“Soyle Light, Well-Watered and On the River:”

Settlement Patterning of Maryland’s Frontier Plantations

by

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When the colonists arrived on the Maryland shores in 1634 they found an inhabited, densely forested, potentially bountiful environment. The ways that they adapted to a brand new set of cultural and environmental rules has long been of interest to historians and archaeologists.

The process of colonizing necessitates the reordering of adaptive strategies on the part of the colonizing populations. Adaptive alternatives are chosen from the cultural heritage of the participants, borrowing and diffusion from indigenous peoples, and by invention (Miller 1984). The strategies selected or rejected are judged in terms of the political, social, economic, and natural environment influencing the colonizing populations and situation.

This paper examines, from an archaeological perspective, one of the most important and distinctive aspects of the Marylander's adaptive response to the Chesapeake – that of settlement patterning. Developing an understanding of the settlement strategy provides insights into the ways that Marylanders directly interacted with the environment. In this paper three aspects of the physical environment which affected the pattern of 17th-century settlement – the soil type, the availability of drinking water, and the waterfront locations – are examined.

This paper relies on archaeologically-derived data to answer some questions not readily answerable by documentary sources. As an adjunct to the growing number of excellent studies of Chesapeake area settlement patterns (Earle 1975, Kelly 1979, Fausz 1971, Davidson 1982), the archaeological model can add details not always possible in documentary-

based studies. For example, using just documents it is often impossible to tell when a tract was actually occupied and where on the tract settlement occurred. In addition, the environmental diversity of a large parcel can be extreme, so that if a detailed view of actual settlement placement is to be achieved, it has to be based on the physical, archaeological remains.

The archaeology of the 17th-century Chesapeake on anything resembling a large scale has its beginnings only within the last two decades. Largely through the survey efforts of the St. Mary's City Commission and Virginia Research Center for Archaeology, there are now 226 recorded 17th-century archaeological sites in the Chesapeake, 188 in Virginia and 38 in Maryland. Archaeological research has concentrated on the western shore and this study by necessity pertains mostly to that area. About 30% of the 17th-century Chesapeake sites have had some form of subsurface excavation (Smolek, Pogue & Clark 1984), the remainder were located and identified on the basis of artifacts collected from the surface of the ground.

The vast majority of the sites are anonymous, like the majority of 17th-century Marylanders. It is normally not possible to identify the occupants, however, the period of occupation to the half or quarter century can usually be ascertained from a surface collection of artifacts. Finer temporal determinations are possible from properly excavated contexts. Despite some limitations, archaeological data is another important source of information that can be brought to bear on the interpretation of Maryland settlement patterns.

When the Maryland colonists arrived in 1634 they did what Virginians had done in 1607, they built and moved into a fort. However, unlike the early years of Virginia where clustered fortified company and privately-run settlements dominated, the Marylanders quickly moved out of their fort and began to disperse in individual households. By 1642, settlement had spread a distance up the Potomac and Patuxent Rivers. By the late 1660's and 1670's the Bay shore was dotted with settlement, but no concentrated population centers developed. Generally, 17th-century

settlement was limited to the tidewater Chesapeake and no 17th-century sites have been found above the Fall Line.

An economy based on a staple crop – tobacco – permeated the lives of the 17th-century Marylanders. The staple necessitated a dependence on foreign marketing and imported manufactured goods and much of the adaptation, particularly settlement strategy, was shaped by the production and marketing of tobacco. The early dispersal of Maryland populations, in the late 1630's was the product of numerous factors not least among them being friendly Indian relations, unlike Virginia's unhappy experiences. The ease of land acquisition and its abundance throughout much of the century did not limit or restrict expression of a pervasive settlement strategy.

The individual household was the basic social and settlement unit in the Chesapeake. Households were not necessarily a nuclear family but could be made up of partners and extended family members. The overwhelming majority of households had their physical manifestation in small rural farmsteads or "plantations". From the archaeological perspective these are the domestic sites or sometimes a group of archaeological sites.

Typically, plantations were composed of a cluster of wooden earthfast structures with adjacent activity areas organized by rail, pale and wattle fences. A plantation could include a clapboard dwelling house,

possibly a quarter or two for servants or slaves, miscellaneous outbuildings such as a kitchen, milkhouse, storehouse, and hen house and usually one or more tobacco houses (Walsh 1977). The particular Chesapeake form of wooden construction was in itself an adaptation to the forest-rich environment where labor was at a premium (Stone 1984).

The archaeological manifestation of the rural plantation sites is reasonably consistent. On the surface of a plowed field the plantation dwelling sites are represented by a scatter of oyster shell and other non-perishable domestic debris. The international marketing contacts are evident in the artifact assemblages. Rhenish stoneware, Dutch and English coarse and tin-glazed earthenwares and English and Dutch white-kaolin tobacco pipes are common. Also found is case bottle glass and round wine bottle glass. Bones of wild and domestic animals are also common. Local industries are represented in several types of coarse earthenware ceramics, and the Indian and colonial-made terra-cotta tobacco pipes. Structural debris is usually limited to a quantity of hand-wrought nails, however, imported Dutch yellow brick, probably hearth brick, is not uncommon. Large quantities of locally-made red brick is usually a late manifestation. These types of sites are the discrete data units for this analysis.

<u>On the River</u>

The Bay is the drowned mouth of the Susquehanna River produced by post-Pleistocene inundation of the coastal plain topography. With 8100 miles of shoreline – divisible into Bay frontage, river frontage and creek frontage – the estuarine Chesapeake provided for an unparalleled water-based transportation system.

There is a general absence of treacherous shoals and rocks and a small tidal range with an associated lack of dangerous currents. There are steady, moderate winds which blow alternately up and down the Bay. It is deep enough for navigation but shallow enough for anchoring just about anywhere along the shore, at least on a temporary basis.

In 1678, the third Lord Baltimore, Charles Calvert, described the settlement pattern:

> "The people there are not affecting to build nere each other but soe as to have Their houses near the Watters for convenience of trade and Their lands on each Syde of and behnde Their houses by which it happens that in most places there are not fifty houses in the space of Thirty myles (Archives of (Maryland V, 266).

Lord Baltimore described a coastal settlement pattern in which the frequency of houses was "in most places" not more than fifty houses in thirty miles which works out to be about an interval of .6 miles. While there are obvious problems with quantification of such an estimate, it does allow an impression to be obtained, at least for a particular point in time. Lord Baltimore's characterization of the dispersal of plantations fits well with that portrayed by Augustine Herman on his map of the Chesapeake printed in the early 1670's. Herman's map shows a dispersed settlement pattern with the plantations occurring between 1/4 and 1½ miles apart (Earle 1975:19). The total number of plantations he shows in the Chesapeake is about 2600 (2588) of which 65% or 1700 are in Maryland. The validity of Herman's map has never been verified but comparison with Virginia archaeological sites, where there is a large archaeological data base, reveals that about 46% of the sites are located along the rivers and Herman portrays about 51% on rivers. Herman portrays about 50% of the plantations on creeks and in actuality 46% of the sites

occur on creeks. He portrays 5% on the Bay itself and 3% of the known sites are on the Bay. There does not seem to be a significant difference between the archaeological data and Herman's map, nor does there seem to have been a preference for creek or river frontage at a particular point in time as portrayed by Herman or as represented by the total population of archaeological sites.

