Forts of the Chieftains: A Study of Vernacular, Classical, and Renaissance Influence on Defensible Town and Villa Plans in 17th-Century Virginia

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FORTS OF THE CHIEFTAINS:

A STUDY OF VERNACULAR, CLASSICAL, AND RENAISSANCE INFLUENCE ON DEFENSIBLE TOWN AND VILLA PLANS IN 17TH-CENTURY VIRGINIA

A Thesis
Presented to
The Faculty of the Department of Anthropology
The College of William and Mary in Virginia

In Partial Fulfillment
Of the Requirements for the Degree of
Master of Arts

by
Charles Thomas Hodges
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This thesis is submitted in partial fulfillment of
the requirements for the degree of

Master of Arts

Author

Approved, April 2003

Norman F. Barka

Marley R. Brown, III

Cary Carson
DEDICATION

This thesis is dedicated to "Pinky Harrington," Leverette Gregory, Ray Sasser, Michael Burke, Michael Barber, Christy Smith, James McClure, Andrew Edwards, Antony Opperman, Virginia militia (Virginia National Guard) artilleryman John Hodges, and patrons of the arts Mary Ellen Norrisey Hodges and Elizabeth A. Hodges.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGMENTS</td>
<td>V</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>VIII</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>IX</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>XVIII</td>
</tr>
<tr>
<td>CHAPTER 1. INTRODUCTION</td>
<td>2</td>
</tr>
<tr>
<td>CHAPTER 2. YEARDLEY’S FORT (44PG65)</td>
<td>58</td>
</tr>
<tr>
<td>CHAPTER 3. COMPARATIVE EVIDENCE AND SUMMARY</td>
<td>342</td>
</tr>
<tr>
<td>BIBIOGRAPHY</td>
<td>565</td>
</tr>
<tr>
<td>VITA</td>
<td>588</td>
</tr>
</tbody>
</table>
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## LIST OF TABLES

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Basic Predictive Models for Fortified/Courtyarded Settlements</td>
<td>45</td>
</tr>
<tr>
<td>1607–50</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Great Ordnance Dispositions In Virginia from March 1621–22</td>
<td>111</td>
</tr>
<tr>
<td>to 1626</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Non-Domestic Buildings Listed in the Muster of 1624–25,</td>
<td>143</td>
</tr>
<tr>
<td>Correlated by Public Corporation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Key Analogues Chart (Social, Spatial and Functional) For</td>
<td>344</td>
</tr>
<tr>
<td>Small-Scale Variant Town\Plantation Plans</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Ulster Bawns from Pynnar’s Survey 1618–19 Having Useful</td>
<td>443</td>
</tr>
<tr>
<td>Descriptive Information</td>
<td></td>
</tr>
</tbody>
</table>
LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The Principal features of a Roman auxiliary fort (Johnson 1983:35).</td>
</tr>
<tr>
<td>2.</td>
<td>Plan of Flint, Wales: 1610 (Reps 1972:4), a good example of the Romano-Medieval plan with exclusive castle sited hierarchically over dependent community.</td>
</tr>
<tr>
<td>2a.</td>
<td>(Top left) Magherafet, (Top right) Salterstown, (Bottom) Moneymore, all 1622, Ulster, Ireland (Camblin 1951:12–13). These are cheaper versions of the Romano-Medieval Plan with exclusive fortified manor sited over subordinate community.</td>
</tr>
<tr>
<td>4.</td>
<td>(Top) Philippeville, (Bottom) Marienbourg, both Belgium 1581. Note how each street leads to a bastion (outward) and into a town square and market (inward) (Reps 1972:28). Typical inclusive Romano/Renaissance Plan.</td>
</tr>
<tr>
<td>5.</td>
<td>The Bray Rossiter farm of ca. 1652–60. (Top) Conjectural Interpretation, (Bottom) Plan view based on description.</td>
</tr>
<tr>
<td>7.</td>
<td>The growth of Manila, Philippines ca. 1576–1650. Jamestown barely made it to the ca. 1576 stage (Parker 1988:Fig. 5).</td>
</tr>
<tr>
<td>8.</td>
<td>The Roman Fort at Colchester (at top). Roman Fort Ad 43; grid of fort reabsorbed by town growth (Scullard 1986:52).</td>
</tr>
<tr>
<td>10.</td>
<td>A bordering house from a railed-in peninsula in West Africa 1665. Note musketeer (sharp angle in wall) (Lawrence 1964.).</td>
</tr>
</tbody>
</table>
11. New Netherland (New York) 1660. Note similar settlement model to Flowerdew railed-in peninsula, fort, and windmill at tip. Also note campagna, gardens (Bushman 1993:128) 79

12. Map showing the James River ca. 1614–26 85


14. Similar tactical positions to Yeardley Fort. (Top) The Great Dutch wall of 1605. Note arrow pointing to fort in tact zone. (Bottom) Lee Neck Battery on the Themes, England ca. 1588. Note arrow, the battery targets tact zone. (Top) Parker 1988:Fig. 14. (Bottom) Walker, 1981 166

15. Detail of Yeardley/Piersey complex showing feet-and-rod relationship 168


17. The 44PG64 Redoubt from Hodges 1993:Fig. 4 175

18. The archaeological features of the 44PF66 Redoubt (Len Winter 1982 n.d.) 177

19. The enclosed settlement 1977 before structural analysis (Barka 1993) 183

20. Yeardley’s Fort with key components identified (after Hodges 1993) 184

21. Geometry of a bastioned fortification from Robinson 1977: Fig. 114 186

22. The Master Grid of Yeardley's Fort and its interpretive implications 188

23. Yeardley’s Fort exterior polygon used as test of fort’s structured analysis. Note clean angle numbers 189

24. A comparison of Late Medieval and Renaissance fire zones 191
25. The evolution of Yeardley's Fort. (a at top) ca. 1619–22, (b in middle) ca. fall/winter 1622–23, (c at bottom) ca. spring/winter 1623

26. Breakdown of the Master Plan of Yeardley's Fort ca. 1619–22

27. Simple forts from Ive. (Top) a flankered redoubt. (Bottom) a sconce or star fort. Yeardley cheated the plan of the top fort by 15 degrees per flank (Ive 1589:32)

28. Breakdown of the Master Plan of Yeardley's Fort ca. fall/winter of 1622–23. Note town square, the second phase at fort

29. Broughty Crag from the Belvoir Plans (late 16th century). Note how in this English fort, paired demi-bastions are in the process of being made into full bastions; note also non-hierarchical building (Hale 1983:Fig. 65)

30. Breakdown of Yeardley's Fort Master Plan ca. spring/summer 1623. Note structural method of calculating fort perimeter and bastions

31. Plan view of a quadrangular fort built in the high-style Italian 1501–02 (De La Croix 1972:Fig. 62)

32. Yeardley's Fort. The basic fields of defensive fire

33. The archaeological Master Plan. Structural analysis of just the archaeology plan. Note core tripartite plan

34. Structure 1, the Garrison House. (Top) archaeology plan, (Bottom) a plan interpretation. Lead Structure 1: barracks, quarter, or Court of Guard and Dairy Complex

35. Leonardo Da Vinci's Vitruvian man (Pedretti 1985)

36. Magherafelt 1622. Note how the Vitruvian triangle points right toward the hearth (Ramblin 1951)

37. Comparative drawing showing the classical proportions of Yeardley's Fort and Shirley ca. 1740. (Bottom) Reinhart et al. 1984:Fig. 17
38. An overnight cavalry encampment of 1579. Note ordinal plan due to personnel discipline (from Digges 1579, reprinted 1968) .................................................................253

39. (Top) A house and garden from Lawson 1618 (Crisp 1926: CLXXXVIII), compare with Ulster model, (Bottom) a small Italian villa from Crescenzio’s Agricultura 1495 (Crisp 1926: Fig. 82). Note core tripartite plan ........................................255

40. The chateau of Bury, 16th century. Note space reserved for animals in base court (which is now expanded) (Crisp 1926: Fig. CCLXXX) .................................................................268

41. Reconstruction of the Anglo-Norman defensible grange at Newton Jerpoint, Ireland ca. 1300 a.d (From Ryan et al. 1991) ............................................................................................................269

42. Defensive walls at Flowerdew. Figures 1 and 2, south wall west of fortified entrance. Figure 1, a 10-foot section before excavation. Figure 2, the same section after excavation. Figure 3, a section of the parade curtain east of the fortified gate. Figure 4, scale comparison with section of 44PF64 redoubt double-paled curtain .................................................................273

43. Yeardley’s Fort: detail of the archaeological features at the fortified entrance. A–F, various interpretive options of which A, B, C are best .................................................................276

44. Yeardley’s Fort. The exterior view of the bastard caponier interpreted as a block house ca. 1619–22 or 1622 only ..........277

45. Interior view of the bastard caponier ca. 1619–1622; also shows options on crossties. This drawing would suggest the site always had ramparts (?) .................................................................278

46. a. Feature group association with the front entrance.
b. Caponier as seen from above. c. Ravelin showing geometric structure ........................................................................280

47. Yeardley’s Fort. The ravelin 1623–28+ ........................................286

48. The ravelin and caponier shown as a single complementary unit. Inset, the unit from behind looking out at the fort south ....287

50. Fort Maurepas French, Mississippi 1699. Note the “arrowed” double-paled stockade associated with the main fort. Also arrowed are the nail lines within the bastion (Robinson 1977:Fig. 8) .............................................................................................................290

51. Yeardley’s Fort cc. 1623–1624; the entire southeast corner. (a) archaeological features identified; (b) features interpreted in plan .............................................................................................................292

52. (Top) counterforts, (b) catena or “Vitruvian teeth” (shown horizontally). Venetian Edition of Vitruvius (Morgan 1926). (Bottom) A, civil bulwark with crossties (Martin from 1547 edition of Vitruvius), Martin translator ..............................................................................301

53. (Top) Earthwork construction cutaway. (A) foundations, (B) heavy timber uprights and piles, (C) catena, (D) earth-and-twig infill, (E) wall fascines, (F) turf lining pegged, (G) rammed clay-and-mud deck, (H) parapet and embrasures formed with gabions. (Bottom) Horizontal and vertical catena (both Pepper and Adams 1986:Figs. 47, 48) ..................................................................................304

54. Yeardley’s fort showing how paired parapet trench stains could be interpreted with the outer stain of two being a palisade barrier or “storm posts,” while the interior is a revetment. Note reuse of wall walk post as counter fort .........................................................307

55. Tilbury Fort with variation of box rampart (O’Neal 1960: Plate 22) ..........................................................................................................................309

56. Yeardley’s Fort: a. profile of the fort, earthen rampart with turf face shown in classical dimensions (i.e., width of rampart is the height of same); b. a more “modern” interpretation of the same remains ..................................................................................................................310

57. (Top) Profile of a rampart terreplein system. (Bottom) Individual cannon platforms criss cross sleepers with V-shaped embrasures in front of them ..................................................................................312

58. The Siege of Althona, near Hamburg, Germany 1691. Here stockade revetments with a turve or earthen “batter” poke
out above to form parapets and gun ports (Van Creveld 1989:18-D). ..........................................................313

59. Detail of cross tie system and possible strut system of the south curtain west of fortified gate at Yeardley’s Fort..............318

60. Wall walks. (Top left) Iron- or Bronze-Age wattled wall and walk (Hoggs 1981), (Top right) medieval wall walk (Kenyon 1990), (Bottom) wall walk at Monea Castle ca. 1622 (Ryan et al. 1991) ..........................................................................................321

61. Yeardley’s Fort. The southeast flanker and its evolution ......324

62. Influence of a west English longhouse seen below the headquarters building.........................................................338

63. The key analogues chart from Kruft 1984; Rowley and Wood 1982; Reinhart et al. 1984..............................................346

64. Late medieval house types for peasants or poor (Rowley and Wood 1982:Fig. 17)..........................................................347

65. The Shirley mansion complex ca. 1740 (Reinhart et al. 1984) ..................................................................................347

66. Foreman’s analysis of site structure at Jamestown 1607 (1610) (Forman 1938) ..............................................................349

67. Sidney King’s painting of James Fort 1607 (Reps 1972: Fig. 26)..................................................................................353

68. James Fort in 1610; Yeardley’s fort 1622–23..........................355

69. Three Vitruvian tripartite plans. (Top) Borcovicus Praetorium, the headquarters building of Roman fort (Johnson 1983); (Middle) Yeardley’s Fort; (Bottom) James Fort (Forman 1938) ..................................................................................360

70. Zuniga 1 and 2, Blackwater 1, St. Augustine, Yeardley’s Fort, and Redoubt from Breda Siege.................................366

71. Triangular forts. (Top) Fort Dorothea 1654, West Africa flanked redoubt (Lawrence 1964), (Bottom) Castello di Sazanello Triangular castle ca. 1325 outwork ravelin 15th to 16th century (Toy 1984) ..........................................................369
72. The Sandgate Fort (16th century) (O'Neil 1964) ..............................370
73. The English flanked rampart at Blackwater (Blackwater 1) which defends a ford against the Irish (Rowse 1971: Fig. 3a) ........................................................................................................371
74. The Blackwater Fort ca. 1601 (Reps 1972) .....................................371
75. Transformation of a triangular flanked redoubt .........................374
76. The battle at Zutphen in the Low Countries 1586. Note two English triangular forts on the Island (New York Public Library Prints Division) ..................................................................................378
77. A profile of the ca. 1607–09 James Fort curtain showing how elevated gun ports became useless to attackers ...........................380
78. Contemporary profiles of ramparts and ditches 1649 .................384
79. Profile of James Fort ca. late 1610 showing modification by Anglo-Dutch troops and Sir Thomas Gates .................................385
80. The Tudor Guines Fort with three massive trefoil bastions; arrow points to one studied to model James Fort's southeast trefoil bulwark (O'Neil 1964:Plate 18) ..................................................387
81. Identification of the trefoil bulwarks at James Fort ca. 1610+ ........................................................................................................388
82. The town plan of Wolstenholme Town (Hume 1982: Fig 11–2) ........................................................................................................392
83. (Top) Wolstenholme Town layout, (Bottom) (L) Villa Badoer, (R) Villa Zen by Palladio (Thompson 1993:Fig. 88) .........................399
84. A comparison of Shirley and Walstenholme Town showing Vitruvian influences (Reinhart et al. 1984; Pedretti 1985: Fig. 291) ........................................................................................................406
85. (Top) Wolstenholme Town, (Bottom) Corbin's Rest. Although both sites create a courtyard, only Wolstenholme Town references classical antiquity .................................................................422
86. (a) Structural analysis of Harwood's Fort, a working plan, (b) Hypothetical profile of fort, (c) Dead ground created at corners and internal flank curve, from Brackenberry 1988.....428
87. Harwood's Fort after structural analysis. Note clean numbers of feet, angles, and rods .................................................................439

