served as part of fancier meals in the eighteenth century (Sumner 2004:150). Together they form a suite of botanical products which are not necessary to basic nutrition but which 'accented' colonial tables with the flavors of continental dining. These imported products may also have served as a subtle reminder of the connections which linked colonial citizens to the rest of the trans-Atlantic trading system. When laid out on middle-class or upper class tables, they were a physical reminder of both the source of Boston's shipping wealth and the ways in which Boston was intimately connected to wider system of trans-Atlantic trade.

CHAPTER VI

CONCLUSION: THE MARKETPLACE OF BOSTON

Writing in 1734, Thomas Lediard noted that "nature seems to have taken a particular care to disseminate her blessings among the different regions of the world, with an eye to mutual intercourse and traffick among mankind." He noted that "traffick" or trans-Atlantic trade, had not only "enriched our vegetable world" but "improved the whole face of nature among us;" English ships were "laden with the harvest of every climate," and travelled far and wide to supply citizens of the British crown with everything that was "convenient and ornamental" (Leighton 1976:103).

In the opening years of the eighteenth century, the success of the English colonial project in the Atlantic was at its height (Leighton 1976:103). As the largest British-controlled port in America, Boston's wharves and shipyards expanded along with England's aims during this period, which saw the construction of Long Wharf and the revitalization of the Town Dock. But attributing Boston's rise to prominence solely to English shipping interests risks eliding the history of Massachusett's colonial farmers, whose agricultural production played a key role in allowing Boston to maintain the density and vitality of its urban spaces. It ignores the lines of credit and currency which stretched from farm to merchant to international credit house and back again, forming far-reaching connections which helped to keep local farm families solvent in times of

famine or drought. It also ignores the key role played by Boston's urban consumers, who not only purchased the produce sold by rural farmers, but who also patronized merchant shops in order to purchase imported botanical products such as nuts, olives, coffee, sugar, and spices.

Traditional histories of New England's agricultural economy have been conceptualized through the archetype of the "New England farmer," a self-sufficient and isolated figure (Kulikoff 2000:204). Recent research in areas as diverse as historical sociology, economic history, agricultural history, paleoethnobotany and zooarchaeology has shown this archetype to be false, or at least to be generally lacking in resolution (Bowen 1990; Coe and Coe 1984; Elliott 2006; Hammond 1984; Kulikoff 2000; Landon 1996; Morgan 1995; Snow 2001). The macrobotanical remains recovered from Faneuil Hall do not speak to the isolation of rural farmers from urban citizens, but rather the dynamic interactions that characterized their economic relationships with one another. They highlight the importance of botanical and agricultural trade as a necessary link between overlapping spheres of rural and urban economic activity, as well as illuminating the varied ways in which "wild" and "domesticated" botanical commodities may have entered colonial markets.

The macrobotanical remains from both the 1990 and 2010 excavations at Faneuil Hall also showcase the availability of imported botanical goods in colonial Boston. Access to these imported goods allowed colonists to participate in new forms of social and material discourse, replicating continental fashions such the provision of nuts, figs, and wine to guests after meals (Leighton 1976:236). Access to exotic items such as

coconuts may have served as a form of cultural cache for urban Boston residents, many of whom had familial ties to Carribbean shipping interests (Smith 2003). The presence of these items in the Faneuil Hall deposits brings into focus one of the many ways in which Boston's participation in trans-Atlantic shipping economies affected the lives of its residents, allowing them access to imported goods that would have been otherwise inaccessible.

The trade routes which brought all of these botanical commodities to Boston converged most often in a single place: the 'marketplace of Boston,' or Dock Square, later Faneuil Hall. Although Kulikoff (2000:204) cautions us to retain a theoretical distinction between the concept of a "society of markets" as an economic system and the presence of a physical market on the landscape, Faneuil Hall is uniquely situated at the confluence of these two ideas. The 'society of markets' which characterized Boston's agricultural economy found its most robust expression in the physical marketplaces of Dock Square, through the daily, small-scale interactions of tradespeople, farmers, urban city dwellers, merchants, and sailors. The deposits which underlie Faneuil Hall are a material reflection of both the daily process of purchasing, preparing, consuming and disposing botanical goods, and of the more ephemeral economic ties which connected rural and urban consumers to trans-Atlantic networks of trade and commerce. The present site of Faneuil Hall is thus given additional context and depth-of-focus; not only as a symbol of New England's revolutionary past, but as Boston's true "marketplace," an enduring site of commerce and connection between the local, the regional, and the global.