This seems to indicate that despite the advantages to shipping and trade, the protected anchorages to be found in the many deep creeks did not affect the patterning of the rural plantations. The predominately low shoreline elevations and the presence of ravines regularly along the coastal areas allowed simple landings to be made virtually anywhere along the shore. Lightering of tobacco and goods from such landings was still in evidence in southern Maryland into the 20th century.

The mouths of the deep creeks did have recognized locational advantages – at least in the Patuxent River. Recent research by Dennis Pogue (1984) suggests that the locations of the 17th century towns, as legislated in various town acts and shown on the Herman map, were consistently situated right at the mouths of major, deep creeks. Although the very existence of these towns has been questioned, scraps of archaeological and documentary evidence indicate that a number of the Patuxent towns existed, at least to some degree. One of the most interesting documents that has recently been authenticated is what is believed to be the earliest Maryland town plan. Located on the Wm. Berry plantation at the mouth of Battle Creek, the Calverton plan was drawn in 1682 by county surveyor Robert Jones. The plan shows the county courthouse, prison, chapel, the house of merchant Michael Tawney, several other houses, quarters and structures, as well as, two landings on the

creek. The consistent locational characteristics of the Patuxent towns is not circumstantial as it offered obvious advantages for shipping.

The towns were never major population centers and their economic impact should probably not be over-emphasized at this time. Much archaeological research needs to be done to define the physical nature of these towns but the Patuxent towns suggest a strong locational pattern to test.

The Herman map shows the plantations dispersed along the shoreline but information on the distance inland of the plantations is generally not available from documentary sources. The archaeological data, however, can provide this information. In Maryland, the median distance inland of domestic sites is about 660 feet from the modern shoreline of navigable water. The distribution of sites within about a mile of the water (Figure 1) shows a regular decrease in frequency as distance increases. Only 11% of the Maryland sites are more than 5000 feet inland. The Virginia sites show virtually the same distribution with the median being 600 feet from the modern shoreline.

It’s clear that on the whole Maryland and Virginia house sites were close, but not necessarily directly on the shore. However in a coastal zone just over a quarter of a mile wide there are 60% of the Maryland sites and 82% of the Virginia sites. These distances do not take into account local shoreline erosion rates which, on open water, could place the original locations hundreds of feet farther inland. Although population increases promoted acquisition of interior tracts late in the century in particular, the archaeological evidence supports the contention that inland settlement density was sparse throughout the century. While there are early and late inland sites, the evidence clearly indicates that coastal settlement dominated.

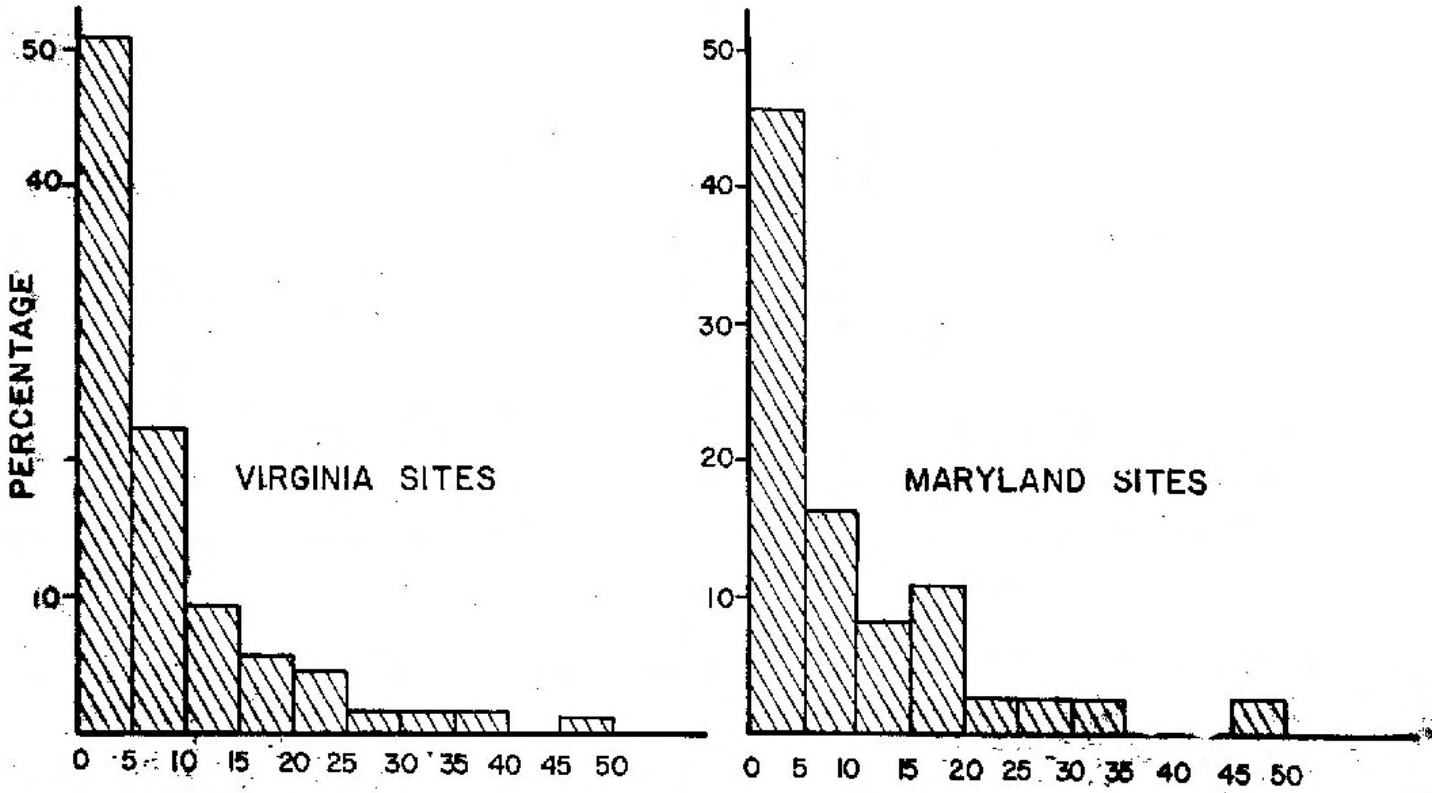


Figure 1: Distance inland of Chesapeake 17th century sites

Table 1: Maryland Seventeenth-Century Sites, Distance to Navigable Water

Distance	n=	%
0-500′	17	45.9
501′–1000′	6	16.2
1001′–1500′	3	8.1
1501′-2000′	4	10.1
2001′-2500′	1	2.7
2501′-3000′	1	2.7
4501′-5000′	1	2.7
6001′-6500′	1	2.7
10500′-11000′	1	2.7
11501′-12000′	1	2.7
20001′-20500′	1	2.7
Unknown	1	
	38	99.9