88. (Top) Drake's attack on St. Augustine ca. 1586. Note base court above trapezoid fort, showing Harwood's growth intentions. (Bottom) The fort at St. Augustine ca. 1585–93 with original core trapezoid from and similar mental template to Harwood's Fort (Chantelain 1941:Map 5) ......................................................................450

89. A page from Ive's Practice of Fortification 1589:8 showing why most Virginia forts are trapezoidal since they are starting with half (dotted lines are author's insert) ........................................452

90. Dacre Castle early 14th-century England. Note squared towers at opposite angles (Thompson 1989:Fig.11) ..........................................453

90a. Port Royal French Canada 1605. Note strong French courtyard tradition; left lower bastion similar to Hallowes; right lower similar to Harwood's Fort (Hannon 1969) ............................................454

91. The Jordans Journey false redoubt ca. 1622–25. Note Vitruvian triangle with hierarchical Structure 5 at vertex .........................468

92. Detail of tripartite core plan Jordans Journey 1622–23. There are 10 points of correspondence here; arrows show possible lines of fire ......................................................................................471

93. Redoubts or forts with spurs. ........................................................................477

94. The structure of the false redoubt at Jordans Journey with Pts. 4, 9, 8, 7, 6, 5 being the exterior polygon .........................................479

95. Plan of the evolution of the Nansemond Fort/Site ca. 1635–1730 (Hodges 1993:Fig.5) .................................................................485

96. Analogues for Nansemond and Yeardley's Forts ....................................487

97. (Top) Early Norman motte-and-bailey fort. Note service “base court” to left (Toy 1984:53); (Middle) Yeardley's Fort base court to left (cattle pound) (Hodges 1993); (Bottom, Nansemond Fort base court livestock and horse corral to left (Hodges 1993) ....489

98. Detail of core tripartite plan at the Nansemond fort. Note outof-square building regimen ...............................................................491
99. Z-Plan forts. (Top) Irish fort defended against English from painting by Richard Bartlett ca. 1590–1602 (Archives Dublin); (Bottom) a fortified pavilion in Milan designed by Leonardo Da Vinci (Pedretti 1985:67) .................................................................495

100. The Susquehannock fort, a flankered redoubt 1675. Note entrances next to each demi-bastion, revetment of top demi-bastion (Ferguson 1941) .................................................................504

101. A flankered redoubt from Ward 1639 (compare with the Susquehannock Fort) (Ramm et al. 1964:Fig. 176) .................507

102. Detail of the core tripartite plan at the Clifts site. Note tight plan of quarter vs. loose outbuildings .............................511

103. The trapezoidal emergency Clifts Z-Plan fortlet compound compared with the Ulster, Ireland Skinners Company “Bawn” (Hodges 1993; after Neiman 1981, St. George 1990) ..............515

104. Z-Plan forts and castles and related works (Hodges 1993: Fig. 7) ........................................................................519

105. A 14th-century English castle along with Mt. Vernon. Note how fortification helps prejudice social elites for Palladian symmetry. (Top, Toy, 1975) (Bottom, Morrison, 1952). ..................559

106. Sites that seem to have the strongest debt to a west English exploded long house with a hierarchical manor or headquarters building ........................................................................564

107. A plan showing staggered alternating town lots looking like a Roman fort (from a French edition of Vitruvius 1547) Jan Martin Translator .................................................................566
ABSTRACT

This thesis explores the extent to which the early 17th-century English "particular plantation" layout at Flowerdew Hundred (1618–32), located in Prince George County, Virginia, was influenced by patterned cognition recorded in earlier Chesapeake public corporations and contemporary town-planning models. Historical archaeology, middle-range theory, competence, site-structure analogs, and the comparative method are used to analyze the database, which then is favorably compared with the basic site structure of archaeological sites at Jordans Journey, Wolstenholme Town, James Fort, the Nansemond Fort, and Clifts.

This study determines that, through the influence of George Yeardley, who owned the plantation from 1619 through 1624, Flowerdew Hundred shares important attributes with previous public corporations in Virginia at Bermuda Hundred, Charles City, and Henrico. The presence of immense wealth and social power, a fort with publicly owned artillery, a resident corporation minister, public tobacco and storehouses, railed-in corporate cattle herds, and a complete military command system indicate that Flowerdew Hundred became the key public corporation center for Charles City and the main James River defensive center for the entire Virginia colony during the Second Anglo-Powhatan War (1622–32).

The fort and town center at Flowerdew Hundred were fully integrated through Roman, Renaissance, and Dutch influences. Within it, Yeardley took the structure of the west English longhouse and cleverly adjusted it to make an architectural statement of "humanitas," a noncommemorative reference to classical antiquity. The plan features a headquarters building and chapel in a hierarchal position over a subordinate quarter and public store. The result is a Palladian-influenced Vitruvian tripartite plan that summarizes the "civility" of a town as a defended villa.

The tripartite plan at Flowerdew is spatially and functionally comparable to the architectural core of numerous Ulster sites; Jamestown Fort, Jordan's Journey, Site C at Martin's Hundred, the Nansemond Fort at Harbor View, and Clifts plantation in the 17th-century Chesapeake; and 18th-century Virginia plantations such as Shirley and Nomini Hall. The common classical deep structure of all these units suggests that 17th-century, loosely symmetrical ordinal villa plans with staggered subordinate buildings—permissible in Renaissance conceptions of Vitruvian order—yielded to more metaphoric and rigidly symmetrical Palladian villa plans in the 18th century, allowing us to account for change in the Structuralist cognitive model of Deetz (1977).
FORTS OF THE CHIEFTAINS:

A STUDY OF VERNACULAR, CLASSICAL, AND RENAISSANCE INFLUENCE ON DEFENSIBLE TOWN AND VILLA PLANS IN 17TH-CENTURY VIRGINIA
CHAPTER 1
INTRODUCTION

FORWARD

Writing of the events of 1675 to 1676 associated with Bacon's Rebellion in which rude English diplomacy resulted in retaliatory raids from the Susquehannock Indians, one William Maxwell (1850:63) wrote:

"In these frightful times the most exposed small families withdrew into our houses of better numbers, which we fortified with pallisadoes and redoubts, neighbors in bodys joined their labors from each plantation to others alternately, taking their arms into the fields, and setting centinels; no man stirred out of door unarm’d, Indians were (ever and anon) espied, three 4, 5, or 6, in a party lurking throughout the whole land...."

The title of this thesis is taken from John Smith’s complaint that, "few but the Cheiftanes," such as his arch-rival military commander George Yeardley, were bettered by summer relief ships sent to Virginia after the "Massacre" of spring 1622 (Arber 1910 II:595). This of course is during similar "frightful times" times Maxwell described immediately above. This thesis focuses on archaeological remains of the same or similar fortified settlements or "redoubts" found among indigenous English "chieftains" who were defending themselves from the Powhatan Chiefdom and, in one case, potential European
rivals during the second and third Anglo-Powhatan wars of 1622–32 and 1644–46 respectively, and those associated with Bacon's Rebellion involving Doeg and Susquehannock raids. Accordingly in this discourse, these study units are considered in light of vernacular influences on the organization of the settlements and their military shells as closed cultural systems.

What kinds of questions are we asking about the seats of defense of these indigenous "chieftains?" In the past at least, many scholars have compared Virginia and New England to sister settlements in Ulster, Ireland (Garvan 1951, Reps 1972, Noel Hume 1991). What intellectual allegiance do these early Virginia settlements really owe to the Ulster model? Are there indications of English civility in these works or are they just sordid fortifications? What cultural behavior lies beneath the surface manifestations of these archaeological sites?

**HYPOTHESIS**

The original thesis hypothesis that we test at the beginning of the study follows:

Some 17th-century Virginia social elites never gave up on planning ideals defined by Garvan (1951) and Reps (1972); when they had sufficient labor to express them through praxeological constraints, these elites were often compelled to reduce this plan to a simple asymmetrical tripartite—that is, classically inspired in a peculiarly English fashion. This plan origination in Roman villas, principia, and burgi, defended medieval granges and bhyrs, and Renaissance country houses and fortifications
is the basis of the typical Georgian (Palladian) 18th-century plantation complex because of common needs to architecturally define an insecure small-scale social hierarchy.

Stated in a slightly different way, which is more reflective of actual study results, our adjusted hypothesis can be read to say:

**Had the English never settled in Ulster, not one single thing in Virginia would have changed.** Both settlements were animated by larger classically and Renaissance-inspired models for both scaled downtown planning and fortification. Those in turn were deeply affected by ordinal Vitruvian plans compromised by the chain of being and enclosed in a viable and dynamic international military defensive tradition attenuated up by interceding 16th-century warfare.

Each hypothesis has a common theme; that is, Renaissance fortification and intellectual interest in classicism cut across both Ulster and Virginia and is the much larger parent model. In the course of our study, we will demonstrate that tripartite plans have a common origin in the Vitruvian and Renaissance notion that the symmetry of man himself with a ordinal head over pairs of subordinate limbs and organs is the perceived ultimate architectural expression of and model for the civility of the English leadership. Consequently, manors—or the "head" or each building complex configuration—were sited in an architecturally sensitive central or ordinal position over secondary structures. Quarters occupied by servants and militia were placed in a precise subordinate position below manors or headquarter buildings, while buildings such as barns or storehouses
containing objects spatially submit to both quarters and manor. This layout reflects a ranking of the Elizabethan and early colonial cosmos in an identical ordinal pattern.

Militarily speaking, profound constraints forced the colonists to employ simple flanked or unflanked redoubts borrowed from both the battlefields of Europe and the last gasps of a once-viable castle-building tradition. While the Italian and Dutch works were the recognized principle models for English soldiery, it will be demonstrated that even these works, revetted with timber and braced by earth or turves, have Roman and therefore classical underpinnings. Moreover, because the European Renaissance was international in nature and expanded to the New World, the most basic model of fortification ideals is reflected among English, French, and Spanish colonial efforts. This infinitely enlarges the universe of comparisons that can be made.

Although our study group is necessarily small—because we now have actual archaeological examples for comparison purposes, rather than seeing direct parallels with Ulster models in this study—we can begin to tease apart vernacular trends between Chesapeake and Ulster examples. This is both in terms of fortification and as regional examples of reductive town planning models. At present our archaeological finds indicate that no one really wanted to build towns because of expense and the complications of social and
political interactions; instead, small organized villages or villas modeled after British military winter encampments in the Low Countries (Holland and Flanders) were preferred as inexpensive administrative centers that were subordinate to the necessary evil of a single town. We also introduce the notion that there is no significant tension between town planning and fortification planning in either the classical or Renaissance world. Moreover, we hope to demonstrate that, unlike the modern world, the regional military and political leadership were not significantly different in early Virginia.

OVERVIEW: PRIOR RESEARCH

A brief overview of the present state of anthropological and historical theory is requisite as prologue to this research. This body of material is immense; thus, focus here is on a brief sketch of what specific theoretical contributions have been made for the 17th century and the 17th-century Chesapeake that might aid research on community planning and fortification. A number of useful studies provide some background for the current study. These studies emerge from broadly based generalizing approaches by historic archaeologists and colonial historians as well as more specifically regional research initiatives provided through multi-disciplinary studies.
Town Planning Studies and their Appropriate Models
For Early Virginia

The most pertinent studies that examine planning activities are those of Garvan (1951) and Reps (1972). The author has added St. George's models to these models for argument's sake.

Garvan's Town Planning Model: Classical Underpinnings

To explain the relationship between domestic architecture, national origins, and demography in colonial Connecticut, Anthony Garvan (1951) observed a complimentary relationship between early town planning and defensive fortification in Medieval England and France based on the bastide. In brief, a bastide is a defensively walled and frequently bastioned perimeter surrounding an urban community organized within a grid-plan street system. See Figure 1. Garvan observed that the late medieval bastide was ultimately based on earlier Roman models (Garvan 1951:27–29; Reps 1972:2–3)). These Roman models included military encampments or towns that were surrounded by protective walls and featured a central

![Figure 1](image-url)
market place called an oppidum.

Although much can be added to Garvan's (1951:46) seminal study, one very important contribution cannot be overestimated; that is, he observed the classical influence underpinning 17th-century town design. Roman architect and town planner Vitruvius suggested that a Roman town should be healthfully sighted and, as a matter of course, strongly walled with periodic supporting flanking towers and divided by streets that took advantage of winds (Morgan 1926:17–31).

Garvan used the masonry Flint Castle of 1604, built in Wales to illustrate themes of multiple bilinear street organization below a central castle. At Flint, a Roman-style bastide enclosing a town is situated directly below a Norman castle (Reps 1972:3–4) (see Figure 2). However, the actual context of the arrangement is more complex than he allows.

The castle was originally built in timber between 1277 and 1280 with earthen rampart walks. After 1300 it was turned into a rot- and fireproof masonry work with a supporting

Figure 2
Plan of Flint, Wales: 1610 (Reps 1972:4), a good example of the Romano-Medieval plan with exclusive castle sited hierarchically over dependent community.
church, market place, square, and bilinear streets. Only then was it possible to lure indigenous Welsh and civil English to this increasingly urban and commercial place of security. Before this, the castle itself had its own appended courtyard or "bailey," which grew to include an inner and outer bailey. The inner bailey functioned as the original town center until later when the outer bailey became the focal point. Both of the baileys probably continued as service units to the castle rather than to the town as the bastide grew. Both defensive units initially served as an ethnically restricted infant town centers and administrative seats (Thompson 1975:181, 182, 249; Toy 1955:155,170).