APPENDIX A

CONTEXT AND PRE-TREATMENT OF SAMPLES

Float Sample #	URS Field Sample #	Context	Water Treatment	Calgon Treatment	Time
1	3	Strat III, Level 1	2 Liters	None	1 Hour
2	4	Strat III, Level 1	2 Liters	None	3 Hours
3	5	Strat IV, Level 1	None	None	None
4	6	Strat IV, Level 1	None	None	None
5	23	Strat III, Level 2	None	None	None
6	21	Strat III, Level 2	2 Liters	40 ml	3 Hours
7	25	Strat V, Level 2	None	None	None
8	19	Strat V, Level 2	2 Liters	None	1.5 Hours
9	38	Strat VI, Level 3	None	None	None
10	32	Strat VI, Level 3	None	None	None
11	35	Strat III, Level 3	2 Liters	50 ml	20 Minutes
12	37	Strat III, Level 3	None	None	None
13	46	Strat III, Level 4	2 Liters	40 ml	2 Hours
14	48	Strat III, Level 4	2 Liters	40 ml	1 Hour
15	52	Strat III, Level 5	2 Liters	80 ml	4 Hours
16	55	Strat III, Level 5	2 Liters	80 ml	15 Minutes
17	58	Strat VII, Level 6	2 Liters	40 ml	2 Hours
18	59	Strat VII, Level 6	2 Liters	80 ml	2 Hours
19	67	Strat VII, Level 7	2 Liters	80 ml	2 Hours
20	70	Strat VII, Level 7	2 Liters	80 ml	12 Hours
21	73	Strat VI, Level 3	None	None	None
22	77	Strat VI, Level 3	2 Liters	50 ml	30 Minutes
23	79	Strat VI, Level 4	2 Liters	80 ml	12 Hours
24	82	Strat VI, Level 4	2 Liters	80 ml	12 Hours
25	85	Strat VI, Level 3	2 Liters	80 ml	4 Hours
26	88	Strat VI, Level 3	2 Liters	None	30 Minutes
27	90	Strat VIII, Level 4	2 Liters	80 ml	14 Hours
28	93	Strat VIII, Level 4	2 Liters	80 ml	16 Hours
29	97	Strat VIII, Level 4	2 Liters	80 ml	12 Hours
30	101	Strat VIII, Level 5	2 Liters	80 ml	12 Hours
31	104	Strat VIII, Level 5	2 Liters	80 ml	16 Hours
32	119	Strat X, Level 6	2 Liters	80 ml	2.5 Hours

33	122	Strat X, Level 6	2 Liters	80 ml	2 Hours
34	126	Strat X, Level 7	2 Liters	40 ml	1 Hour
35	129	Strat X, Level 7	2 Liters	80 ml	2 Hours
36	132	Strat X, Level 8	2 Liters	80 ml	2 Hours
37	135	Strat VII, Level 8	2 Liters	80 ml	2 Hours
39	141	Strat X, Level 9	2 Liters	80 ml	2 Hours
40	144	Strat XI, Level 9	2 Liters	80 ml	2 Hours
41	147	Strat XII, Level 9	2 Liters	40 ml	1 Hour
42	150	Strat XIII, Level 10	2 Liters	40 ml	1 Hour
43	153	Strat XIII, Level 10	2 Liters	80 ml	2.5 Hours
44	156	Strat IX, Level 5	2 Liters	80 ml	2 Hours
45	159	Strat IX, Level 5	2 Liters	80 ml	1.5 Hours
46	162	Strat X, Level 6	2 Liters	40 ml	30 Minutes
47	165	Strat X, Level 6	2 Liters	40 ml	30 Minutes
48	168	Sample Lost in Transit			
49	174	Strat VII, Level 7	2 Liters	80 ml	3 Hours
50	177	Strat X, Level 9	2 Liters	None	1 Hour
51	180	Strat XI, Level 10	2 Liters	80 ml	2 Hours

APPENDIX B:

BOTANICAL REMAINS BY SAMPLE

Table 1: Fruits I

Float/Field (screen) Sample	*Crataegus*	*Fragaria*	*Prunus americana*	*Prunus cerasus*	*Prunus spinosa*	*Prunus persica*	*Rosaceae*	*Rubus*
FS 40	0	0	0	0	0	1	0	0
FS 41	0	0	0	0	0	1	0	0
FS 49	0	0	1	0	0	1	0	0
FS 50	0	0	1	0	0	3	0	0
FS 53	0	0	1	0	0	2	0	0
FS 56	0	0	1	0	0	4	0	0
FS 61	0	0	0	1	0	5	0	0
FS 66	0	0	0	1	0	9	0	0
FS 69	0	0	1	0	0	5	0	0
FS 84	0	0	0	0	0	1	0	0
FS 114	0	0	0	0	0	1	0	0
FS 117	0	0	0	0	0	2	0	0
FS 118	0	0	0	0	0	2	0	0
FS 121	0	0	0	0	0	2	0	0
FS 124	0	0	0	0	0	2	0	0
FS 125	0	0	0	1	0	1	0	0
FS 131	0	0	1	0	0	1	0	0
FS 137	0	0	0	0	0	2	0	0

FS 143	0	0	0	0	0	1	0	0
FS 149	0	0	1	0	0	0	0	0
FS 152	0	0	10	21	2	5	0	0
FS 164	0	0	0	0	0	2	0	0
FS 172	0	0	3	1	1	3	0	0
FS 173	0	0	0	1	0	0	0	0
FS 176	0	0	0	0	0	1	0	0
FS 179	0	0	0	0	0	1	0	0
FS 180	0	0	3	10	0	2	0	0
FL 1	0	0	0	0	0	0	0	0
FL 2	0	0	0	0	0	0	0	1
FL 3	0	0	0	0	0	0	0	2
FL 4	0	5	0	0	0	0	0	3
FL 5	0	0	0	0	0	0	0	0
FL 6	0	0	0	0	0	0	0	2
FL 7	0	0	0	0	0	0	0	2
FL 8	0	0	0	0	0	0	0	0
FL 11	0	0	0	0	0	0	0	0
FL 13	0	5	0	0	0	0	0	4
FL 15	0	0	0	0	0	0	0	4
FL 16	0	2	0	0	0	0	1	3
FL 17	0	3	0	0	0	0	0	5
FL 19	0	3	0	0	0	0	1	1
FL 21	0	0	0	0	0	0	0	11
FL 23	0	1	0	0	0	0	0	1
FL 24	0	1	0	0	0	0	0	0
FL 25	0	1	0	0	0	0	0	1
FL 28	0	2	0	0	0	0	0	

FL 29	0	0	0	0	0	0	0	
FL 30	0	0	0	0	0	0	0	2
FL 31	0	7	0	0	0	0	0	3
FL 33	0	2	0	1	0	0	1	1
FL 34	0	3	0	0	0	0	0	0
FL 36	0	0	0	0	0	0	0	2
FL 37	0	0	0	0	0	0	0	0
FL 38	0	0	0	0	0	0	0	4
FL 40	0	0	0	0	0	0	0	4
FL 41	1	1	0	0	0	0	0	1
FL 42	0	1	0	0	0	0	0	2
FL 43	0	3	0	1	0	0	0	11
FL 44	0	1	0	0	0	0	0	5
FL 45	0	0	0	0	0	0	0	2
FL 46	0	0	0	0	0	0	0	1
FL 47	0	0	0	0	0	0	0	0
FL 48	0	0	0	0	0	0	0	2
FL 49	0	0	0	1	0	0	0	1
FL 50	0	0	0	0	0	0	0	3
FL 51	0	0	0	0	0	0	0	0
Totals	1	41	23	39	6	60	3	85

Table B: Fruits II

Float/Field (screen) Sample	*Sambucus canadensis*	*Gaylussacia*	*Vaccinium*	*Vaccinium macrocarpon*	*Vitis*
FL 1	0	0	1	0	0
FL 2	0	0	0	0	0
FL 3	0	0	0	0	0
FL 4	1	0	0	0	0
FL 5	0	0	0	0	0
FL 6	0	0	0	0	0
FL 7	0	0	0	0	0
FL 8	0	0	0	0	0
FL 11	0	0	0	0	0
FL 13	1	0	0	0	0
FL 15	0	2	0	0	0
FL 16	1	0	0	0	1
FL 17	1	3	0	6	0
FL 19	0	6	0	2	0
FL 21	0	1	0	0	0
FL 23	0	0	0	0	0
FL 24	0	0	0	0	0
FL 25	0	0	0	0	0
FL 28	1	0	0	0	0
FL 30	1	0	0	0	0
FL 31	0	6	0	4	0
FL 33	1	2	0	2	0
FL 34	0	1	0	1	0