Table 2: Virginia Seventeenth-Century Sites, Distance to Navigable Water

Distance	n=	%
0-500′	89	50.9
501′-1000′	39	22.3
1001′-1500′	16	9.1
1501′-2000′	10	5.7
2001′-2500′	8	4.6
2501′-3000′	3	1.7
3001′-3500′	3	1.7
3501′-4000′	3	1.7
5001′-5500′	2	1.1
10501′-11000′	2	1.1
Unknown	13	
	188	99.9

Soyle Light

Close water access is often interrelated with and a desirable by-product of perhaps an even more important environmental locational factor – that of good quality soils. Since the 17th-century economy was based on agricultural production, soil quality was of primary interest and, in many areas, the prime-to-good soils follow the rivers, particularly in Southern Maryland. Walsh (1977) and others have documented that, based on gross soil associations, the areas of generally good soils were patented first and changed ownership the least. This can be taken one step further with the recognition that the general soil associations are very gross classifications dealing mostly with soil parent materials and that the actual soil situation is much more complicated. Coastal plain soils are a complex mosaic of specific soil variants which can vary markedly in their agricultural potential and productivity within a short distance. This can be caused by subtle variation in topography and/or substratae. However, these soil variations can be used to further refine the settlement model.

Tobacco, like most crops, grows best on soils with good internal drainage, often referred to as light soils (Miller 1967). Excessively drained soils such as found on steep slopes and sandy knolls lack the nutrient content and moisture retention capabilities. Poorly drained soils drown the plants from lack of oxygen in times of excessive moisture. There are extensive areas of the eastern and western shore coasts with very poorly drained soils, particularly Othello soil, of little or no use in tobacco production. The most productive soil types have an optimum mixture of fine particles, such as silt and clays, and coarse material, particularly sand. Within a particular soil type a somewhat simplistic rule of thumb is that

Convex land surfaces are more well-drained, concave surfaces are less well-drained. Relatively level soils tend to hold more nutrients and available moisture (Miller 1967).

The more level of the Sassafras serie4s soils and certain soils in the Matapeake, Mattapex, Woodstown and other series stand out as the particularly fertile soils. The agrarian Late Woodland period aboriginal populations seem to have recognized the good soils as their sites have an uncanny ability to be located on the best soils in a particular area. The Indian habitation sites actually enhanced soil quality from organic waste deposition, unlike tobacco production which is an extractive industry as far as the soil is concerned. It is quite difficult to verify that the earliest colonizing populations moved into Indian clearings, but the archaeological record shows that 17th- and 18th-century colonial sites and Indian sites are consistently located in the same areas (Potter & Waselkov 1984). This implies that, at the minimum, colonizing populations, like the Indians, recognized good soil when they saw it. Information on soil selection was available in English agricultural traditions as well as from local sources. Also, soil qualities and drainage characteristics could be identified by the forest cover types growing on the various soils and by the degree of slope.

As was noted above, all land and soil was not created equal. For example, in Calvert County, where the general soil association map would suggest that the whole county is good for agricultural production, there is a much more complex soil situation. Figure 2 shows a segment of the county soil survey map which demonstrates another level of soil detail. Between the extremes of the gross soil association map and the much more detailed county soil survey map, a map identifying the better natural agricultural soils can be derived for illustrative purposes. This map (Figure 3) eliminates

Figure 2: Map showing soil complexity
(Soil survey of Calvert County)

Figure 3: Revised soil map with Robert Jones surveyed (1683) structures. Diagonal Lines are prime soil, dotted areas are good, and unshaded areas are poor soils.

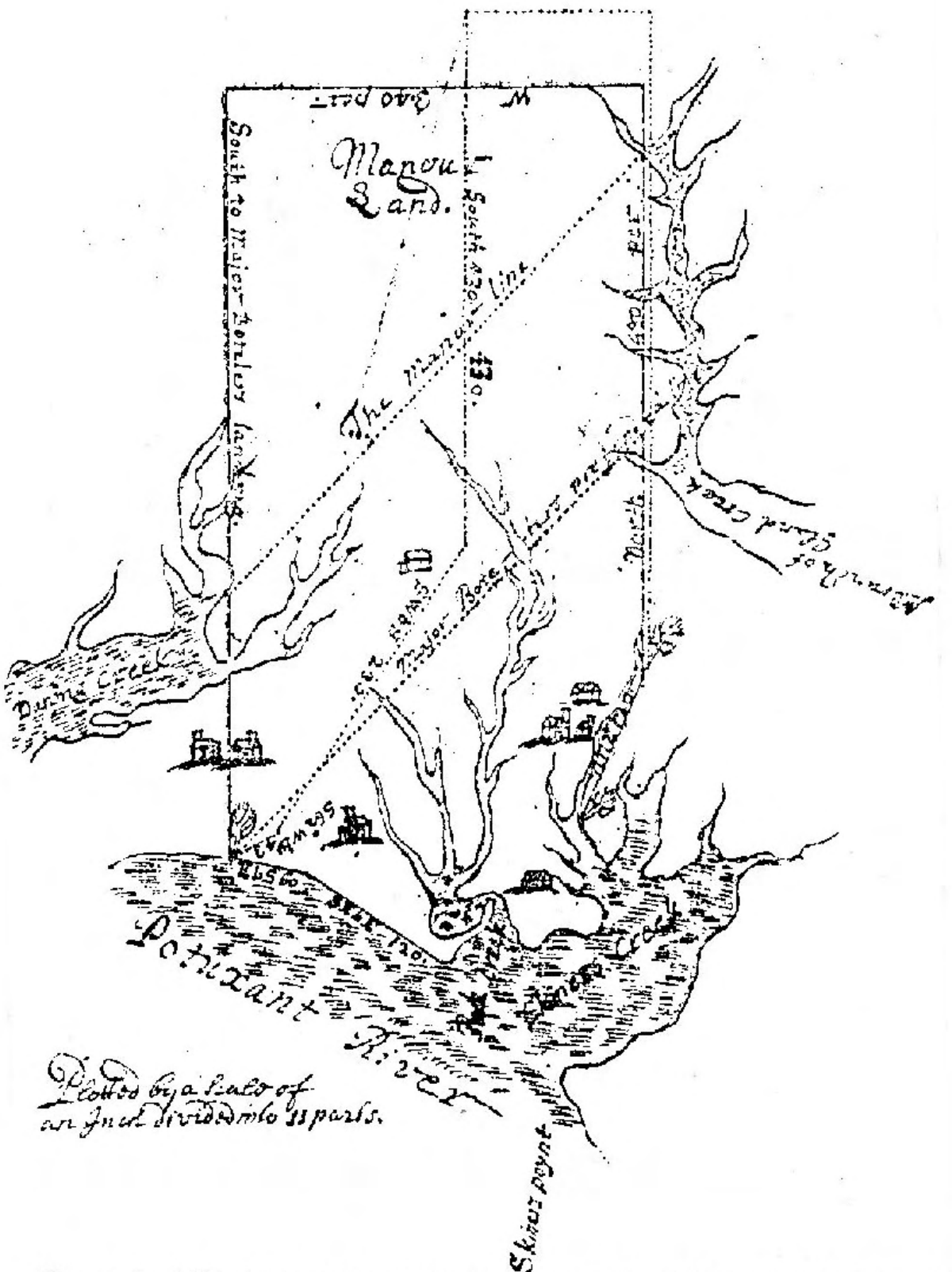


Figure 4: 1683 Survey map, Calvert County, MD. (Clement Hill Papers, Maryland Historical Society)

naturally marginal soils and soils that need modification, such as artificial drainage, to be productive. The diagonal-lined areas are the level-to-gently sloping well drained prime soils, often found along the terraces of the river, which would have had excellent natural productivity. The dot-shaded areas are upland and/or rolling soils and would not have been quite as fertile and would probably not have lasted as long as the prime soils. The unshaded areas, while they could have been used, the slope and/or drainage characteristics would have produced very marginal results.