Garvan noted that many of these Roman and Anglo-Norman town-planning ideals continued to provide legitimate models to early 17th-century town planning in Ulster, Irish settlements made by the English and Protestant Scottish. Larger settlements like Londonderry, for instance, were fortified using the more pretentious Renaissance system with large arrow-shaped bastions along the city walls. However, in the Ulster plantation, the less pretentious, more poorly financed settlements appeared to follow a much simpler plan that preserved some aspects of the basic frontier pattern as in the Flint Wales example. Instead of a castle with high medieval walls, a "bawn"—typically a flanked fortified courtyard for minor elites, a defensible courtyard for smaller planters, and primarily a communal cattle pound for others—was often hierarchically sighted above bilinear groups of tenant and
servant quarters along but a single street. Examples of these systems have been recorded at Magherafelt and Macosquin during the 1622 period (Garvan 1951:28, 38, Figure 31). (See Figure 2a.)

Figure 2a
(Top left) Magherafelt, (Top right) Slaterstown, (Bottom) Moneymore, all 1622, Ulster, Ireland (Camblin 1951:12–13). These are cheaper versions of the Romano-Medieval Plan with exclusive fortified manor sited over subordinate community.
Notably, Garvan suggested that the commercial interests of several notable investors focused attention on the Irish plantation experiment as a potential model for frontier communities in Virginia and New England. For instance, he observed that the completed version of Jamestown—with the bilinear street of New Town added opposite the fort—"closely resembled an Ulster bawn erected a short distance from the town." Moreover, he noted that James Fort's first leader was Maister Wingfield, "a soldier who had seen service in Ireland" (Garvan 1951:38–39).

**Reps' Models: Renaissance Citadels and Small-Scale Plans**

In his study, *Tidewater Towns*, Reps (1972:21–45) produced similar studies to Garvan's New England-based work for but for coastal Virginia and Maryland. Reps focused more on the Renaissance ideal city than had Garvan, although, like Garvan (1951:33–35, 47), he observed important examples of how simplification of Renaissance ideals occurred. (See Figures 3 and 4.) The new ideal Renaissance city, which was influenced by Vitruvian town orientation, was however based on rational principles influenced by Italian military engineers who sought to defend their towns based on new scientific principles of fortification (Garvan 1969:47–48). These citadels typically consisted of massive essentially circular units broken into polygons,
5. Plan of an ideal city, Sforzinda, by Filarete, 1464.

Figure 3
Figure 4
(Top) Philippeville, (Bottom) Marienbourg, both Belgium 1581. Note how each street leads to a bastion (outward) and into a town square and market (inward) (Reps 1972:28). Typical inclusive Romano/Renaissance Plan.
surrounded by large, arrow-shaped bastions at every angle of the exterior walls to flank attackers with crossfire between bastions. Each street radiated outward from the town center, which was occupied by a church and market place, and led to a bastion in the fashion of a wheel hub (Argan 1969: De La Croix 1972:39–55).

In some ways this spatial dynamic compliments the Norman model is seen at Flint and Magherafelt, except the fortress and the town were one in the same and the population dispersed to the surrounding defensive bastions rather than to a single point of strength such as a castle or bawn. This defense shift toward the exterior of the community is essentially a return to the Roman ideal with new adjustments for gunpowder weapons.

Reps (1972:27–31) observed that the French, Dutch, and English alike were often forced to reduce the huge Renaissance radial citadel to the more practicable pentagonal, quadrilaterals, and triangular forms. This modification reasonably satisfied Renaissance ideals, yet was less costly to construct and maintain. Reps referenced Virginia's examples of James Fort (1607–11+) and Henricus (1611–13+) (both built by ideals that superceded Ulster). As reduced to a simple bawn within smaller Ulster plantations, Reps noted they "exhibited considerable variations in their plans," with some having "linear plans" of only a single street such as Magherafelt. Regarding James Fort, he noted that, during the second phase of settlement when the
town outgrew the fort at ca. 1614, "that community must have closely resembled these linear Ulster villages" which Ralph Hamor described as "two faire rows of houses." These meager improvements later grew into "New Town" Jamestown laid out by William Clayborne in 1621.

Although Garvan does not make the similarity between Ulster bawns and medieval castles sited above rows of domiciles totally explicit, Reps (1972:2–3) observed that these settlement organizations follow the same practical rules as the late 13th-century Norman model at Flint. The main difference is that the smaller Ulster villages omit protective walls to the dependent communities along the streets as the former bastide once did. Markets were apparently planned at the terminus of each street. This system, which was more village than town-like, places most of the settlement community in a state of total dependence on the fortified manor or bawn. In all three cases at Flint, Magherafelt, and Macosquin, during times of serious threat, the outside community and livestock could be rapidly moved down the central street to gain defensive succor within the bawns at Magherafelt and Macosquin—rather than massive castle walls as at Flint Castle. Noel Hume (1983:34), who noted Macosquin as a model for Site C at Martins Hundred, calls this "the mother hen and baby chick" plan of defense.
St. George's Bawn Models: Rational and Commercial Courtyarding

In 1990, Robert St. George suggested that these bawn courtyards need not be considered as solely defensive units within frontier expansion; nor do they need to occur within the frontier. Instead, he argued that bawns—that is, the curtains or courtyard walls defining an enclosed aggregation of rural outbuildings and domestic improvements—primarily represented an efficient new way of organizing commercially based farmyards based on carefully arranged fully courtyarded planning models.

St. George used "utterances" or "reported architecture" (a contemporary verbally sketched plan) of the courtyarded Bray Rossiter farmstead of ca. 1652–60 in Guilford, Connecticut (see Figure 5), as a point of departure for his study (1990:244–256). The concepts of rationally agglomerated farmsteads affected by Roman villas models were, in modern application, first offered by Charles Estienne (an Italian born in Paris) and John Liebault's book of 1567 entitled Maison Rustique. These works were later translated into German and English, the latter through Richard Surflet's The Countrey Farme, published in 1606 at the eve of English colonial expansion. They were updated for the realities of the northern English farmstead by Gervase Markham in 1616 to avoid confusion with warm-weather crops and building orientations originally recommended by Estienne (St. George 1990:283–287).
In sum, St. George saw bawns as material expressions of new capitalist ideals, which pulled together the notions of defended farmsteads, walled towns or farmsteads, Roman villas, Renaissance ideals, and
convenient commercial farming into a single complex architectural and ultimately ideological entity, hence the article title, "Bawns and Beliefs."

PERTINENT ANTHROPOLOGICAL AND MULTIDISCIPLINARY THEORY

So far we have briefly outlined what has been said regarding town- and bawn-planning ideals both regionally and internationally. It is now appropriate to shift toward what has been said regarding regional cultural behavior during the 17th century from a more generalized anthropological context. Unfortunately, the superabundance of descriptive and interpretive work on the Chesapeake pertaining to the 17th century has not been matched by major generalizing theoretical contributions emerging from regional studies. Consequently, we must turn to the more generalizing studies of James Deetz.

Deetz's Structuralist Generalizing Model

Deetz (1977) worked from a cognitive Structuralist perspective using a New England database to characterize the early 17th-century construction to about 1660 as primarily that of a conservative folk culture attempting to replicate yeoman folkways in the new world. He believed communal living and eating, closeness to nature, and an asymmetrical and organic building regimen characterized this culture. Deetz noted that at about 1660 this essentially late medieval tradition began to gradually shift toward a regional vernacular living regimen. By about 1760 this tradition shifted toward
"Georgian" based on individualism, a conscious separation from nature, and a building regimen including symmetrical housing with private and public space (Deetz 1993:70–71). The latter notions are strongly influenced by the work of Glassie (1975) who probably jumbled middle-class housing with genuine "folk" housing, as the majority of the latter dwellings in Louisa County, Virginia, were probably no longer standing.

In general, Deetz's characterizations of the early 17th century suggest the florescence of the Elizabethan and Jacobean Renaissance was but a thin or absent veneer on an essentially late Medieval "mindset" in the American colonies (Deetz 1977:39–40).

**Leone and the Critical School**

Another popular school based in Maryland and which has made contributions to anthropological theory in historic archaeology emerges from the Critical School. This school has tended to focus on the 18th century frequently through research initiatives associated with Annapolis. A late incarnation or outgrowth of neo-Marxism, the school generally characterizes material culture in inevitable struggles between dominant social groups and subordinate members of society while simultaneously seeking to point out cultural biases that scholars project into their work.

Admittedly Leone has offered little wisdom on the 17th century, but he has made two important studies that appear to shed light on the current
study. In a later study of the Paca Garden in 18th-century Annapolis, Leone (1988) noted that an elite townsman manipulated garden and landscape geometry to underscore his own social status over peers while simultaneously dominating and manipulating nature. He, however, makes no significant attempt to explain where this behavior came from in the past.

**Architectural Studies with Social Sensitivity**

Regional studies based on sensitivity to architecture and social conditions are probably Virginia's most significant contribution to theory. To understand a remarkably vigorous earthfast building tradition in the Chesapeake, which was essentially unknown before the 1970s, Carson (et al. 1981) suggested that Chesapeake planters generally placed more emphasis on manipulating land and labor than on constructing architecture, the result of which was an impermanent building tradition ideally suited to the tobacco monoculture. Carson and colleges further noted that by about 1650+ regional pressures resulted in a shift toward a relatively mature vernacular house that evolved directly from the West English pattern. Unlike Deetz, Carson (1969) noted that the parent forms of West English houses were not truly in full balance "medieval" despite strong medieval prototypes (Carson 1969; Beresford and Hurst 1971). This was the loosely framed but "sufficient" hole-set "Virginia House." Although the Virginia house appeared slightly earlier than anticipated changes in the Deetz New England model, it is essentially temporally complimentary to it.
The Chesapeake farmstead during roughly the same post-1650 period has also received some attention. Neiman (1978) has suggested that social conditions resulting from the emergence of slavery and continuous servant pressures encouraged planters to eject servants and slaves from initially communal manorial housing. This ejection resulted in a plantation complex consisting of numerous outbuildings with separate servant and slave housing as well as numerous service units. In a very brief synthetic study, Carson (1985) describes this emerging regional plantation farmstead arrangement noted by Neiman, as characteristically amounting to a small loosely organized village in scale (Deetz 1993:77). Villages, he suggested, increasingly favored a generalized relatively open "West English" organization as opposed to the more concentrated New England regional plan. Carson eloquently described the little Virginia plantation complexes as architectural "perpetual frontiers" based on their continuing impermanence due to primary reliance on wooden earthfast building techniques (Carson 1985:55–59).

**Pertinent Historical Studies**

**Morgan's Deterministic Model of Class and Racial Exploitation**

Leone's notion of class exploitation was seemingly independently underscored by historian Edmund Morgan's landmark study of 17th-century Virginia society in *American Slavery American Freedom* (1975). Morgan characterized the development of that Virginia society as strongly affected by
its emerging labor-intensive tobacco economy. In a somewhat deterministic vein, he felt such pre-conditions quickly led by about 1619—and increasingly by 1660–1700—to the inevitable exploitation of laboring classes by a relatively small number of elites. That exploitation ultimately led to slavery for African-Americans so that, in effect, whites could be free.

Other Historical Studies and Military Planning Models

Roman soldier Vegetius, whose works were first translated into English in the 15th century, recommended orderly walled encampments, essentially portable walled towns, created by strongly disciplined soldiers who had to be fort- and town-building engineers as well as military fighters. He suggested that any proper town should also be fortified by either natural or man-made defenses, or, if possible, by both (Milner 1993). In fact, much that we call "Roman" ideals here were really Hellenistic and Etruscan, except as those ideals are applied to a colonial military model in the characteristically Imperial Roman approach (De la Croix 1972:21–31). Below we will not linger on any town plan pre-dating the Roman model.

A Roman "burgi" (from which Burgundy, northern France gets its name because of the proliferation of burgi there) was a small-scale fortified community typically used by the Romans to defend a spring between a city and water source along their frontiers. It appears to have first been used in
Germania, and perhaps there is Native European (Celtic and Germanic) influence in the design as well as Roman influence.

For the English at least, the medieval bastide noted by Garvan above is probably a masonry version of the less permanent Anglo-Saxon byhr which bears a striking similarity to Roman fortified camps and seems to be related to the Roman word burgi. Byhrs were fortified towns or encampments originally defended with trenches and banks surmounted with stockades and ramparts often built of turves based on a variation of the Roman model essentially described by Vegetius. It is this parent form of defense seemingly derived from the Roman fortified camp that has survived in our English language. For instance, the name Williamsburg means essentially William's fortified stronghold or fort through the German spelling of "burh" as "burg" (Thompson 1975:24–32). The first English "burgesses" who met at Jamestown in 1619 are so named based on the common root word "burg."

These were the leaders of the towns/forts from which we also get the English word borough (OED 1978:I:1184, 1185).

In our modern society, military activities are seen as separate and often vulgar entities that are separate from human civility or mainstream architectural traditions. Those perceived tensions by modern scholars are late Renaissance and early modern in origin, for about 1560 is when professional military engineers and soldiers emerged as an entity with
responsibilities that did not include fort design and construction. These modern biases are not really in keeping with early Renaissance thinking of the nature of a well-rounded man—a nature that included the ability to perform as a professional engineer. For instance, the generation of archaeologists who were reared on the notion that the oxymoron of the century was the term "military intelligence" may have forgotten that the greatest artists and thinkers Europe has arguably ever produced (including the German Albrecht Durer and Italian Renaissance geniuses Michelangelo and Leonardo Da Vinci) were actively cranking out fortification designs in a Europe thrown into the turmoil by the new siege cannon that could flatten virtually any medieval castle or fortified town in Europe (Argan 1969:Figs. 16, 17; Hogg 1981:101, Duffy 1979:Figs. 2, 3) (see Figure 6). These were artists whose patronage depended on being able to defend the city centers which sponsored them from the same increasingly mobile artillery and increasingly state-affiliated nationalistic armies that destroyed Constantinople and cost England all her French holdings (Duffy 1979:8–58).

Broadbeck's (1942) study of 17th-century Virginia fortifications offers little evidence that Virginia's publicly financed fortifications were anything less than "perpetual frontiers" that soon subsided back into the landscape. These military contractors’ post-1650 experiments with brick revetments appear to have had little impact on the final results of forts standing for 1–3 years before falling to ruin or needing serious repairs. Fithian (1991) and
especially Hodges (1992b) attribute this phenomenon to reliance on Dutch field works models built primarily of earth and turves revetted with often green timber as a relatively poor colony attempted to solve military emergencies as they appeared.