FL 36	0	0	0	0	0
FL 37	0	2	0	0	1
FL 38	0	1	0	2	0
FL 40	1	0	0	4	0
FL 41	3	4	0	0	0
FL 42	1	3	0	0	0
FL 43	0	17	1	11	0
FL 44	0	0	0	0	1
FL 45	0	0	0	0	0
FL 46	0	0	0	0	0
FL 47	0	0	0	0	0
FL 48	0	0	0	0	0
FL 49	0	6	0	1	0
FL 50	1	0	0	0	0
FL 51	0	1	0	3	1
Totals	13	55	2	36	4

Table C: Cereals

Float Sample	*Secale*	*Triticum aestivum*
FL 1	0	0
FL 2	0	0
FL 3	1	0
FL 4	0	0
FL 5	0	0
FL 6	0	0
FL 7	0	0
FL 8	0	0
FL 11	0	0
FL 13	0	0
FL 15	0	0
FL 16	0	0
FL 17	0	1
FL 19	0	0
FL 21	0	0
FL 23	0	0
FL 24	0	0
FL 25	0	0

FL 28	0	0
FL 29	0	0
FL 30	0	0
FL 31	0	0
FL 33	0	0
FL 34	0	0
FL 36	0	0
FL 37	0	0
FL 38	0	1
FL 40	0	1
FL 41	0	0
FL 42	0	1
FL 43	0	1
FL 44	0	0
FL 45	0	1
FL 46	0	0
FL 47	0	0
FL 48	0	0
FL 49	0	0
FL 50	0	0

FL 51	0	0
Totals	1	6

Table D: Locally Available Nuts

Float/Field (screen) Sample	*Castanea dentata*	*Carya ovata*	*Corylus*
FS 50	0	1	0
FS 53	0	1	0
FS 56	0	2	0
FS 61	0	1	1
FS 66	0	1	1
FS 69	0	0	1
FS 121	0	1	0
FS 124	0	0	1
FS 131	0	1	0
FS 137	0	0	1
FS 143	0	3	0
FS 152	1	12	15
FS 180	0	3	5
FL 1	0	0	0
FL 2	0	0	0
FL 3	0	0	0
FL 4	0	0	0
FL 5	0	0	0
FL 6	0	0	0
FL 7	0	0	0
FL 8	0	0	0
FL 11	0	0	0
FL 13	0	0	0
FL 15	0	0	0
FL 16	0	0	0

FL 17	0	0	0
FL 19	0	0	0
FL 21	0	0	0
FS 50	0	1	0
FS 53	0	1	0
FS 56	0	2	0
FS 61	0	1	1
FS 66	0	1	1
FS 69	0	0	1
FS 121	0	1	0
FS 124	0	0	1
FS 131	0	1	0
FS 137	0	0	1
FS 143	0	3	0
FS 152	1	12	15
FS 180	0	3	5
FL 1	0	0	0
FL 2	0	0	0
FL 3	0	0	0
FL 4	0	0	0
FL 5	0	0	0
FL 6	0	0	0
FL 7	0	0	0
FL 8	0	0	0
FL 11	0	0	0
FL 13	0	0	0
FL 15	0	0	0
FL 16	0	0	0

FL 17	0	0	0
FL 19	0	0	0
FL 21	0	0	0
FL 23	0	0	0
FL 24	0	0	0
FL 25	0	0	0
FL 28	0	0	0
FL 29	0	0	0
FL 30	0	0	0
FL 31	0	0	0
FL 33	0	0	0
FL 34	0	0	0
FL 36	0	0	0
FL 37	0	0	0
FL 38	0	0	0
FL 40	0	0	0
FL 41	0	0	0
FL 42	0	0	0
FL 43	0	1	0
FL 44	0	0	0
FL 45	0	0	0
FL 46	0	0	2
FL 47	0	0	0
FL 48	0	0	0
FL 49	0	0	1
FL 50	0	0	0
FL 51	0	0	0
Totals	1	27	28