In 1683 Robert Jones, County Surveyor (Pogue 1984), made a survey of this area showing 5 houses or quarters and what appears to be three tobacco houses (Figure 4). Superimposing (Figure 3) the locations on the modern soil maps shows the clear relationship of the soils and house locations.

The archaeological record shows that 92% of the known 17th-century Maryland sites are located on or in association with prime or good tobacco soils. Analysis of soil types can often help narrow significantly the potential areas farmed and settled by eliminating the percentage of more marginal soils. A good example is a late 17th-century site on the Wicomico River on the eastern shore (Figure 5). It is apparent that plantation locations were carefully selected because, while the plantations may have been surrounded by generally poor soil, the sites are on or in direct association with localized areas of good or prime soils. This is the case with the inland sites as well as the coastal sites. The 17th-century colonists had their choice of land within the bounds of their tracts and it is apparent they identified, occupied, and cultivated the best land that was available to them.

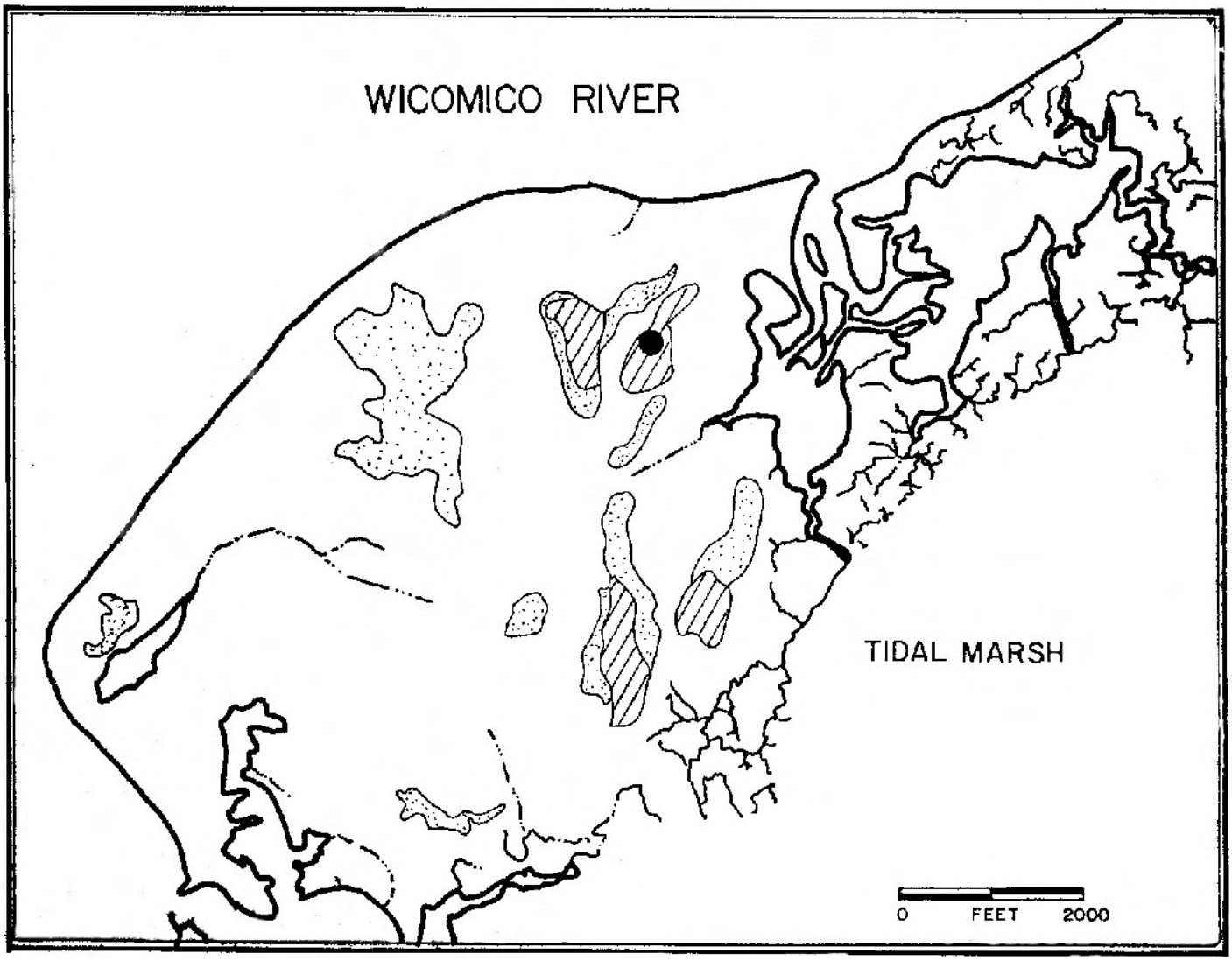


Figure 5: 17th century sites located on natural agricultural soils. Shore of Wicomico River.

Well-Watered

The settlement data presented so far is still very crude – the colonists were generally located along the water and in association with the good agricultural soils. Within this zone, however, the houses were not placed at random. Rather, a specific set of environmental conditions seems to have been selected.

When the Maryland colonists arrived in 1634 Father Andrew White described Maryland, saying “It abounds with delicate springs which are our best drink” (White in Hall 1910:45). Prehistoric archaeologists have long recognized the significance of a supply of good drinking water in the settlement patterning of aboriginal populations and fresh-water springs were a prime source of that water.

In the Chesapeake, thousands of ravines dissect the shoreline of the Bay, rivers, and finger creeks cutting through the unconsolidated sands, gravels, and clays of the coastal plain deposits. The depth, length, and complexity of those ravine systems varies according to the geological stratigraphy, slope, landform and elevation. The ravines have been cut by freshwater springs and surface runoff. Springs are formed by localized impermeable strata which are exposed on the sides of cuts and banks. The overlying permeable strata allows surface water to percolate downward until it reaches an impermeable clay or hard pan layer, at which point it then moves laterally where it exits as a spring. The springs can occur at any elevation depending upon the geological stratigraphy of a particular area.