The Elizabethan approach to war was practiced typically in Holland, where the focus was the cheapest, roughest fortifications the soldiers could erect and was meant to serve for temporary protection only. The English typically then recycled its veterans from Holland to Ulster and Virginia (Corelli 1970; Oman 1937:372–389). This rotation automatically provided Virginia with soldiers incapable of building a permanent fortress—the province of a well-financed military engineer—but who were adept at throwing together a cheap, impermanent fieldwork. This factor apparently was not remedied by later militia contractors who seemingly retained the cheap Elizabethan colonial model with the aid of various military textbooks (Hodges 1992b:2–3, 49, 51, 53–54; Kelso 1996:9–11).
Military historiography is increasingly admitting to the anthropological notion that societies tend to make wars as an extension of their cultural systems. If the myth of New England has been perpetuated as pilgrims entering America to gain religious and political freedom, Virginia can be said to be more accurately portrayed as a rather successful military entrepreneurial outpost. Rutman (1951) and to some extent Shea (1986) therefore characterized Virginia colonial leadership as militant, both by the very nature of their social backgrounds (often including Anglo-Dutch veterans of the 80 Years' War) and initial political structure in what amounts to a fairly sophisticated "military regime" (1609–18). Active wars with Native Americans whose lands and corn were variously appropriated and real or anticipated conflicts with European rivals sustained this militant frontier ideology. Shea also noted that social elites and the militia leadership were typically one in the same throughout the century, a fact seemingly independently confirmed by Fausz (1977, 1988, 1990).

Fausz's (1988:98) charts of the Virginia Council of State are bristling with military titles that were not necessarily honorific, while numerous governors and council men were actively involved in actual combat supported by an essentially Machiavellian indigenous militia system whose chauvinistic ethnic identity became a basis for both territorial conquest and Native American divestiture. More than either of the previous writers, Fausz attempts to show fundamental Native American culture, trade, warfare, and
politics in relation to the evolution and direction of the rising elites of 17th-century Virginia society. Also, like Rountree (1990), he simultaneously attempts to restore Native Americans to "the central stage they occupied in the 17th century."

The development of public works such as forts and roads cannot be separated from the economy of early Virginia. As anthropologist Chang (1977:24–4) notes, "there is a tendency for human activities to agglomerate to take advantage of scale economies" (those where the savings in costs of operation were made possible by concentrating activities at a common location). Thus, in a modern late-Renaissance frontier context, the most efficient concentration of human activities that are useful to both town planning and defense are fortifications based on town-planning ideals. Chang's assertion inadvertently argues that such notions should therefore cut across European national boundaries under the Romano/Renaissance model described below. Indeed, the early evolution of the Spanish colony of Manila in the modern Philippines from 1576 to 1650 closely parallels the evolution of James Fort (Parker 1986:124–125) (see Figure 7). In doing so, this plan simultaneously indicates just how scaled down the English "scale economy" was due to the vagaries of the tobacco monoculture. The point here is that by frequently restricting ourselves to the exaggerated importance of the "Ulster Model," we lose a host of equally appealing or more appealing international parallels to English behavior in early Virginia.
It might be useful to provide some brief examples of military leadership and classicism and their influence in the civil town planning of Virginia. Using a familiar example, the theoretical concept of the initial stages of James Fort and New Town development was simply an extension of a Vitruvian plan that was based on a single building (in this case the fort spatially acted as such) with logical extensions into an organized cluster similar to the road extension from Flint Castle to the appended settlement (Argan 1969:21). Both of the earliest street improvements related to the planning of "New Town" (as noted above under the Reps section) were made under the leadership of Sir Thomas Gates and Sir George Yeardley, both of whom were active or former members of the military regime that controlled Virginia from 1609 to 1618 (Reps 1972:27–1; Shea 1985:14–24). Roman genius fully
integrated military and civil improvements to maximize the commercial exploitation of captured provinces (De La Croix 1972:27,30–31). Again, the parent of model of all this is Roman, as roads such as the one bisecting New Town moved troops and commerce just as easily (Hodder and Hassall 1971:392–391). (See Figure 8.)

Notably most Roman colonial provinces were underpinned with retired or active military veterans who were given the spoils of victory, along with civilian counterparts and who in turn frequently dominated Roman political structure. Our modern English word "colony" is derived from the Roman word "coloniae," a captured territorial settlement occupied by military veterans in a commingled incentive, spoil, and retirement system (Salway 1993:395–397).

This notion of defining an intrusive settlement working toward a territorial identity by having a fighting citizenry define its own national identity is complimentary to some of the key aspects of Machiavellian theory.
Machiavelli, for instance, argued that an indigenous national army fighting for a noble political cause such as freedom was more trustworthy than was a mercenary army. This notion quickly got wrapped up in modern nationalist armies.

As we have seen, intrusive military and civil planning policies cannot be clearly separated by models developed by Garvan's (1951) or Reps' (1972) research—based on the classical model. Are not Roman soldiers equally famous for their roads as for fortifications? Seemingly, there were no contradictions between high-level civil and defensive frontier planning, as the author hopes has been conveyed above.

**The Problems with Planning Theory, A Lack of Concrete Material Examples**

What has been lacking in all of this research? The studies of Garvan (1951:125–126) Rep (1972:33–43), and St. George's (1990:244–256) were constrained by lack of physical material evidence of early American town or bawn design on a defensive footing as might be indicated by bastions or flankers at the angles of the courtyards. All three were compelled to variously employ contemporary drawings of courtyards devoid of military improvements or conjectural reconstructions of fortifications based on contemporary descriptions. Thus, they had no material evidence of the martial spirit behind many frontier outposts and, perhaps more importantly,
how this aspect might be reconciled with other, more domestic cultural subsystems.

**Research Design**

As well as being animated by the above authors, this research effort considers inferences and hypotheses developed directly from the preliminary study of "Private Fortification in 17th-Century Virginia: A Study of Six Representative Works" (Hodges 1993). The hope is that the concrete material remains discussed in that work can lead us in other fruitful directions here. In this document our prime hypothetical concern is with fortification planning in relation to site structure and how can they illustrate vernacular trends in settlement planning and practical applications of fortification that are sensitive to real regional needs. Accordingly, the overview has stressed that the grouping of common needs to organize defenses and frontier towns or plantations is at the very core of the Roman, Medieval, Renaissance, and Ulster frontier town-planning models. Their ideals we suspect—but cannot know—should appear in some systematic way in some or many Virginia frontier plantations and act as a complete functional unit that both defends and organizes a community in some reasonable fashion.

**Terminology Used in This Study**

Following is a brief discussion of the terminology used in this study.
Vernacular

Some variations in the use of the term "vernacular" warrant a clarification of how we will specifically use the term. Webster's Dictionary (1975:1300) notes three fairly closely related definitions to the adjective term vernacular, which is derived from the Latin term for native. Our primary interest is in the third definition; that is "of, relating to, or being the common building style of a period or place."

Fort verses Fortified or Palisaded

The terms that the colonists used to describe their fortifications are also useful for decoding function and meaning in contemporary use.

In as much as the selection process of isolating sites for this brief study revolves around the identification of forts and defensive palisades, it is profitable to also clarify how these terms are applied in the text. In modern usage the term is a somewhat imprecise noun. The Oxford English Dictionary, (1978 4:472) notes the word fort is derived from the Middle English and Middle French term "forte or fort" meaning "strong." In architectural or military usage, it denotes "a fortified place; a position fortified for protective purposes, usually surrounded with a ditch, rampart, and parapet, and garrisoned with troops: a fortress." However, those lexicographers admit that usage can include in a trading post in the United States or British Canada.
Robinson's (1977:203) definition gets to the heart of the problem: "A work established for the defense of a land or maritime frontier, of an approach to a town, or of a pass or river. Although the term originally denoted a small fortification garrisoned by troops, in North America it was used to designate virtually any establishment—civil or military—associated with protection from adversaries, regardless of whether any actual fortifications were included." Robinson's meanings are guaranteed to cause constant nomenclature problems for archaeologists, as it is a statement of fact and a problem rolled into one.

To decode the meaning of the word fort in contemporary 17th-century English usage, the English Royal Commission of Historic Monuments (Ramm et al. 1964:101) provide the following succinct definition: a "detached stronghold with provision for flank defense." The term "flank" is defined as a "length of defense facing toward adjacent defenses, from which to provide covering fire, e.g. flank of a bastion—the side linking (q.v.) face and curtain." And since the term face is closely related to the term flank, it must also be described. Face means "length of defense facing toward the field, e.g. face of a bastion—one of two sides that together form the forward angle." Thus, the term fort appears to be a word defined by fairly precise import in contemporary military usage. This is a definition that denies Robinson's loose American use of the term.
From the above, it is critically important to observe that the term "fortification," a noun describing the action of strengthening typically structurally or "fortified," is not always synonymous with the term fort despite the common root word pertaining to strength (OED 1978 4:4760477). Whereas a fort is surely a most desirable type of a fortification—provided that it can be adequately manned—a fortification is not always technically a fort. In sum, therefore, to add flank defenses and thereby create a technical fort is but one of many means of fortification, despite the common root word associated in both cases with strengthening a selected position.

Thus, for fortifications that are not flanked, we use the term "palisaded," a particular method of defensive strengthening employed in the Chesapeake and falling short of the technical definition of the word fort and perhaps related to a redoubt, which means a "retreat." Potential points of confusion may occur with the realization that a technical fort might also be palisaded and that St. George has already shown us that courtyarding can be fully civil in overall conception. "Impaled" household garden "plotts" and "penned" cattle enclosures only add to potential points of confusion to the hapless Chesapeake scholar (Crisp 1924; Keeler 1979).

Should we be concerned with precise military usage in this study if few professional military soldiers were present in the 17th-century Chesapeake? Although it is not necessarily useful to fixate on technical terms, some
rational and therefore objective standards must be inherent in a disciplined approach to the Chesapeake works. It is, alas, the only way we are able to judge 17th-century performance in relation to some definable standards of contemporary defensive usage. The presence (or absence) of flank defenses is used in this work as a measure of basic utility and sophistication in defensive design. Patterned compromises of this concept are also useful points of departure in understanding the performance of defensible works.

**Professional Soldier verses Militia**

As suggested above, "professional" seasoned soldiers such as Gates, Dale, and Yeardley and their companies were only in the 17th-century Chesapeake during the initial period and briefly after Bacon's Rebellion (Carson 1976:10–11). More characteristically after 1622, "militia" groups were present and led by a tiny handful of veterans; this remained essentially our national policy until 1941 despite a tiny national army after 1781. Boynton (1967) notes that in England the term militia dates only from the 16th century, although he uses it in his study of Elizabethan militia (1558–1638) to denote "unprofessional citizen forces as opposed to professional soldiers." We are reasonably certain than in every context discussed here, women, children, agricultural laborers, and simple homesteaders—along with and often identical to male militia and soldiers pressed from among the homesteaders—were present on the sites we are examining. Moreover, the professional soldier, in a modern military sense with full regular pay in an
institutional system, would only come into existence from 1645 on in England and in America from 1791 on.

In Virginia from 1622 on, militiamen were employed to defend private plantations and public forts and to attack Indians (Shea 1985). This was an exponent of Machiavelli's theory as, he suggested in 1513: that is, "no state is safe unless it has its own arms," a notion that appears to define a key factor in the American Revolution of 1776–81 (Begin 1947:41–43). In general, this militia system could potentially affect nearly every able-bodied man on a plantation during 1622–32 and, to a lesser extent as the century wore on. So for the colonial Chesapeake during the 17th century, the word professional did not yet fit the modern sense of the term.

Town versus Village versus Villa

Especially in earlier times, the words town, village, or villa differed little in meaning. Therefore, in this document, we must tune the meanings we are using for the benefit of the reader.

Town

Five pages of various often contradictory uses of the word "town" can be found in the Oxford Dictionary (OED 1978 XI:201–205)). In brief, modern usage typically means a municipality with some political authority that is larger than a village but smaller than a city (OED 1978:201). The English word town comes from old English "tun," the land forming a manor or
otherwise associated with it (ibid. 204). Thus, herein we view the term town planning as analogous to manorial planning because of this essentially older usage, which was surely current in the 17th century.

In older usage a town can be an enclosed place or simply a house or group of houses or buildings within such an enclosure (ibid. 201). This definition is frustratingly nearly identical to that of a village or villa. Because a town cannot easily be teased apart from either village or villa, we will use it to designate a special village or villa that has a minimal degree of corporate or regional political authority. This can be through borough administration or at least representation in the Virginia Assembly through burgesses. Each must be autonomous in terms of how the settlement is planned within the vagaries of multi-corporate legal restrictions. For instance, using Flowerdew examples, tenant sites along the southern road system cannot be towns because their local political authority emanates from the macro-complex at 44PG64 (Piersey's manor) and especially 44PG65—Yeardley and Piersey's Fort—but also Charles City's Borough's Fort and parish headquarters (see Hodges 1993).

As a second example, the settlers at Jordan's Journey were indeed largely autonomous during the post-Massacre period (Spring 1622), and they were represented in the Virginia Assembly. Thus, we can say they have a town. However, they may not have wanted to palisade their town, but multi-
borough legislation obliged them to do so both early and fast, apparently without authority as to how this was accomplished (Kingsbury 1906 2:381–385; McIlwaine 1924:120). So, in some ways, our defined use of the word town revolves around identification of where the actual manors were along with a commensurate identification of a burgess or higher public official residing in such special domiciles.

**Village**

In the Oxford Dictionary, village is a word used to signify "a collection of dwelling-houses and other buildings, forming a center of habitation in a country district; an inhabited place larger than a hamlet and smaller than a town, or having a simpler organization and administration than the latter" (OED 1978 XII:204). Because the definition of town, village, and villa can overlap, in this particular work, a village is delineated as a rural farmstead that has no clear relationship to local or regional authority either through the location of a key manorial holding or a burgess who resides inside it. So, although we can say a rural farmstead with a manor and quarter together with different outbuildings resembles a small village, for lack of a better word, it is neither a town nor a villa.