Table E: Garden Vegetables

Float/Field (screen) Sample	*Capsicum*	*Citrullus lanatus*	*Cucurbita maxima*	*Cucurbita pepo*	*Lycopersicum*
FS 53	0	0	0	1	0
FS 66	0	0	0	4	0
FS 69	0	0	0	1	0
FS 114	0	0	1	0	0
FS 121	0	1	0	1	0
FS 125	0	0	0	1	0
FS 131	0	1	0	0	0
FS 143	0	1	0	0	0
FS 152	0	5	0	1	0
FL 1	0	0	0	0	0
FL 2	0	0	0	0	0
FL 3	0	0	0	0	0
FL 4	0	0	0	0	0
FL 5	0	0	0	0	0
FL 6	0	0	0	0	0
FL 7	0	0	0	0	0
FL 8	0	0	0	0	0
FL 11	0	0	0	0	0
FL 13	0	1	0	0	0
FL 15	1	0	0	0	0
FL 16	0	0	0	0	0
FL 17	0	1	0	0	0
FL 19	0	0	0	0	0

FL 21	0	0	0	0	0
FL 23	0	0	0	0	0
FL 24	0	0	0	0	0
FL 25	0	0	0	0	0
FL 28	0	0	0	0	0
FL 29	0	0	0	0	0
FL 30	0	0	0	0	0
FL 31	2	0	0	0	0
FL 33	0	0	0	0	0
FL 34	0	0	0	0	0
FL 36	0	0	0	0	0
FL 37	1	0	0	0	0
FL 38	0	0	0	0	0
FL 40	0	0	0	0	0
FL 41	0	0	0	0	0
FL 42	0	0	0	1	0
FL 43	0	0	0	0	1
FL 44	0	0	0	0	0
FL 45	0	0	0	0	0
FL 46	0	0	0	0	0
FL 47	0	0	0	0	0
FL 48	0	0	0	0	0
FL 49	0	0	0	0	0
FL 50	0	0	0	0	0
FL 51	0	1	0	0	0
Totals	4	11	1	10	1

Table F: Herbs and Medicines I

Float Sample	*Brassica nigra*	*Chenopodium*	*Coriandrum*	*Datura stramonium*	*Hypericum*	*Lamiaceae*	*Mentha*	*Papaver*	*Physalis*
FL 1	0	4	0	0	0	0	0	0	0
FL 2	0	4	0	0	0	0	0	1	3
FL 3	0	0	0	0	0	0	0	0	0
FL 4	0	4	0	0	0	0	0	0	0
FL 5	0	0	0	0	0	0	0	0	0
FL 6	0	0	0	1	0	0	0	0	0
FL 7	0	0	0	0	1	0	0	0	0
FL 8	0	0	0	0	1	0	0	0	0
FL 11	0	0	0	0	1	0	0	0	0
FL 13	1	7	0	0	0	0	0	0	0
FL 15	3	3	0	0	1	0	0	0	0
FL 16	0	4	0	0	0	0	0	0	1
FL 17	3	0	0	0	0	0	0	0	0
FL 19	0	7	0	0	0	0	0	0	0
FL 21	0	0	0	0	0	0	0	0	0
FL 23	0	0	0	0	0	0	0	0	0
FL 24	0	0	0	0	0	0	0	0	0
FL 25	0	0	0	0	0	0	0	0	0
FL 28	0	0	0	0	0	0	0	0	0
FL 29	0	3	0	0	0	0	0	0	0
FL 30	0	0	0	0	0	0	0	0	0
FL 31	0	3	0	0	0	0	0	0	0
FL 33	0	6	0	0	0	0	0	0	0
FL 34	0	4	3	0	1	0	0	0	3
FL 36	0	0	0	0	0	0	0	0	0

FL 37	0	0	0	0	0	0	0	0	0
FL 38	0	0	0	0	0	0	0	0	1
FL 40	0	0	0	0	0	0	0	0	0
FL 41	0	2	0	0	0	0	0	0	0
FL 42	2	1	0	0	0	0	0	0	0
FL 43	7	6	0	0	0	0	1	0	0
FL 44	0	1	0	0	0	0	0	0	0
FL 45	0	0	0	0	0	0	0	0	0
FL 46	0	1	0	0	0	0	0	0	0
FL 47	0	0	0	0	0	0	0	0	0
FL 48	0	0	0	0	0	0	0	0	0
FL 49	0	0	0	0	0	1	0	0	0
FL 50	0	2	0	0	0	0	0	0	0
FL 51	0	1	0	0	0	0	0	0	0
Totals	16	63	3	1	5	1	1	1	8