It is the location of spring heads that appears to have shaped the specific location of western shore Maryland 17th-century house sites. There is almost a perfect correlation between known 17th-century sites and the close proximity of the spring heads. This pattern is repeated over and over again on the known 17th-century sites in Maryland. For example, the St. John's site in St. Mary's City itself had a town spring, as well as numerous springs emanating from the banks along the water's edge at the village center. The house site of Charles Calvert known as Mattapany-Sewal (18 ST 390), at the mouth of the Patuxent, was situated adjacent to the head of a ravine with spring, as was another of Charles Calvert's house sites – Notley Hall (18 ST 74). The Pembroke Site (18 ST 300), the Medley Neck Site (18 ST 278) and numerous other sites are in close proximity to springs. Middle Plantation (18 AN 46) an inland and upland site, is known to have had numerous coolers and spring houses (Figure 8). Illustrative of the spatial patterning is the arrangement of known 17th-century sites on the 512 acre Jefferson Patterson Park and Museum property in Calvert County. Located at the mouth of St. Leonard Creek, with 2 1/2 miles of creek and river frontage, the twelve 17th-century sites represent settlement from the 1640's throughout the century. All the sites are on or associated with soils that are good-to-excellent agricultural soils (Figure 8). In addition, the sites show a consistent relationship to spring heads. Some of the sites are almost ½ a mile from the shoreline of navigable water and habitable, well-drained ground would have been available much closer to the water. Clearly the main settlement considerations within the areas of prime soils were the spring heads themselves.

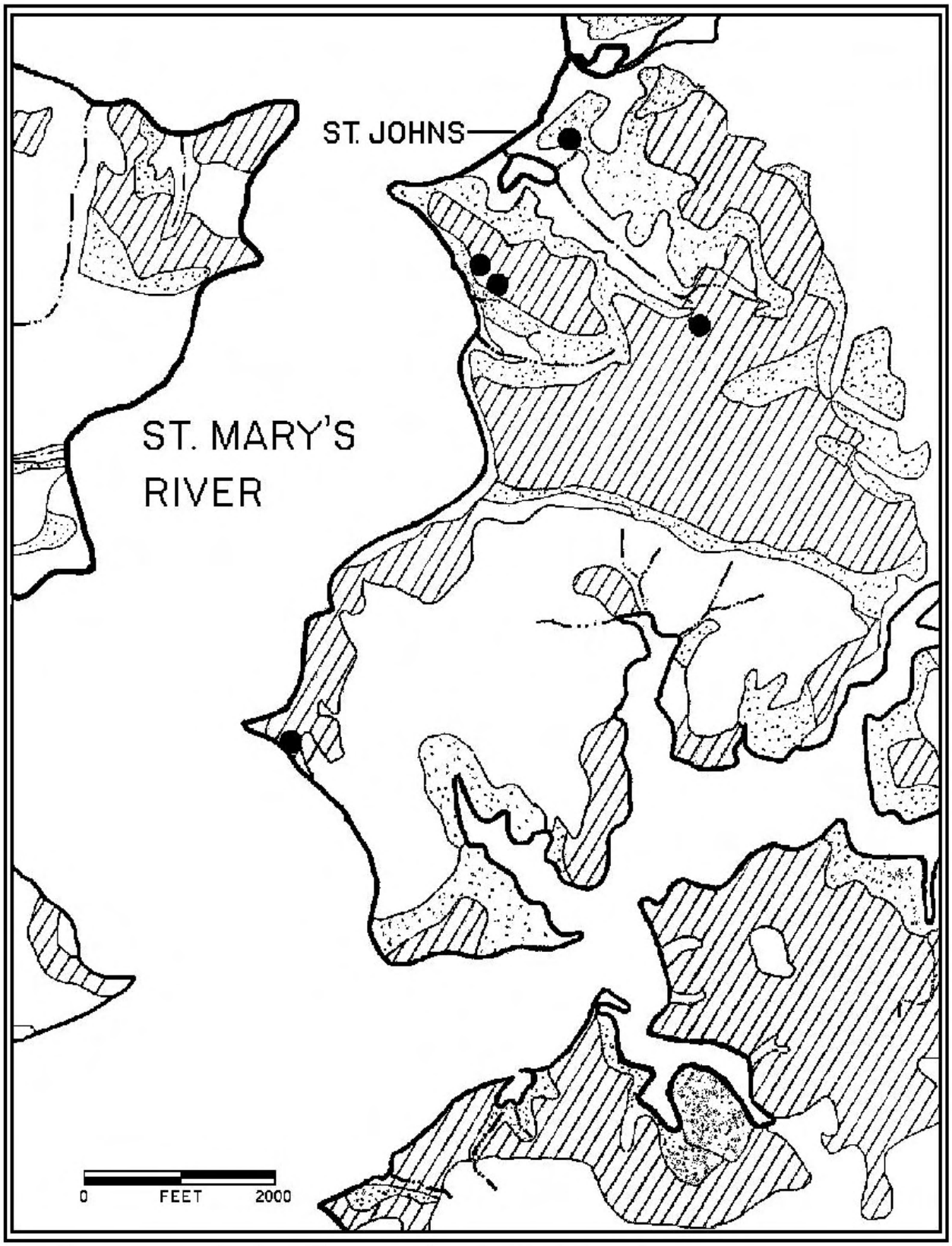


Figure 6: Location of St. John's Site on good/prime soils in the St. Mary's City area.