**Villa**

The Oxford Dictionary defines the term villa as "a country mansion or residence, together with a farm, farm buildings, or other houses attached,
built or occupied by a person of some position and wealth; a country seat or estate (OED 1978 XII:204). Only later did we begin to associate the word villa solely with an estate of demonstrative "architectural elegance" and cohesion. Villa will be used in this text to describe a single manorial seat or estate occupied by at least a burgess or other governmental figure and animated in some way by classical wisdom or Renaissance classicism. Here we are referring to classicism in basic spatial form and spirit and definitely not necessarily in elegant architectural substance such as Greek- or Roman-inspired columns or pediments. In our definition of villa, a manorial residence must be the single high-status structure present, and it must be in an ordinal or hierarchal relationship with respect to other structures. In our definition, a villa can act as a town with a certain degree of political position and autonomy.

**METHODOLOGY**

Now that we have defined our terms, we now focus on what specific research methods will be employed in the study.

**Site-Selection Process**

From the above discussion, it is rather obvious that to make such comparative analysis possible, the selection process for the study sites needs to be taken with some care. Therefore, that process is considered an important part of the research design.
Because Deetz (1993:31) suggests that only two structures represent a "compound" if the sites are also enclosed, and only one is clearly domestic in origin, evidence of at least three substantial structures—two of which are determined to be potentially domestic—appears to entitle us to use the term "settlement." These are factors present at James Fort (Forman 1938, Reps 1972). That term is embedded in the site identification of the Flowerdew site "Enclosed Settlement" to include Structure 3, along with Structures 1 and 2 (Barka 1975; 1993; Hodges 1993:188–190, Keeler 1978:174). The factor is present at Jordans Journey (Mouser et al. 1992, Mclearen and Mouser 1993) at the Harbor View Fort (Hodges 1993:200–202). Moreover, because Murdock (1949:79) defines a community as the "maximal group of persons who normally reside together in face-to-face association, we can see these sites as sealed "face-to-face settlement communities." Therefore, this regional suite of sites is chosen, as these sites offer material evidence that they contain at least two structures that have hearths or root cellars in addition to various catchment, subsistence, and service-related structures.

During the frontier period, Virginia experienced adjustments to the tobacco monoculture, which led to insular development within a plantation system. It appears likely that, in these smaller settlements, evidence of vernacular adjustments to the simplification of fortification and town planning ideals will be revealed. Further, the research of Garvan (1951) and Reps (1972) both suggest the presence of some organization in these less
pretentious settlements that amounted to a “village.” Carson's (1985) characterization of the "West English plan" as amounting to a small village will suffice here for the study of small-scale variants in plantation planning. If these are legitimate correlations with base models shown above in the Virginia frontier, then our database should be more "testable" through model development and we should be able to push our evidence beyond the level of "decorative opinion."

Another key rationale for selecting these sites is more straightforward, although of no less compelling utility to this short study. Fortifications are indications of emic choices made by frontier elites during the period 1607 to 1646. So these fortifications are emic choices, at least to the elites, of places they considered important enough to defend. Therefore, in this study we need not be overly concerned with how these sites were perceived by the illiterate majority of the occupants. These are not folk fortifications, nor were their site commandants illiterate. Next, we can ask how the cultural systems of the elites worked to embrace the less pretentious elements of society. This is not an elitist point of view, but rather the constraints of a very short study. During the period 1675 to 1676 as Maxwell (1850:63) suggests, even smaller settlers willingly "withdrew to places of better numbers" to defend communities even if within only single fortified dwellings (cf. Hodges 1993).
Finally, the ultimate appeal in the study sites is that palisades, earthworks, or partitions provide a sort of metaphoric picture frame for discrete analysis that emphatically defines the unit of study in ways that "open sites"—that is, those with undefined boundaries or site limits—do not. Courtyarded sites appear to have a deterministic quality that forces their own dynamics and constraints on interior improvements; how these forces are manipulated into order (and possibly disorder) is likely to reveal important cultural traits, thereby potentially revealing a carefully digested cultural configuration of Chesapeake society in microcosm.

**Site Treatment**

To make this study work, we must define the mechanism of site treatment. Each study site is treated as an artifact. Is it fair to describe a plantation, town, village, or fort as an artifact? Babitts (1980:1), who is well aware that a fortification cannot be understood without analysis of its supporting interior community and activities zones, states explicitly that we should treat fortifications and their contents just like an artifact. An artifact, like any element, requires a cultural explanation. For instance, using theoretical insights provided by Binford (1962), Leone (1977:194) in his analogous study of Mormon towns and fences noted that, "since an artifact is the product of a total cultural system, it is likely to present evidence about the perishable parts of the system that created it."
Model Development

From the previous overview, very specific predictive models of what an English fortified town or bawn may look like can be formulated primarily from work by Garvan (1951) and Reps (1972). They are also possibly affected by St. George's generalized courtyarded farmstead models (1990) in that, with the exception of James Fort, most settlements in our study group apparently were also working plantations during fortification.

A three-part summary model for the Romano/Medieval (Garvan 1951, Reps 1972), Renaissance (Reps 1972), and Civil Courtyard model (St. George 1990) with small-scale variants is listed below (see Table 1). As the two larger base models are more closely related to town rather than village levels of planning activity, each column of the table has been amended to include several "small-scale variants." These are derived directly from the base models, but are almost certainly closer to the raw edge of what could realistically be done in early frontier conditions.

Our research design anticipates that there should be some attributes or variables shared by our study group that will fall into one or more of the categories shown in Table 1. Table 1 therefore serves as a key component in our "descriptive grid" in a useful application of mid-range theory (Leone and Potter 1988:14). In this work we will follow the advice of Watson (et al. 1984:192) to call a variable "a type of phenomenon being measured" and an
attribute to mean "a particular state." By analogy from artifact studies, the variables herein are our basic complete models of Romano/Norman, Renaissance, or Civil Courtyard origin, whereas our attributes are modifiers such as location of streets, types of bastions, organization of building groupings, etc. Thus, the isolation of vernacular shifts from the ideal variables or areas of ambiguity will be found in the types of clustering we get out of the attributes of the study sites. Although Table 1 does not provide all the possible options, it is a manageable tool and road map for a brief study.
TABLE 1.
BASIC PREDICTIVE MODELS FOR FORTIFIED/COURTYARDED SETTLEMENTS
1607–1650

<table>
<thead>
<tr>
<th>ROMANO/MEDIEVAL MODEL</th>
<th>ROMANO/RENAISSANCE MODEL</th>
<th>CIVIL COURTYARD (ROMAN VILLA MODEL?)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDEAL MODELS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dependant Community</td>
<td></td>
<td>Dependant Community Farmer's (servant's) lodge is to left of gate (which is center west) and westward within courtyard. Unit must have kitchen. To right are stables for horses. Sheep-coates and swine sties are set to south with no opening except to courtyard. Barn to south near sheep and pig units. Carts and ploughs near barn entrance between pig and sheep units.</td>
</tr>
<tr>
<td>Below fortification in multiple bi-linear relationship; walled bastide of unwalled.</td>
<td>Is organized parallel to radial streets on either side.</td>
<td></td>
</tr>
<tr>
<td>Main Fortification</td>
<td></td>
<td>Main Fortification is integral to town walls (Roman). Angled arrow-shaped bastions designed to eliminate dead ground.</td>
</tr>
<tr>
<td>Centered above community in triangular hierarchical relationship; bastions rounded or angled.</td>
<td></td>
<td>Courtyard Manor Walled security is against theft, social movement. Manor is opposite courtyard entrance in center east position.</td>
</tr>
<tr>
<td>Market Place</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Centered in dependant community</td>
<td>Centered in hub of radiating streets.</td>
<td></td>
</tr>
<tr>
<td>Church</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In center of market, center street.</td>
<td>Centered in central market place, hub of town center.</td>
<td></td>
</tr>
<tr>
<td>Streets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Span from outer town limits—to market place and church—to main fortification.</td>
<td>Streets Radiate out from church and market to bastions.</td>
<td></td>
</tr>
</tbody>
</table>
TABLE 1 cont’d.

<table>
<thead>
<tr>
<th>ROMANO/MEDIEVAL MODEL</th>
<th>ROMANO/RENAISSANCE MODEL</th>
<th>CIVIL COURTYARD (ROMAN VILLA MODEL?)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SMALL-SCALE VARIANTS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flint,</td>
<td>English Military Camp</td>
<td>Regional Models, Housing?</td>
</tr>
<tr>
<td>Manorial residence is</td>
<td>Commanding Officer at</td>
<td>Predictions of post-medieval</td>
</tr>
<tr>
<td>in keep, community is</td>
<td>center of gridded camp;</td>
<td>west English house as</td>
</tr>
<tr>
<td>bailey (courtyard);</td>
<td>each street leads to bastion</td>
<td>architectural/spatial model</td>
</tr>
<tr>
<td>church is chapel in</td>
<td>or fort wall.</td>
<td>(Carson 1969); Medieval,</td>
</tr>
<tr>
<td>keep or bailey.</td>
<td>James Fort, 1610-11</td>
<td>“folk,” see below (Deetz 1977).</td>
</tr>
<tr>
<td>Macosquin, Ulster Plan</td>
<td>Church is dominant</td>
<td>Regional Models, Farmstead?</td>
</tr>
<tr>
<td>Bastioned bawn with manor is at top of street; dependent community along one street which ends at church.</td>
<td>hierarchical unit over soldier's quarters and storehouse; outer streets lead to bastions; central street leads to market and main river entrance; outer triangular dependent community determined by shape of fort (Forman 1938).</td>
<td>Organic, communal, asymmetry (Deetz 1977). antecedent expansive west English “plan” (Carson 1986)? Exploded west English long house (Hodges 1987, 1993).</td>
</tr>
<tr>
<td>Magherafelt, Ulster Reality</td>
<td>Same as Macosquin without church, thus chapel in manor?</td>
<td></td>
</tr>
</tbody>
</table>

Sources: Romano/Medieval Model from Garvan 1951 and Reps 1972; Romano/Renaissance Model from Pepper and Adams 1986 and Reps 1972; Civil Courtyard Model from St. George 1990.
Mental Template and Competence

Following from the above discussion, we therefore think that some or all of the variables noted by Garvan, Reps, and St. George were to some extent part of the anticipated "mental templates" of Virginia’s elite planters and military veterans. To Deetz (1967:45), "the idea of the proper form of an object exists in the mind of the maker, and when this idea is expressed in raw material, an artifact exists." This mental template can be described as more or less identical to what material culture scholars call "competence." Glassie (1975) uses this term to refer to the artifact maker’s ability to compose. The simple implication is that the designer of artifacts or fortified plantation complexes knows what is desired. This is referred to as "the minimum synchronic statement of the internalized ideals of external objects," providing structure to activities. A correlate is that if a design model can be isolated within our study sites, then compromises in the design become just as important—if not more so—than the model itself or the meaning of the ideal behind the design. By the same token, systematic compromises in design can potentially yield evidence of vernacular influences.

Anthropologically based Frazier Neiman (1982; 1993) warns researchers to apply rigorous scientific thinking by employing models derived from evolutionary biology to "avoid fallacious or soft-headed conclusions about complicated subjects" such as house plans when regarding their cultural significance and use (as cited in Wells 1986:3). An evolutionary
perspective may not have use in our discussion, so we will avoid an intuitive approach by looking for elements of order and disorder reflected in architectural dynamics that affect space, volume, and movement, and potential geometrical relationships (Arnheim 1977).

Because our own modern cultural or theoretical mental template may creep into our work, the best way that archaeological material remains can be said to demonstrate a mental template is by isolating specific material evidence of planning within two or more sites. Evidence of site planning can be formal or informal. Formal planning is often geometric, that is, based on precise surveying tools or clever use of similar objects based on mathematical principles. As such, formal plans should be capable of yielding identifiable spatial patterns. Formal spatial patterns within archaeological sites are available to modern identification through the tools of plane geometry, symmetry, or asymmetry, which may be demonstrated through a process of replication. Therefore, if the site plan is treated as a two-dimensional picture puzzle, geometry should be able to re-establish precise mathematically verifiable relationships between buildings and curtains or both. This should then yield objective information about what the planners were trying to do from their own mental template, although such patterns will not necessarily disclose the source of inspiration of such things in an unambiguous manner. Again, this is especially true if vernacular trends are at work that shift away from the Garvan, Reps, and St. George core models.
The Comparative Method

Informal planning, that is, planning that is not precisely laid out and therefore not mathematically verifiable, is more difficult to isolate objectively. Such planning, taken in isolation, must be inferred and can only yield patterns that are potentially more apparent than real. Therefore, the research design must include some type of application of the comparative method to propel potentially ambiguous information into meaningful identifications. For instance, an informal site structure can be compared with a formal site structure to search for commonality; from this comparison, inferences may be possible about what may have animated common planning activities. The comparative method—borrowed originally from the physical sciences—was used extensively by 19th-century anthropologists and, in some broader applications, has become one of the most fundamental aspects of modern anthropology. Potentially, however, it is charged with problems. For example, at its worst the comparative approach led to Boas' general questioning of 19th-century evolutionism. At its best was Morgan's analysis of language. By comparing kinship systems on a worldwide scale, he inferred the great antiquity of a few kinship systems by noting how similar the patterns were, thus identifying but a few parent systems that have not changed significantly to this day (Honigman 1976:116, 196).

In this work the comparative method is used primarily in two ways: (1) to help identify military and civil improvements by simple visual analogy
and therefore inferred similar functional and technological purpose, and (2) to contrast the Chesapeake fortifications with the high-style quadrangular fort, the military field work known as the "flanked redoubt," and the Ulster Irish Z-plan bawn. Whereas the first purpose is functional, the second helps us get at vernacular fort-building style through shifts away from the ideal to the regional plastic reality of the rough-and-tumble Virginia frontier. Thus, dependence on fairly numerous comparative illustrations is an almost unavoidable process to propel this discourse toward some fruitful results. A second benefit of this supplemental visual gazetteer of material precedents is the potential it affords the reader the opportunity to make critical judgments in a pioneering and therefore potentially fragile study.