Table G: Herbs and Medicines II

Float Sample	*Polygonum*	*Portulaca*	*Potentilla*	*Rumex*	*Solanum*	*Solanum nigrum*	*Verbena*
FL 1	1	17	0	0	0	0	0
FL 2	21	60	0	3	0	0	0
FL 3	0	7	0	0	0	0	0
FL 4	4	4	0	0	0	0	0
FL 5	0	0	0	0	0	0	0
FL 6	0	24	0	0	0	0	0
FL 7	0	6	0	0	0	0	0
FL 8	0	1	0	0	0	0	0
FL 11	0	0	0	0	0	0	0
FL 13	0	5	0	17	0	1	0
FL 15	0	2	0	18	0	0	0
FL 16	0	0	0	33	0	0	0
FL 17	0	1	0	39	0	0	0
FL 19	0	0	0	38	3	0	0
FL 21	0	0	0	1	0	0	0
FL 23	0	2	0	0	0	0	0
FL 24	0	0	0	0	0	0	0
FL 25	0	1	0	1	0	0	0
FL 28	0	0	0	0	0	0	0
FL 29	0	0	0	2	0	0	0
FL 30	0	0	0	2	0	0	0
FL 31	20	2	3	36	0	0	0
FL 33	7	0	0	16	2	0	0

FL 34	32	1	0	0	0	0	0
FL 36	2	0	0	0	0	1	1
FL 37	2	0	0	2	0	0	0
FL 38	0	1	0	21	0	0	0
FL 40	1	0	0	11	0	0	0
FL 41	0	0	0	0	0	0	0
FL 42	0	0	0	4	0	0	0
FL 43	27	0	0	54	0	1	0
FL 44	2	0	0	5	0	0	0
FL 45	0	0	0	1	0	0	0
FL 46	4	0	0	4	0	0	0
FL 47	0	0	0	3	0	0	0
FL 48	0	3	0	1	0	0	0
FL 49	0	1	0	18	0	0	0
FL 50	0	0	0	0	0	0	0
FL 51	2	0	0	22	1	0	0
Totals	125	138	3	352	6	3	1

Table H: Imported Plants

Float/Field (screen) Sample	*Cocos nucifera*	*Ficus carica*	*Juglans regia*	*Olea europea*
FS 61	0	0	0	1
FS 66	0	0	0	2
FS 69	1	0	1	3
FL 1	0	0	0	0
FL 2	0	18	0	0
FL 3	0	1	0	0
FL 4	0	14	0	0
FL 5	0	0	0	0
FL 6	0	2	0	0
FL 7	0	1	0	0
FL 8	0	2	0	0
FL 11	0	4	0	0
FL 13	0	4	0	0
FL 15	0	4	0	0
FL 16	0	1	0	0
FL 17	0	4	0	0
FL 19	0	1	0	0
FL 21	0	1	0	0
FL 23	0	4	0	0
FL 24	0	0	0	0
FL 25	0	1	0	0
FL 28	0	0	0	0
FL 29	0	1	0	0
FL 30	0	4	0	0
FL 31	0	7	0	0

FL 33	0	1	0	0
FL 34	0	2	0	0
FL 36	0	0	0	0
FL 37	0	0	0	0
FL 38	0	1	0	0
FL 40	0	1	0	0
FL 41	0	2	0	0
FL 42	0	7	0	0
FL 43	0	13	0	0
FL 44	0	4	0	0
FL 45	0	0	0	0
FL 46	0	1	0	0
FL 47	0	1	0	0
FL 48	0	1	0	0
FL 49	0	1	0	0
FL 50	0	2	0	0
FL 51	0	5	0	0
Totals	1	116	1	3

Table I: Natural Seed Rain I

Float Sample	*Acalypha virginica*	*Ambrosia artemisiifolia*	*Asteraceae*	*Carex*	*Cyperus*	*Eleocharis-type*	*Fabaceae*	*Euphorbia*
FL 1	1	0	0	2	0	0	0	1
FL 2	0	0	0	0	0	0	0	0
FL 3	2	0	0	0	0	0	0	2
FL 4	0	0	0	0	0	0	0	0
FL 5	0	0	0	0	0	0	0	0
FL 6	0	0	0	0	3	0	0	0
FL 7	0	0	0	0	0	0	0	0
FL 8	0	0	0	0	0	0	0	0
FL 11	0	0	0	0	0	0	0	0
FL 13	0	0	0	0	0	0	0	0
FL 15	0	0	0	0	0	0	0	0
FL 16	0	1	2	0	0	0	0	0
FL 17	0	0	1	0	6	0	0	0
FL 19	0	0	0	0	2	2	0	0
FL 21	0	0	0	0	0	0	0	0
FL 23	0	0	0	0	0	0	0	0
FL 24	0	0	0	0	0	0	0	0
FL 25	0	0	0	0	0	0	0	0
FL 28	0	0	0	0	0	0	0	0
FL 29	0	0	0	0	0	0	2	0
FL 30	0	0	0	0	0	0	0	0
FL 31	0	0	0	0	8	1	0	0
FL 33	0	1	0	0	0	1	0	0
FL 34	0	0	0	0	6	1	0	0
FL 36	0	0	0	0	0	0	0	0