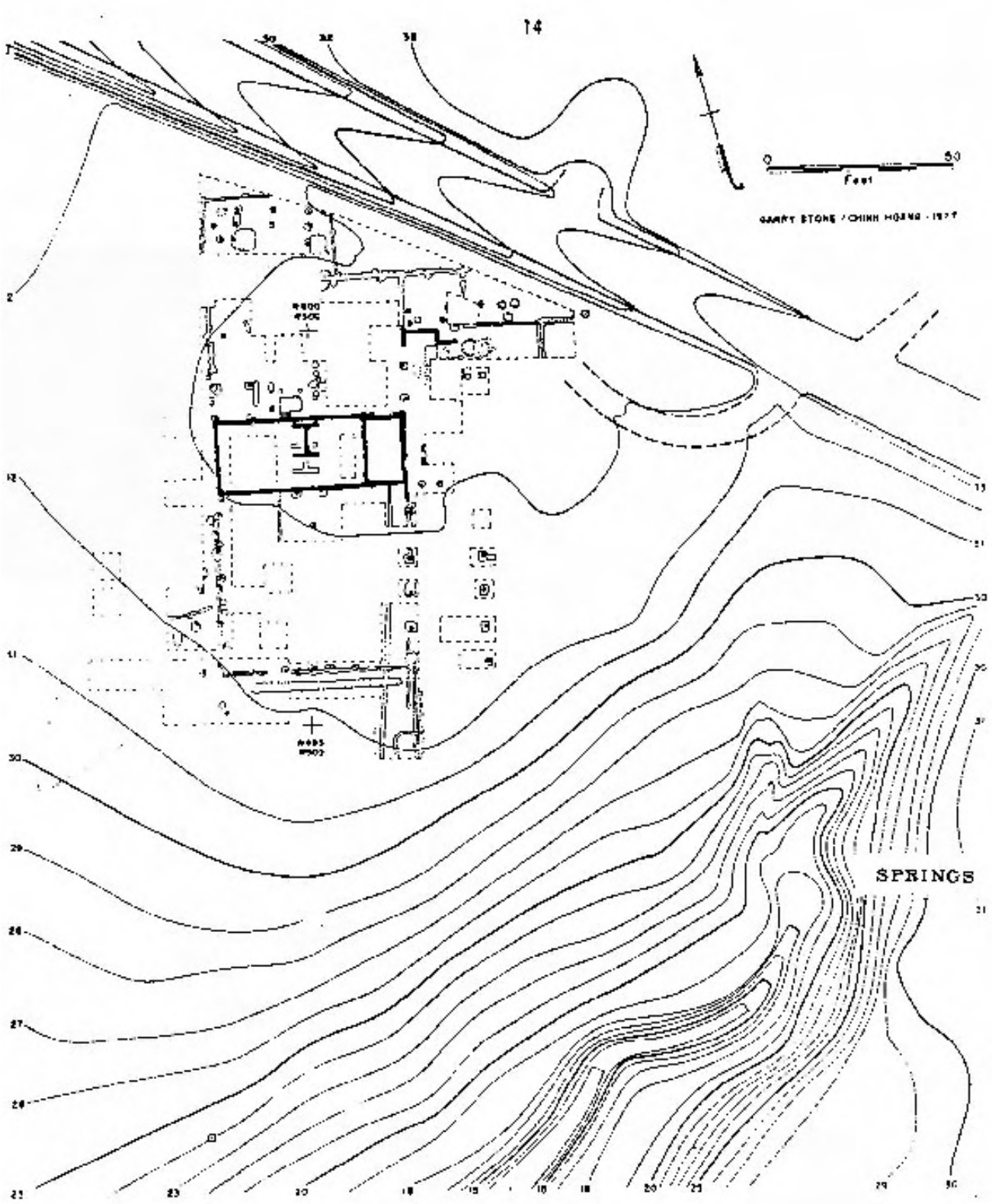


Figure 7: St. Johns Site with associated springs.

The plantation house sites are usually located on the knolls and level ground adjacent to and between the areas of the ravines. The knolls are often excessively well drained, which would have been advantageous to the earth-fast house construction. The house sites were located near the spring head rather than farther down along the streams, probably because of the cleanliness of the water. The water flowing directly from these springs, filtering through the light sandy soil, was free of harmful bacteria and particulate matter. Spring houses were constructed to utilize, collect and protect the springs from contamination. Domestic animals roamed freely and could have quickly made a clear running stream both unappealing and unhealthy. Additional support is lent to the significance of springs because, to-date, not a single well has been found in excavations on any Maryland 17th-century site.

While many of the characteristics of the settlement patterning of Virginia and Maryland are similar, wells are a common feature on 17th-century sites in Virginia. The use of wells by Virginians may be explainable in both cultural and topographic terms. On a whole, the Virginia sites are at lower elevations than Maryland sites, with a remarkable 46 percent of Virginia sites at an elevation of 10 feet or less. Only 22% of the Maryland sites are at 10 or less feet of elevation. Virginians may have been forced to dig wells because of the low elevations and waterfront locations made the freshwater springs unpotable.

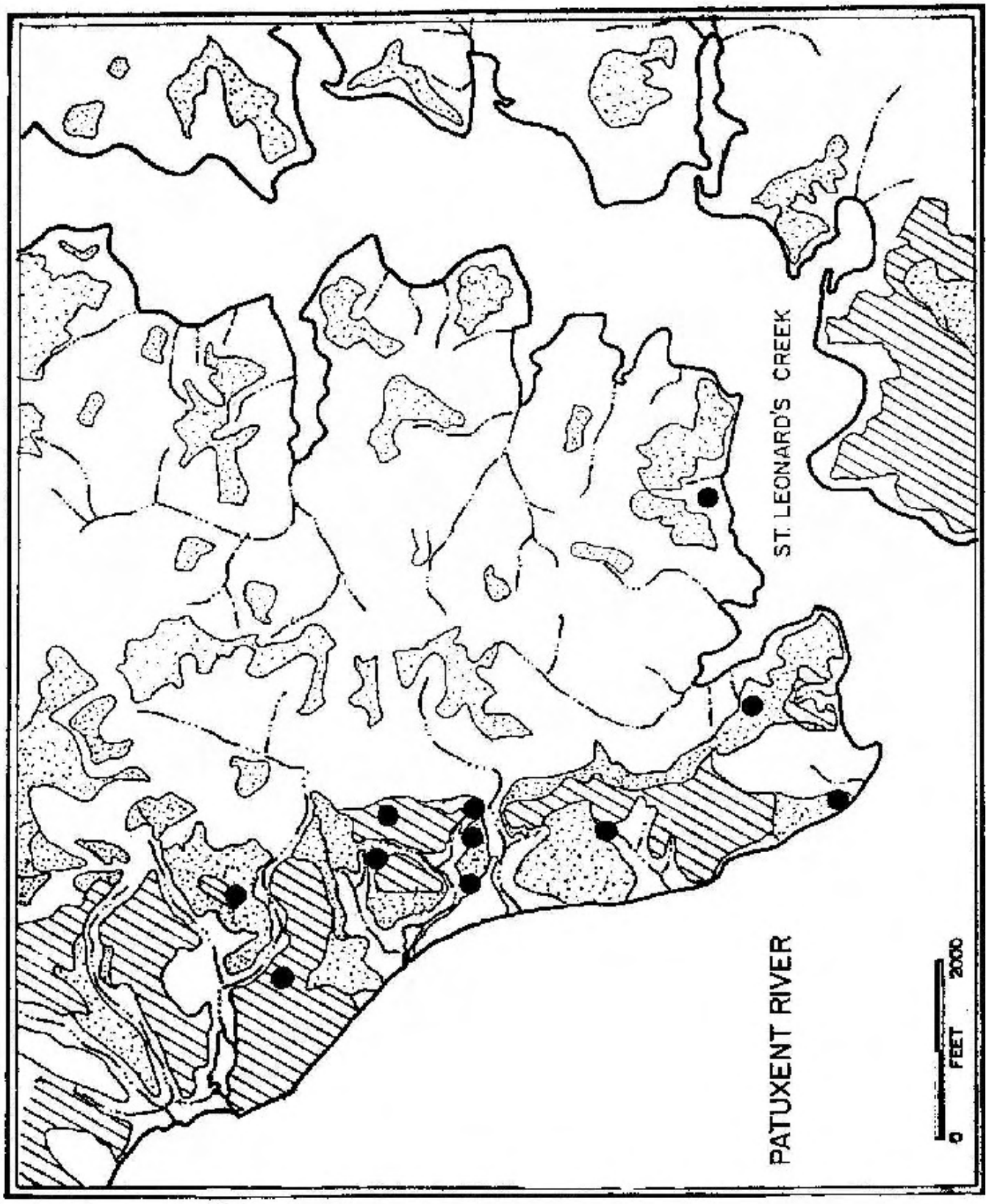


Figure 8: Jefferson Patterson Park & Museum showing prime & good soils & 17th century sites.