**Analogy**

Much use of analogy will be employed in this study, and it is surely entangled with the comparative method described above. Analogy is a fairly frequent method of analysis employed by archaeologists (Ascher 1961). Binford (1967) argues that analogy is most useful when it is not employed in simple interpretation but rather in offering "a postulate as to the relationship between archaeological forms and their behavioral context in the part." In this study we are seeking both, for the use of analogy among fortified settlements helps in simple identification (an interpretation), and patterns among sites allow postulation about individual settlement forms and their behavioral contexts on a broader scale.
Mid-Range Theory

The only way the comparative method can lead to accurate study results is if properly contextualized through historical research (Hodder 1986). Properly placed within historic and cultural context, the site plan may be seen as a coded text cautiously read in relation to the specific events and the society at each site. Mid-range theory should therefore be useful in this study not only to evaluate in relation to our descriptive grid, but also to put this study into context. Mid-range theory was originally developed by prehistoric archaeologists to develop a more effective way of bridging a gap between mute archaeological data and its meaning by use of the ethnographic record (Binford 1962). Accordingly, it somewhat similar to the direct historic approach (Willey and Sabloff 1993:125–127). Thus, the middle range is really the bridge between these two separate avenues of inquiry to make both more productive; hence the term "historic archaeology."

Historic archaeologists have exploited this mid-range theory of prehistorians through simple analogy by substituting the documentary record for the ethnographic record to exploit their own archaeological data more effectively. Hypothetically, the purpose is to get closer to the enriched real meaning behind the both realms of evidence (Leone and Potter 1988:13–21). Deetz's (1993) " Conjunctive method" is in some ways simply mid-range theory cautioned with the proviso that it comes into play only when neither source of data (documentary or archaeological) can solve the research question alone.
Combined with planning activity and contemporary drawings, mid-range theory can be a powerful tool of analysis.

**Ideology**

The determination of potential ideology within our suite of study sites is closely related to the site-selection process described above. Although ideology will be treated with caution in this short work, we surely can anticipate such things from our three predictive models that categorically include hierarchal building arrangements. Chang (1972:24–2) notes that the "organization of human activity is essentially hierarchal in character." From this inference one can conclude that the more organized human activity, the greater the hierarchal character. We will not find such ranked or ordinal architectural patterns unless two or more domiciles are present in an informative architectural statement that at least addresses a such hierarchal system.

In addressing the implications of such arrangements beyond simple hierarchal rankings, we have to rely heavily on model development to go further. Why?—because all sites might have socio-technic or technomic aspects, but only a few site types can potentially contain ideo-technic behavior (Binford 1962). Stated more bluntly, these represent a special type of ideological behavior that can be objectively demonstrated as present.
Leone (1977) argues that Mormon fencing and town planning will have technology present and is "embedded in the subsistence, social, and ideological systems of culture." In his study he suggested that such seemingly simple endeavors appeared deeply invested with the particular ideology of ethnic groups as sorts of "cultural teething rings." His article implies that this embedded ideology is particularly the case within frontier contexts when immigrants are most conscious of their unique identity as it intrudes into an alien setting and defines itself through reified material culture. In a similar vein, Leone (1977:194, 199) suggested that the Mormon frontier fencing and town planning are made up of subsystems.

Only a small step away is a switch to fortifications and towns. If so, boundaries, and community-level planning would be present only within certain types of fortifications—that is, those with more than one habitation. Minimally, it would be useful to couch each site's core structural components in cautious relation to social hierarchy, ideo-technic, socio-technic, or technomic functions (Binford 1962:217–26).

Praxiology

Other basic study techniques or concepts must be mentioned here for expedience. Briefly stated, praxiology is the science of efficient action for maximum results from the lowest acceptable level of effort (Kotarbinski 1913, 1955; Skolimowski 1965). In as much as efficiency requires rational
behavioral selections, this theoretical approach seems particularly useful for analyzing the practical constraints of colonial military studies and small-scale variant modifications of planning ideals for towns within the increasingly insular Chesapeake frontier.

**The Direct Historical Method**

Additionally, the direct historic approach, normally used for prehistoric archaeology, will be applied with great caution to show how later defensive works reflexively support 17th-century interpretations based on common functional needs and frontier contexts (Binford 1991:147–149; Willey and Sabloff 1993:125–127). Conversely, later examples will also show how earlier archaeological excavated works apparently governed many later frontier examples. The appeal in this approach is the basic conservatism in military architecture through time simply because relatively few methods are necessary to defend a settlement expediently after discounting variances with the more complex trends within the high style of military architecture. Thus, in addition to more recent fortifications, we can provide a time depth that reflects classical times to identify fortifications.

**The Summary Methodology Made Practical by One Exemplar**

The overall mechanism of our research design is now fairly complex, but the approaches must be packaged into this short document. The greatest burden on this study outline is that of mid-range theory. That approach
requires creation of a fairly rich historical texture that normally can be
created only on a site-by-site basis. Anthropological approaches risk
generalization about past behavior based on sites that are often more
complex than such approaches allow. Therefore, this process will be more or
less impossible to apply equally with our entire suite of study sites. Yet
without cross-comparisons of two or more sites, we gain little (Watson et al.
1984:188). What should be done?

The most expedient solution would be to choose one study site as an
exemplar based on a legitimate application of mid-range theory that serves
for more spatially streamlined comparison of the larger suite of study units.
Accordingly, 44PG65 at Flowerdew Hundred has been chosen based on its
potential for development of an exemplar model that may propel all
subsequent study units in some meaningful direction (Barka 1993; Deetz
1993; Hodges 1993). Owned successively by the two wealthiest men in
Virginia during a period of active warfare with Native Americans (1622–32),
the 44PG65 study unit is most likely to yield up secular and ideo-technic
planning ideals that bridge the gap between public corporation ventures such
as at James Fort and private corn- and tobacco-producing plantations such as
at the remainder of the Virginia study units (Morgan 1975).
Therefore, armed with this research design, we can develop the following hypothesis repeated from the beginning of this discussion but perhaps more meaningful now:

Had the English never settled in Ulster, not one single thing in Virginia would have changed. Both settlements were animated by larger classically and Renaissance-inspired models for both scaled down town planning and fortification. Those in turn were deeply affected by ordinal Vitruvian plans compromised by the chain of being and enclosed in a viable and dynamic international military defensive tradition attenuated up by interceding 16th-century warfare.

Limitations of the Database

In many cases no formal site report was available on some key sites we discuss. What is available is baseline information that will allow this discourse to proceed based on overall interpretive inferences by many scholars. The base materials are as follow:

1. A site plan with most or all information present.
2. A site evolution or means to understand the relationship between the site development and fort development.
3. Sample detail drawings of pertinent features.
4. Temporal controls for overall site structure and/or temporal site structure shifts.

The published and unpublished material available to the author is listed in the bibliography and cited in the text.
**Thesis Chapter Organization**

So this document functions in a reasonably expedient manner, the chapters avoid unnecessary repetition in building from particular to comparative interpretive arguments. Therefore, in Chapter 2 is the historic context for Flowerdew and 44PG65, Yeardley's Fort, along with a detailed interpretation of evidence of town and fort planning. The exemplary analysis of the Flowerdew material is then used to illuminate all subsequent comparative study sites. Accordingly, in Chapter 3 is a comparison of Flowerdew and James Fort, Jordan's Journey, Magherafelt, Martin's Hundred, the Harbor View Fort, and Clifts. This information is then summarized and discussed in terms of the goals of the hypothesis.
INTRODUCTION

In this chapter the fort and administrative center of Flowerdew at 44PG65 are examined in relation to town and fortification planning and the cultural behavior so displayed (Barka 1975, Brain et al. 1976, Carson et al. 1981; Barka 1993; Hodges 1987, 1992a, 1992b, 1993; Deetz 1993). To develop this information, we present the historical data pertaining to town development and documented fortification initiatives as a key part of an overall descriptive grid to exploit the ambiguity of the site phenomena and the historic record. We are not just using historic documents to perform a validation of archaeological hypotheses; rather, we are trying to understand how small-scale variant planning models evolved regionally in a trajectory away from mainstream planning ideals (Beaudry 1988:1). This helps refine our perceptions of this site. The analysis then turns to close examination of design components at the archaeological site that might reveal evidence of competence or "mental template." These are then also factored into a more balanced and meaningful cultural interpretation of the site.
The site is used to develop baseline explanatory models that are considered in a broader, multi-site context in Chapter 3. Therefore, this section will detail more robust working interpretations that help lay the foundations for the direction of the entire study. In short, learning more about this site as a representative example of an Anglo-Dutch fort/English farmstead teaches us more about many sites struggling with the same practical constraints and planning ideals that Garvan (1951) and Reps (1972) defined.

44PG65, at Flowerdew Hundred, is the ideal study site for several reasons, not the least of which is its ambiguity. The titles this site has had and the authors to these titles dramatize that ambiguity: (1) the "Fort," Leverette Gregory 1972–73 (Flowerdew Hundred Foundation Archives); (2) the "Fortified Area," 1974–75 (Gregory and Norman Barka, Flowerdew Hundred Foundation Archives); (3) the "Enclosed Settlement," 1976–92 (Flowerdew Hundred Archives; Norman Barka 1993); (4) the "Yeardley-Piersey Bawn" (Hodges 1993); and (4) the "Enclosed Compound" (Deetz 1993). Most of these identifications exemplify anthropological generalization because they provide shades of meaning in which the ambiguity of the site and of its historic context variously affects the different and often contradictory perspectives of various researchers. Although ambiguity is normally seen as bad, Leone (1988) explains that just the opposite is true; ambiguous sites have the most to teach us about the past.
The author's own previous title "Yeardley/Piersey Bawn"

unfortunately sets up an inherently uninformative nomenclature. This is because the word “bawn” can describe anything from a Renaissance fort to a cattle fold. Accordingly, it conveys little textural meaning other than that a curtain, courtyard, or enclosure of some variant sort is present (OED 1978 1:712).

Therefore, of all these terms, the least ambiguous is that of Gregory—that is, the "Fort." This is the term the field crews always used when excavating the site, both during Gregory's tenure at Flowerdew (1971–75) and after (1976–78) (Andrew Edwards, pers. comm. 1996). Based on analysis outlined in a previous study sponsored by COVA, this is this term that we will use, but prefaced by the word Yeardley (hence, "Yeardley's Fort"). This term personalizes the fort's origins and shortens the longer denomination, Yeardley/Piersey Fort (Hodges 1993). The author will also refer to Weyanoke, Flowerdew, and Piersey's Hundred as "Flowerdew."

If early 17th-century Flowerdew is couched in the broadest patterns of 17th-century Virginia history, its hypothetical chief importance is the information it can reveal about shifts from public corporation organization during the second stage of English settlement to a more agriculturally based and privately run economy. In some ways this particular frontier period is the most crucial and creative in Virginia history in that it elevated the Virginia enterprise beyond the stage of a military outpost and carefully
pointed it in the direction it would largely follow until 1865. The initial period of transition dates from 1610 to 1619 when the colony was under the direction of Anglo-Dutch-trained military veterans Sir Thomas West (Lord DelaWarre), Sir Thomas Gates, and Sir Thomas Dale. Shifts to a privately run plantation and tobacco economy date from ca. 1617–19+ (Turner and Opperman 1993:79). This therefore is clearly the maximal period of cultural adjustment in the seminal Virginia frontier model (Green and Perlman 1985). Deetz (1977:17) has defined change as the most important building block of all subsequent analysis, so we may have isolated the most important research topic Virginia can offer.

Flowerdew's indirect link with understanding the 1610 to 1619 period emerges from the unique events of 1622 to 1632, created by the Second Anglo-Powhatan War. This abrupt turn of events—only in combination with successive ownership by the two wealthiest planters in Virginia, Sir George Yeardley (owner 1619–24) and Abraham Piersey (owner 1624–27/8)—appears to have forced circumstances that imposed, or re-instituted, a plantation organization that reflected military and paramilitary settlement models and plantation organization typical of the First Anglo-Powhatan War of 1610–14 (Hodges 1993:198, Hodges 1995). So it is possible to also argue that Flowerdew can help researchers understand some aspects of prior public corporation activity, particularly through the activities of Captain George Yeardley who was a senior assistant to Gates and Dale during the formative
frontier period of 1610–17 observed above. However, this requires clarification of some serious points of ambiguity in both the historic and archaeological records. Consequently, we will develop the history section first in relation to a settlement landscape and re-factor this into the material remains provided by archaeology at Yeardley’s Fort in the second section.

**Introduction to Flowerdew’s History: Stanley Flowerdew and George Yeardley**

Both the Yeardley (1619–24) and Piersey holdings (1624–27) stretched across both sides of the James River between Flowerdew Hundred and Weyanoc, where the James River takes a dramatic double bend about halfway between Jamestown and modern Richmond, or roughly a few miles due south-southwest of modern Charles City Courthouse in Charles City County (Hodges 1993, Luccketti 1977). The original Flowerdew plantation of 1,00 acres was established sometime between 1617–19 and was owned by the Stanley Flowerdew family (Alan Kulikoff, pers. comm. 1993, Flowerdew Hundred Foundation Archives). The Flowerdew’s were gentry families from Norfolk, heirs of the John Stanley fortune, and connected by kinship to Robert Dudley the Earl of Leicester (Bemiss 1964:44). Thomas Flowerdew, brother to Stanley, had begun his Ulster, Irish settlement with a timber framed house in Fermanagh, but by 1613 had wisely built an Irish-styled stone tower (Ryan et al. 1993:202). Although we know little about the
Flowerdew-Ulster connection, we can say that, as a younger brother, Thomas Flowerdew probably had less money behind him than did Stanley.

Weyanoke, a peninsula directly opposite Flowerdew and consisting of a 2,200-acre tract, was given to Yeardley by Opechancanough in 1617 as a token of good will and by the Virginia Company for his prior public service to the colony in 1618 (Kingsbury 1933:103). (See Figure 9.) Yeardley, a military veteran since the age of 14 with service in both the Low Countries and Virginia, was unanimously voted to knighthood by entire Virginia Company on both sides of the Atlantic in 1618 (Kingsbury 1933:217). When he married Temperance Flowerdew that same year, an approximately 3,200-acre macro-plantation was created that spanned the James River between Flowerdew and Weyanoke (Jester and Hiden 1956:377). By 1619 Yeardley was appointed Governor of Virginia, a term that ended in 1621 when he declined a second term, "in regard he had soe longe in time togeather (nowe allmost three years) attended wholly vpon the publique service" (Kingsbury 1906 1:435-436). Yeardley's term as Governor was a popular one, what with the great freedoms given to Virginia by the Third Charter, including representative assembly in concert with perhaps the very peak of the legendary tobacco boom and outwardly friendly relations with the Powhatan Chiefdom until 1621 (Morgan 1975:108–119).