FL 37	0	0	0	0	2	0	0	0
FL 38	0	1	1	0	10	0	0	0
FL 40	0	0	0	0	10	0	0	0
FL 41	0	0	0	0	16	0	0	0
FL 42	0	0	0	0	0	0	0	0
FL 43	0	0	0	11	0	0	0	0
FL 44	0	0	0	1	0	0	0	0
FL 45	0	0	0	0	0	0	0	0
FL 46	0	0	0	0	5	0	0	0
FL 47	1	0	0	0	0	2	0	1
FL 48	0	0	0	0	0	0	0	0
FL 49	0	0	0	0	0	3	0	0
FL 50	0	0	0	0	0	0	0	0
FL 51	0	0	0	0	3	0	1	0
Totals	4	3	4	14	71	10	3	4

Table I: Natural Seed Rain II and Unidentified

Float Sample	*Mollugo*	*Najas*	*Oxalis stricta*	*Panicum*	*Poaceae*	*Polygala*	*Ranunculus*	*Scirpus*	*Stellaria*	*Trifolium*	Unidentified
FL 1	0	0	0	0	0	0	0	0	0	0	4
FL 2	0	0	1	0	0	0	0	0	0	0	7
FL 3	0	0	0	0	0	0	0	0	0	0	0
FL 4	0	0	0	0	0	0	0	0	0	0	0
FL 5	0	0	0	0	0	0	0	0	0	0	0
FL 6	0	0	0	0	0	0	0	0	0	0	2
FL 7	0	0	0	0	0	0	0	0	0	0	2
FL 8	1	0	0	0	1	1	0	0	0	0	8
FL 11	0	0	0	0	0	0	0	0	0	0	0
FL 13	0	1	0	4	0	1	2	0	0	0	3
FL 15	0	0	0	0	2	0	1	2	0	0	0
FL 16	1	0	0	0	2	0	5	0	0	1	0
FL 17	0	0	0	0	6	0	18	0	2	0	2
FL 19	0	0	0	0	0	0	10	1	2	0	0
FL 21	0	0	0	0	0	0	0	0	0	0	3
FL 23	0	0	0	0	1	0	0	15	0	0	0
FL 24	0	0	0	0	0	0	0	1	0	0	0
FL 25	0	0	0	0	0	0	0	2	0	0	0
FL 28	0	0	0	0	0	0	0	6	0	0	0
FL 29	0	0	0	0	0	0	0	13	0	0	1
FL 30	0	0	0	0	0	0	0	29	0	1	0
FL 31	0	0	0	0	8	0	14	3	0	0	2
FL 33	0	0	0	0	1	0	3	2	0	0	5
FL 34	0	0	0	0	5	0	4	0	0	0	3
FL 36	0	0	0	0	0	0	0	18	0	0	0

FL 37	0	0	0	0	1	0	0	0	0	0	0
FL 38	0	0	0	0	1	0	6	0	0	0	7
FL 40	0	0	0	0	1	0	2	1	0	0	2
FL 41	0	0	0	0	1	0	0	0	0	0	5
FL 42	0	0	0	0	2	1	1	45	0	0	4
FL 43	0	0	0	10	5	0	31	8	4	0	16
FL 44	0	0	0	0	0	0	0	4	0	0	0
FL 45	0	0	0	0	0	1	2	15	0	0	0
FL 46	0	0	0	0	0	0	0	0	0	0	0
FL 47	0	0	0	0	0	0	0	2	0	0	5
FL 48	0	0	0	0	1	0	0	0	0	0	0
FL 49	0	0	0	0	8	0	12	0	0	0	4
FL 50	0	0	0	0	2	0	1	6	0	0	0
FL 51	0	0	0	2	0	1	9	2	0	0	13
Totals	2	1	1	16	48	5	121	175	8	2	101

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