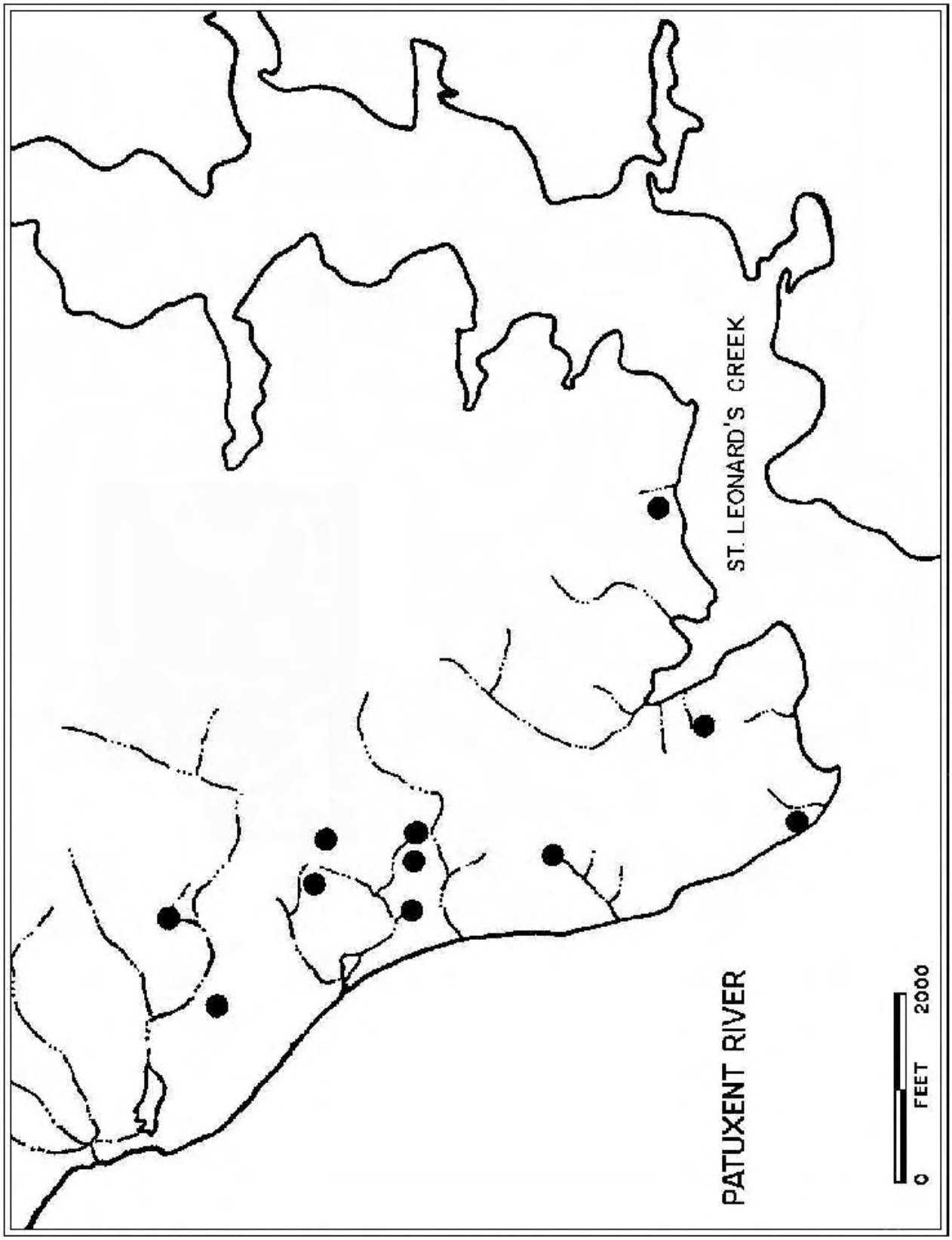
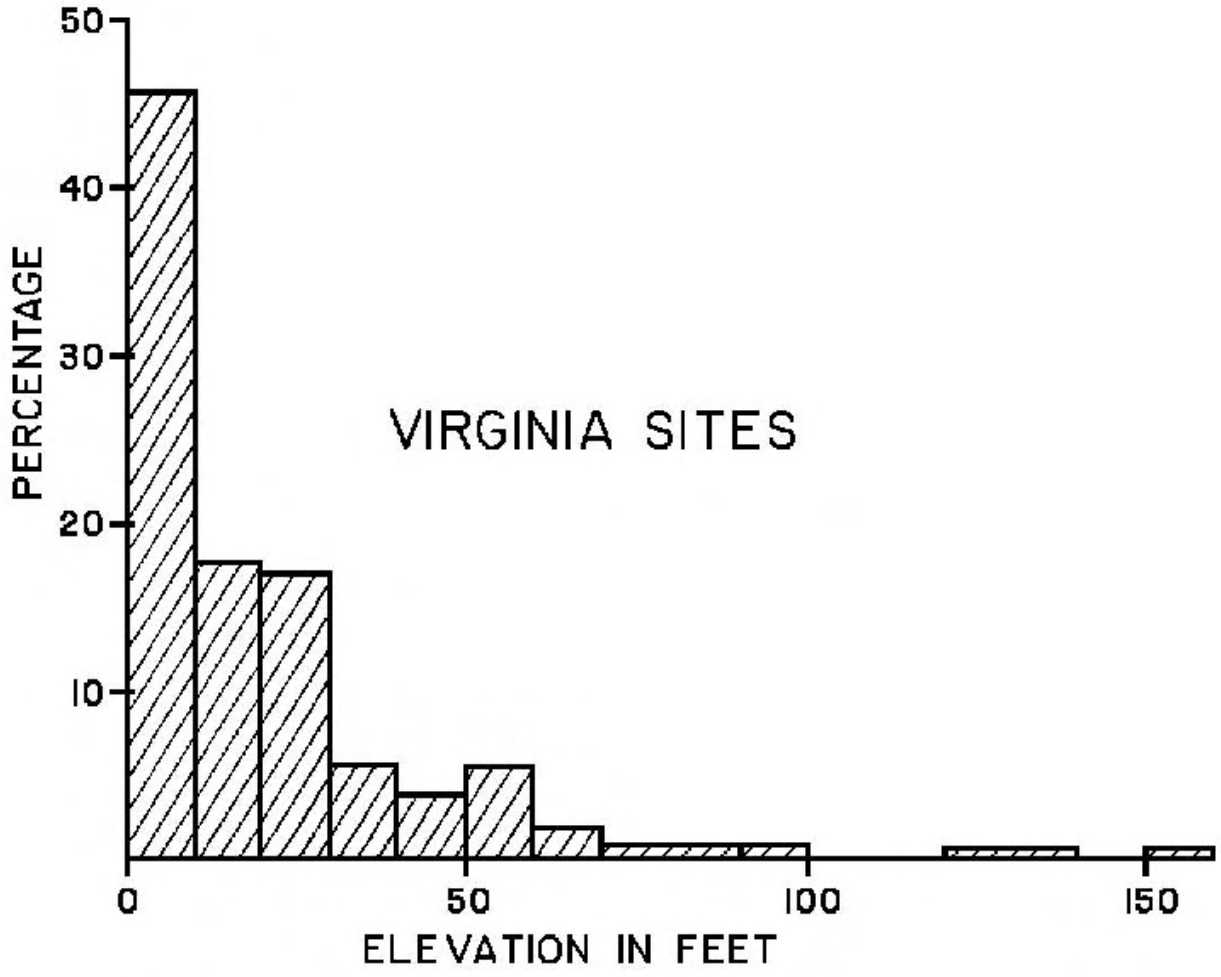


Figure 9: Jefferson Patterson Park & Museum showing relationships of ravines with springs & 17th century house sites.