Yeardley was the son of a London tailor and, according to John Pory, arrived in Virginia in 1610 with "nothing more valuable than a sword;" thus,
Figure 9
A. Sites before 1650 at Flowerdew Hundred and Tanks Weyanoke.  B. Layout of early Flowerdew sites.  C. The relationship of 44PG64 to 44PG65.
Yeardley's presence in the office of governor of Virginia and as a titled knight epitomizes the increasing emphasis of on individual ability over blood lines, which contributed to increasing social mobility and urbanity during the late Renaissance in England (Carson 1994:521–528; Morgan 1975:122; Rice 1970:76–79; Simpson 1959:10–12).

**Flowerdew History: Piersey**

Abraham Piersey purchased Flowerdew in October 1624 (Morgan 1975:120, 168), so Deetz (1993:51) brackets Piersey's career by two statements: he arrived in Virginia in 1616, "a verie poore man," yet by his death in 1628 he left "the best Estate that was ever yett knowe in Virginia," becoming the "richest man in Virginia." In fact, this Virginia promotional propaganda aside, Piersey was likely never a truly poor man, given that he was well connected to the Earl of Northumberland. Through his marriage to the daughter of Sir Thomas West (governor of Virginia 1610–18), he became associated with Queen Elizabeth's family (Deetz 1993:50; Morgan 1975:120). Piersey was the Virginia Company Cape Merchant (1616–19), operating the floating store, the Susan and the George (Jester and Hiden 1956:263–265; McIlwaine 1915:33). By 1624 he was a member of Virginia's elite Council and by 1625 he was a militia captain of sorts (Jester and Hiden 1956:263–265; Kingsbury 1935:110–111).
**Morgan's Assessments of Yeardley and Piersey**

Morgan's research (1975:98,122–123) describes Yeardley as a prime example of the violent "robber barons" who used "gun barrel" diplomacy with Indians. Moreover, he noted that he was a key example of the exploitive minority in Virginia who used government office for private benefit—typically by grabbing up labor—as a "right worthie Statesman for his own profit."

Morgan (1975:95, 120, 125) questioned Piersey's honest business dealing; the magazine ships of which he was Cape Merchant showed a loss despite selling goods at three times their cost. Piersey also was accused of selling rare food commodities at inflated prices during the post massacre period and he personally distinguished himself as one of two people who "deale uppon nothing but extortion" (Fausz 1977; McIlwaine 1979; Morgan 1975:125).

Together, Yeardley and Piersey were the two top users of indentured servants and apparently shamelessly exploited the labor-intensive tobacco economy (Morgan 1975:119).

Did Yeardley and Piersey fall victim to criticism? Again, we must properly put things in perspective in concert with their political or financial ascendancy in the Virginia frontier.

**Town-Founding Evidence at Flowerdew**

Instead of moralizing, let's try to view Morgan's criticisms in our archeological context. A key factor in the real wealth of Yeardley and Piersey was their control of labor pools that were very large by the standards of most
plantations except for that of George Sandys, the Virginia Company treasurer. So, although Flowerdew is tied for 5th place in overall population and other quantifiable indices throughout the colony and only the second largest in Charles City based on the Muster of 1624–5 as noted by Barka (1993, in terms of real power to accomplish personal goals under a single household head, Flowerdew was probably in the very first rank within the Virginia Company and early Royal colonial periods. This assertion requires that public corporations such as James City and Elizabeth City be discounted in comparisons with Flowerdew, as it is simply a particular plantation (on paper at present). Nonetheless, the plantation's hypothetical intersection with the local Charles City corporation administrative infrastructure during the Second Anglo-Powhatan War (1622–32) will be looked at in more detail below. This intersection may have been arbitrated or modulated by those factors of immense private power to make Flowerdew a de facto public corporation administrative center within a nearly bankrupt Charles City borough public economy.

Evidence that Yeardley was trying to found a town at Flowerdew before and immediately after the 1622 massacre appears in seven ways, although few are stated as such by surface information surviving in the historic record or through mere archaeological data. With critical analysis we must sift through this information very carefully to grasp that raw ambition:
1. **Windmill:** The presence of a windmill built before 1621–22 by "the good Example of Sr: Geo Yardley" indicates that retired governor Yeardley was trying to establish Flowerdew as a local food crop processing area in exchange for a portion of the resulting corn meal (Kingsbury 1933:586). Yeardley's recognition that over-planted Indian maize was a key commodity as a follow-on to spring crops of English wheat was probably attributable to the importance of maize in the First Anglo-Powhatan War 1610–14 (Kingsbury 1933:220).

2. **Tobacco Taster:** Either Yeardley or the Council established one of the two Flowerdew burgesses, one "Mr. [John] Jefferson" (possibly related to Thomas Jefferson) who is described as a "gentleman" and as a Virginia Company "tobacco taster." Perhaps Yeardley was hoping to establish Flowerdew as a regional tobacco inspection station and potential regional dock, especially for up-river planters (Kingsbury 1933:153–154, 229).

3. **Legal Dutch Port and Illegal Dutch Black Market:** Yeardley had a resident plantation "factor" (formalized business representative), the second burgess from Flowerdew in 1619, one Ensign or Captain Edward or Edmund Rossingham (an Anglo-Dutch military veteran), who, from 1621 to 1623+, annually traveled to Holland as Yeardley's personal agent in Dutch tobacco sales (Kingsbury 1933:153–154; Powell 1977:123–124). Thus, Flowerdew was a specific Dutch trade port destination based on international business contract ties with the Free Estates General of Holland. Notably, and perhaps not without reason, Windmill Point was already known as "Tobacco Point" as early as 1617, perhaps because of Stanley Flowerdew's Anglo-Dutch trade connections as indicated by the Atlas of the Dutch West India Company made that year (Kelso 1996:20). In fact, one of Yeardley's servants or tenants, one Theodor Bersiston or Theophilus Beriston, may even have been of Dutch extraction and acted as a translator if either Yeardley or Rossingham—who were almost certainly fluent in Dutch—was absent from day-to-day social intercourse (Briggs n.d.; Hotten 1981).

Such Dutch trade drove a wedge between the Dutch traders on one hand, who paid better prices for tobacco and thus were regionally popular in Virginia, and the English crown policy that increasingly sought sole control of
tobacco sales. This caveat was a major factor and clearly lay underneath the royal colonial takeover of the Virginia Company in 1624. Indeed, Rossingham's international business transactions with the Dutch between 1621 and 1623 (and probably 1619–21) preserve handsomely something of Yeardley's economic arrogance. For both Yeardley and Rossingham were, at least on paper, literally running an illegal black market at Flowerdew, selling "contraband" tobacco. Not only did the English end free importation of tobacco in 1619 to English ports, but between 1621 and 1623, when we know Rossingham was specifically most active in Dutch trade, the English side of the Virginia Company Council had difficulty enforcing "its requirements that all exports from Virginia should be shipped directly to England" [author's emphasis] (Craven 1932:261–264). Notably, this particular "Dutch connection" may help explain the unrelenting personal hatred Sir Thomas Smith and his faction had toward Yeardley, nor should we forget the title of the Dutch Map of 1617, "New Netherland."

Should we be surprised by this Anglo-Dutch black market? When Catholic James I signed a treaty in 1604 to extricate England from the Dutch Protestant-Catholic conflict with the Spanish—and thereby leaving the Dutch patriots alone—the British troops in the Low Countries remained loyal to Holland until 1609. Interestingly, this is the very year Sir Thomas Gates and Captain George Yeardley were sent to Virginia (Fortesque 1910:139). As right-hand man to Sir Thomas Gates and Sir Thomas Dale during the first
Anglo-Powhatan War 1610–14, Yeardley was almost certainly paid directly out of back pay funds dispersed to his commanding officers from the Dutch Republic by at least 1616; this assumption helps us understand that open arrogance (Jester and Hiden 1956:375–379; Shea 1983:14–24; Wilcoxen 1987:19–21; 73–80). These troublesome Protestant soldiers, in combination with Machiavellian theory, exacerbated Catholic King James I, who already despised the Protestant military leadership, war, and tobacco—in short, all fundamental aspects of early Virginia society (Willson 1967:372–373; Brown 1901:21–29; Rutman 1959).

For now, we must simply assume from this that Yeardley’s business associations with Holland were not only more profitable, but were also part of what he saw as a Anglo-Dutch allied colonial effort in Virginia (although it is highly doubtful that his ultimate loyalties to the English ever wavered). We suspect it was directly associated with a logical extension of the political ambiance of the fundamentally Anglo-Dutch military regime. If we then put this information together with the numerous storage facilities (examined in more detail below) solely at Flowerdew after 1622 in Charles City Corporation, we can speculate with some certainty that Flowerdew was quite possibly the very last key center of an up river illegal Dutch "black market" within Charles City Corporation, which together with Henricus public corporation, was clearly the major Anglo-Dutch territorial enclave in Virginia.
One reason James I greatly distrusted the military was not only fears of Machiavellian theory and its association with patriotic nation-state armies, but also its literal modeling on that of the Roman Legion system—one that had toppled more than one Emperor. In fact, the Dutch were actively doing just that to the Spanish monarchy during the 80 Years’ War (1566–1648), and Charles I of England also would lose his crown during the British Civil War (1641–45) (Fausz and Kukla 1977:107,110,122; Fortesque 1910:31). When we realize that this Dutch black market got wrapped up in and defended by a formidable fortification in 1622 and 1623 at Flowerdew, we begin to appreciate the symbolism of Yeardley’s Fort as a fundamentally American icon in spirit; that is, the fort stood for free international trade and republican representative assembly. These ideals were the very views also supported by George Washington and Thomas Jefferson 150 years later in their attempt to realize a Renaissance vision.

Material evidence of the Dutch connection appears through marked Dutch trade pipes and Ming porcelain and other luxury goods recovered at 44PG65 of undisputedly Dutch origin (Barka 1992:331; Flowerdew Hundred Foundation Archives; Taft Kaiser, pers. comm. 1993; Anthony Opperman, pers. comm. 1978). The former characteristic has almost certainly skewed the creative use of pipe-stem dating by Deetz (1993:7–9) through uncritical use of Harrington histograms and invalid statistical premises nonetheless worth further hypothetical investigation (Frazier Neiman, pers. comm.,
1994). According to Duco (1981), Dutch pipe stem diameters do not strictly follow the English system. Thus, the similarity between Group 1 sites at Flowerdew and Group 2 sites at Martin's Hundred is superficial, as will become even more clear from dated population studies below (Brown and Edwards 1993; Deetz 1993:161–163). In the meantime, ecological factors such as the hurricane of 1667 (which inundated and scoured the flood plain at Flowerdew) probably dramatically affected the motivation for terminating Group 1 stem dates at Flowerdew, all of which were on a devastated flood plain (Morgan 1975:242).

4. **Signal Cannon**: Flowerdew was the only private plantation to have a cannon (or two) before the massacre (Hatch 1957:73; Kingsbury 1906 2:383). Such a meager arsenal would hardly suffice against a foreign warship. Instead, perhaps the cannon's primary function at Flowerdew was as a signal gun announcing the arrival of international trade ships to the entire local community. Until March 1622, a sharp loud bark from the cannon, followed by only one bark, was possibly a call to the entire audible river community to gather at a bustling international Dutch market during the peak of the tobacco boom.

To underscore this hypothesis, two documented examples of this system follow here. First, John Smith built a blockhouse at Hog Island in 1609 to "give us notice of any shipping" in a fashion that was clearly not necessarily belligerent (Barbour 1969 1:263). Second, when Gates sailed into the mouth of the Chesapeake in 1610 he notes, "wee came up within two miles of Point Comfort, when the Captaine of the Fort [Fort Algernoone] discharged a warning Peece at us, whereupon we came to Anchor, and sent
off our long Boat to the Fort, to certifie who we were" (Purchas 1926 19:43–44). Such a system was an acknowledged international symbolic ritual also employed in the Spanish Caravel incident of 1611. Thus, in saluting one another by firing an uncharged cannon (powder charge without ball), the trade vessel reimbursed powder to the trade port or entry port and often picked up a river pilot who knew the vagaries of the local waterways (at Point Comfort often a trade license had to be obtained) (Broadbeck 1942:8; Brown 1890:515).

5. **Indian Trade Goods**: Yeardley’s Fort (44PG65) has produced evidence of trade beads, a Jew’s harp, a crucible, and associated copper scrap seemingly intended for Native American trade (Barka 1975, 1992:331). The Virginia Company specially licensed these items and "private trucking" was illegal although difficult to control (Flaherty 1969:16–17; Kingsbury 1933:93; Purchas 1926 19:51). Thus, before 1622, 44PG65 was part of an Indian trade network in which furs and corn were probably exchanged for copper and glass trade beads and Dutch gin. The copper scraps are almost identical to those only recently found at Jamestown and documented to have been traded to Pasbahegh Indians before 1610 (Hodges and Hodges 1994, Kelso 1995). English war diplomacy that Yeardley and Wyatt developed during 1622–32 required "boote" (looted) corn from English Native American enemies and "trade" corn with non-Powhatan Chiefdom Indian allies to feed starving colonists (Kingsbury 1933:93;656–657; 1935:6–8; 9–10, 580–585; Powell 1977:91). From another perspective, some of the glass beads found at 44PG65 may have been traded to the Weyanoc Indians from 1607 to 1614 during their suspected occupation on the same site (see palisade discussion below).

6. **Minister and Charles City Borough Minister**: By agreement with the Virginia Company, a "particular plantation town" settlement was encouraged to have a minister present within its population (Reps 1972:47). Piersey’s Muster of 1624–25 lists a minister named Grivell Pooley (Jester and Hiden 1956:19), yet Pooley also appears
on Yeardley's 1624 "List of the Living and Dead" for Flowerdew (Hotten 1980:172). The Muster entry for 1624–5 notes that Pooley arrived in Virginia on a ship called the James in 1622, a date further confirming his association with Yeardley's efforts at "town founding." Yeardley's patronage here seems assured, for only a year later public taxes were used to support borough ministers approved. That point will be described in more detail later (Kingsbury 1935:400–401; 523). For now the important issue is that Pooley, who was resident at Flowerdew, became the parish minister for all of Charles City borough in 1623, the same year the fort was completed.