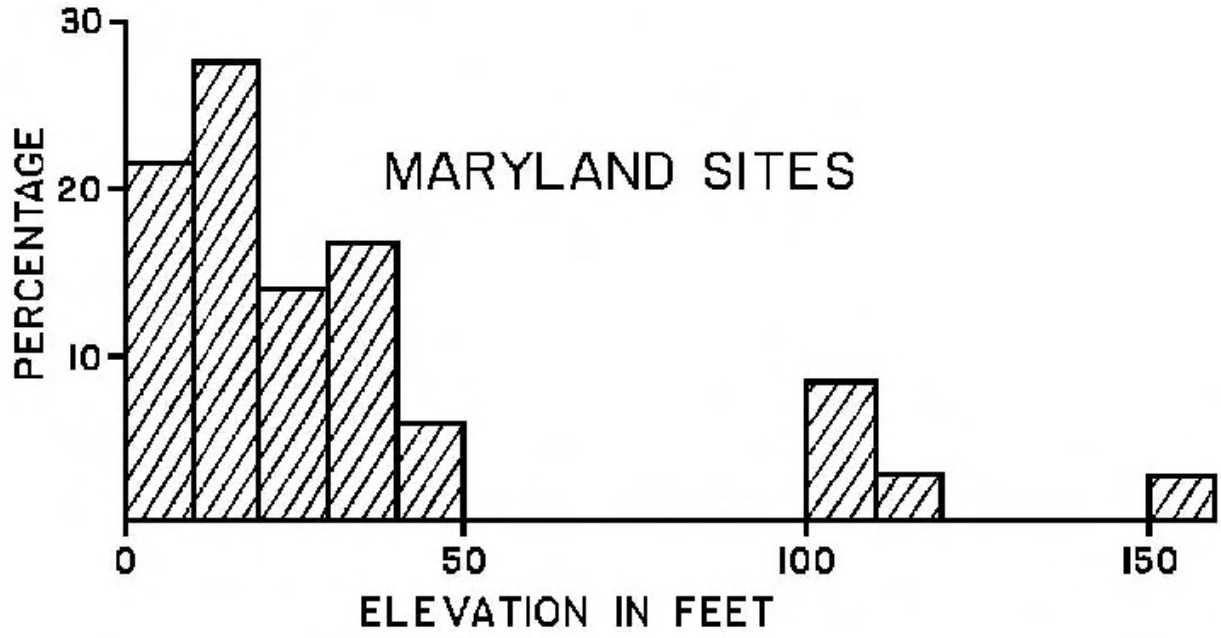


Figure 10: Elevations (above mean sea level) of 17th century sites.

Table 3: Summary of Elevations of known Seventeenth-Century Sites in Virginia

Elevation	n=	%	Cumulative %
0-10′	76	45.8	45.8
11′-20′	29	17.5	63.3
21′-30′	28	16.9	88.2
31′-40′	9	5.4	85.6
41′-50′	6	3.6	89.2
51′-60′	9	5.4	94.6
61′-70′	3	1.8	96.4
71′-100′	3	1.8	98.2
101′-160′	3	1.8	100.0
Unknown	22		
	188	100.0	100.0

Table 4: Summary of Elevations of known Seventeenth-Century Sites in Maryland

Elevation	n=	%	Cumulative %
0-10′	8	22.2	21.6
11′-20′	10	27.8	48.6
21′-30′	5	13.9	59.4
31′-40′	6	16.7	75.6
41′-50′	2	5.6	81.0
100′ and over	5	18.9	99.9
Unknown	2		
	38	99.9	99.9

Wells were a necessity on low-lying Jamestown Island and were quickly incorporated into the Virginia cultural traditions and one could also propose that there was a “founders’ effect” at work that began with the settlement of Jamestown. This argument would suggest that subsequent Virginians dug wells because that is what previous Virginians had done. Marylanders did not because from the beginning they began using the abundant springs;

Whether the explanation is geological or cultural or a combination of both, the available information suggests that on the whole Virginians were living in a potentially unhealthier situation than Marylanders. If Carville Earle’s (1979) hypothesis regarding contamination of Jamestown’s drinking water with typhus and salt intrusion is valid, then an extension of the argument might suggest that the low-lying shore side Virginian wells might

have resulted in higher mortality than in Maryland. The relationship between mortality, well use and house location is beyond the scope of this paper, however, it is an interesting area of future research.

Conclusions

This paper has examined the actual locations of plantation house sites based on archaeological data. The data indicates that about 80% of 17th-century Maryland plantation houses were located within a half mile of the shore of navigable water. It is clear that the selection of water access locations for the ease of transportation was only part of the settlement strategy. The arable soils were also of primary interest and in many situations the prime soils are along the water. The ability to recognize good soils was the product of English farming traditions and new knowledge acquired from Virginians and, by example, from Indian sources. The coastal and the inland plantation sites are consistently located on or adjacent to the fertile, gently sloping-to-level soil of the terraces and uplands. Within the areas of arable land, the house sites themselves were situated near a clear-running spring. In the coastal areas, the spacing of ravine systems along the shoreline* coupled with large tract sizes promoted the linear separation of houses.

* Sometimes localized nature of good soils.

The settlement strategy developed by the Maryland colonists shows strong patterning, consistency and an awareness of environmental subtleties, particularly in regard to soils. The settlement strategy made full and efficient use of the available resources within the parameters of the staple economy, the transportation modes and marketing needs, and the knowledge and capabilities of the colonizing population.

By identifying the environmental factors that influenced the settlement decision, a keen sense of what a planter looked for in a parcel of land can be developed. This information can be used to predict with some precision where on the landscape he planted his tobacco and built his houses.* When he looked at and assessed a piece of land, he saw the lay-of-the-land and the types of trees growing on it to determine where and how much light soil there was. He considered the distance and ease of water access and he looked to see if it was well-watered, with clear, permanent springs near which he could build a house.

* The selection of his land would be perhaps the most significant decision the planter would make an no doubt he did it carefully and collected as much information as possible.

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