7. **Settlement Model Parallels with Public Corporations**: The bold layout of Flowerdew matches those of prior public corporations, especially at Bermuda Hundred and also superficially at Henrico, both having the same or close personal origin through George Yeardley. But even more importantly, the political resemblance to corporation towns may not be superficial by 1622–26. At a minimum this means Yeardley was openly copying a system he considered efficient both in Virginia and quite possibly in the Low Countries. The fort at 44PG65 follows the exact basic settlement model of Henricus and Bermuda City in that all three forts were at the tip of a peninsula. Only the Flowerdew work was on a flood plain more typical of the Dutch military landscape (Hodges 1993: Figure 1, 188, 192). Thus, the fort was the administrative center in the "city" in Charles "City," just as the "town" center in Henricus City was the fort. This arrangement is attributed to similar warfare contexts and Anglo-Dutch veteran patronage that included fears of both Indians and European rivals during the First Anglo-Powhatan War (1610–14) (Hatch 1957, Fausz 1990; Reps 1972). The main administrative center of each cluster of settlements was not just a military fort; rather, the defenses contained a religious center with a minister, a court center, and secure market place.

In an agriculturally based society, a fort cannot stand on its own as an economic entity, which was a serious problem at Jamestown until Gates and Dale arrived (1610–11). For instance, both Charles City and the fort at Flowerdew were supplied with "victuals" (food) by the satellite settlements, which often clustered linearly around them, for no infrastructure in Virginia
society could exist without a food surplus, some of which came from Native American tribute corn. Profits from tobacco or the Indian trade were also important. The supply arrangements were well defined. For example, Coxendale, Rochdale, Mount Malady, Elizabeth Fort, Fort Patience, Charity Fort, Hope in Faith, etc. supplied Henricus (Purchas 1926 19:100–101). Also, Bermuda Hundred (opposite flood plain peninsula), West and Shirley Hundred, Digges Hundred, and Rochdale Hundred (Hatch 1957; Purchas 1926 19:101; Wertenbaker 1958:19–25) supported Bermuda City or Charles Cittie (at modern City Point, Hopewell). The Flowerdew Fort was obviously supplied by the string of sites stretching south at Flowerdew and across the river to Weyanoke.

What other function did this linear, dispersed pattern have? To understand other functions of these satellite sites at Flowerdew and Weyanoke, we really need only to consult the documentation of Bermuda Hundred, which Captain George Yeardley ran on a daily basis (Hatch 1957:62–63). At Bermuda Hundred, John Rolfe (1951:38) noted one reason the plan was not random was that, "The houses and dwellings of the people are sett round about the river, and all along the pale so farr distant one from the other, that vpon anie [Indian threat] All-arme [put on arms and armor, so that] they can second and succor one the other" [author's inserts]. Flowerdew's impaled peninsula recorded in Piersey's 1626 court deposition (probably a Yeardley improvement) was intended to demark a strong ethnic
boundary in relation to the Native Americans; but in day-to day-use, it was likely to keep "Cattle from ranging and perserueth the corn safe from their [Native American or cattle's] spoile" (Rolfe 1951:1951:31; McIlwaine 1924:120).

This is a sort of poor man's defensive and commercial rationalization of a "latter day" Hadrian's Wall or the Great Wall of the Dutch Republic (hypothetically, the European addition to the Native American riverine pattern) (Parker 1986:12, 39; Hodder and Hassall:392–293). The Dutch Great Wall is similar evidence of classicism in Holland through direct imitation of Roman military frontier "limes" (limits) (De La Croix 1972:31). The Dutch Wall was possibly occupied by Gates and Yeardley from 1601 to 1609, or at least was well known to them. The Dutch retained strings of fortified garrison houses in Holland from which they incessantly raided Spanish garrisons (Jester and Hiden 1956: Parker 1986:40–41). Henricus and Bermuda and numerous up-river military regime sites placed settlers in "bordering houses," literally along the pale (Hodges 1995). (See Figure 10.) Hatch (1957) recorded this system, but its classical underpinnings through direct Dutch imitation of Roman tactics was not fully understood at the time, and we need to know more to strengthen this parallel.
What other parallels did Flowerdew have with Bermuda Hundred through George Yeardley? In describing Bermuda, Ralph Hamor (1957:32) wrote that the linear defensive layout described above contained periodic houses, "built vpon the verge of the River, half a mile distant from each other, [where there] are very faire houses, already builded [authors emphasis]," a landscape illustrated partially in the Dutch West Indies map (Kelso 1996:20).

The archaeological survey evidence precisely generated by Michael Barber at Flowerdew demonstrates that the analogous extractive road for transportation of men and bulk products such as corn and tobacco at Flowerdew is on 2,700-foot centers (almost exactly half mile centers) and precisely follow distinct elevated river levees (12 to 13 feet above sea level) (Sites PG 64, PG 79, and PG 86) (Hodges 1993: Figure 1B; see also Neiman 1993:256). From there they descended to lower elevations at 44PG65 that are inland of a probable dock area about 371 feet to the north-northwest (7 to
8 feet above sea level) (Byne and Anderson 1977). University of Virginia archaeologists have located the original windmill footing between 44PG64 and 44PG65, further confirming this area as the heart of the administrative and commercial district at Flowerdew, specifically under Yeardley (James Deetz, pers. comm. 1994). The combination of fort and windmill, together with its later "railed-in" peninsula—probably built by Yeardley following the "Bermuda Model"—must have made Flowerdew like an early version of Dutch-founded New Amsterdam, the foundations of modern New York City (see Figure 11) (Bushman 1993:128; Hodges 1995; Reps 1965:189).

Both at New Amsterdam and Flowerdew the railed-in peninsulas were closely associated with streets; a perfect example in New York is the well-known "Wall Street." However, by comparing very military landscapes with defensive walls such as the ideal of Henrico and New Amsterdam, we can see that the hypothetical Flowerdew neck land rail is a rationalization of pre-existent riverine settlements trending north to south more parallel to the river. In contrast, a strictly military plan from the very beginning would cut off Windmill Point right across the neck from a more northwest to southeast orientation. The same problems occur at Weyanoke; there, a more military-type pattern also influenced by swamps does occur. The pattern is evident only at the southernmost sites where hogs may have been impaled to the swamp side, but the entire settlement is riverine based on the east cluster of sites Luccketti discovered in 1977 (VDHR Archives).
It is interesting that the two Native American palisades at 44PG65 indicate that these areas also were the most important socio/politico and potentially defensive zones of the Late Woodland and Contact Native American occupation. The overall structure of both the Weyanoke peninsula and Flowerdew peninsula English settlements was patterned loosely after prior Weyanoc Indian hamlets and planting fields; apparently, Yeardley strung the English settlements so that they cut across Native American hamlets and villages (since not every early English site has a clear late Native American component) (Luccketti 1977, Hodges 1995; Anthony Opperman, pers. comm. 1996). In other words, the core riverine structure of English Flowerdew and Weyanoke was largely in the broadest outline form.
predicated on Weyanoke Native American settlement models. This efficient energy system, which does not include all pre-1650 sites at Flowerdew, matches nearly identical layouts for commerce and defense at Bermuda Hundred and Bermuda City of 1611–15, which were strung across Appomattuck Native American settlements. Thus, those sites laid out in non-random placement are probably Yeardley's through the Bermuda connection where he was in residence as Deputy Governor (Hatch 1957:62–63).

The dispersed hamlets noted above at Bermuda Hundred and Flowerdew, operating in concert with administrative centers, are extremely important because we are trying to isolate vernacular influence in town founding in Virginia using Flowerdew as a model. It is generally accepted that (1) tobacco and corn cultivation, along with (2) the headrights system creating outward-bound servants every seven years, and (3) dispersed Native American settlements with previously cleared lands that "jump started" land clearing were the major influences in settlement models (see Brown and Edwards 1993). What is therefore also needed here is some explanation of the Renaissance credo of individualism versus communalism that is operating here.

This credo ties into what Upton (1979) calls the "atomistic" desires of the immigrants to Virginia who strongly resisted communal "nucleation." Danish scholar Ramussen (1979:68) touches on this:
A modern person thinks of moving out into the country as an escape from cosmopolitan life of the city to a more primitive existence. But in Palladio's day [16th century] just the opposite was true. Life in a little town like Vicenza was the primitive one, cramped and dirty with a small opportunity for magnificent display. To be able to realize what was then considered a civilized life, it was absolutely necessary to live in the country [author's insert].

For unseasoned servants and soldiers who often arrived quite ill, life in corporate towns/forts like early Jamestown and Henrico was nearly analogous to a death sentence in slave-like conditions (Fausz 1990; McIlwaine 1915: 21, 28, 29, 31, 33; Morgan 1975:101-102; 115). In their dreams they might have wanted to create magnificent villas, these typically lower- and middle-class servants longed for their own land or at least a tenant relationship where they could be partially rewarded for individual efforts by a share of profits. After several mutinies and other failings in corporate towns and forts, Dale and Yeardley at Bermuda Hundred recognized this great psychological need and they concluded by 1614—16 that:

“the sooner reslove [resolve] upon the [need for] a division of the country by lot, and so lesson the General [public and communal] charge, by leaving each several tribe or family to husband and manure his own” [land] [author's inserts] (Brown 1990:762).

To great delight, three acres of land was given to everyone but those in Bermuda Hundred (the Capital of Virginia); and by 1617 the qualifying Ancient Planters were released from servitude even at Bermuda Hundred (Kingsbury 1906 I:77–78; McIlwaine 1915:31, 33). Thus, when we consider Ulster settlements like Macoscin or Magerafelt with their bilinear streets
occupied by servants and tenants and compare them with Virginia settlements, the strong vernacular influences and a Renaissance credo of individualism will reveal these same people out in corn and tobacco fields on someone else's property or their own. Importantly, the little nucleation that did occur was to cache crop surpluses and create minimal but efficient plantation administrative complexes that took on the nature of small fortifications, villas, or both—not towns—except at Jamestown.

In sum, this is a very simple "mongrel Baroque landscape;" that is, a spatial organizational scheme that architecturally embraces an entire landscape forged into a single entity that invites movement in and around key nodes. The linearly dispersed settlement model forms a sort of "riverine rationalized military Baroque" landscape system that acknowledged that tenants were more at ease and therefore more productive on their own, and this was meshed with the most efficient way to maintain planting fields and livestock by simply being out there with them. For this baroque system, the Yeardley Piersey Complex (PG64 and PG65) is its main point in space as an organizing node with the James River itself as the second node (see Bacon 1967:111–124).

Bermuda Hundred, with which Flowerdew has strong personal, spatial, and even empirical links, was an extractive agricultural satellite site of a disarticulated fortification across the river (Charles Cittie). Warfare at Flowerdew caused further rationalizations and resulted in direct articulation
of satellite sites and a redoubt and fort within a single, walled, articulated landscape. Therefore, the mongrel baroque landscape at Flowerdew is neither entirely commercial nor entirely military; nor is it entirely Native American-derived. By the same token, nor is it entirely English or Dutch influenced. Overall, this landscape seems a very good paradigm for what was going on in Virginia during this period of maximal cultural adjustment.

THE "BOROUGH LAND" AT WEYANOKE: YEARDLEY'S GIFT HORSE AND ITS RELATIONSHIP TO LOCAL TOWN GOVERNMENT

When in 1617 the Ancient Planters were released from servitude as we noted above, the practical infrastructure of Charles City borough was surely weakened because the surpluses needed to support government were harder to come by. During the shamelessly greedy tobacco boom, what if anything did they do for Charles City borough? We can be reasonably certain that Flowerdew was a private or "particular" plantation, permitting considerable freedom for Yeardley's business activities; the same cannot be clearly said about Weyanoke (Robinson 1957:19–20). What was the ambiance of Weyanoke as a land holding? Above we noted that Weyanoke was bestowed as a present to Yeardley from the Native American Opechancanough in 1617 and then given to him by the Virginia Company in 1618. In fact, receipt of these favors from each party presented a problem to Yeardley in terms of what he personally could do with the land (Hatch 1957:42; Kingsbury 1933:103).
According to the research of Alexander Brown (1898:321–322), who strip-mined many original English documents stored in London, the 2,200-acre Weyanoke parcel was Charles City Corporation land set aside to help relieve tax and other public burdens within the larger Charles City Corporation political entity known as a "Borough Land." (See Figure 12). However, this information seems at odds with the fact that the hypothetical Weyanoke borough land could be sold privately by Yeardley to Abraham Piersey in October 1624 (Hatch 1957:42). The fact that Weyanoke supposedly was given to Yeardley in the spirit of a personal reward for prior public service would also appear at odds with the notion of Weyanoke as public borough land. If Weyanoke was yet another public responsibility for Yeardley, he certainly might have had cause to question this "gift horse."
assume that a similar arrangement was in place on "borough lands," also to support the government.

We have already briefly alluded to the best clue that Weyanoke's contemporary use as borough land. It probably represents compensation to the Charles City public corporation. This is directly associated with the relinquishment of some public lands at Bermuda Hundred to tenant farms and then private allotments of 100 acres between 1614 and 1616 and probably 1618 by Dale, Yeardley, and perhaps Argall (Hamor 1957:32; McIlwaine 1915:33; Reps 1972:47; Robinson 1957:15-16). Weyanoke therefore helped provide a second subsidy for Charles City borough at the very moment that Bermuda's contribution was being weakened and partially dismantled.

The second best clue in the documentary record that Weyanoke was public corporation land is seen in its use as a public "cure" or "rest" area for non-indigenous patients, cared for at public expense in a charitable manner. Public corporation lands, such as Coxendale, were used as rest areas during the administrations of Dale and Gates (1611–15), and borough land was used again for rest areas in 1620 (Hamor 1957:31). However, Reps (1972:47) notes that by 1620 both borough lands and some particular plantations as well were supposed to have guest houses built on them analogous to rest areas for the typically ill servants delivered in boatloads to the colony. Hypothetically, initially abandoned after the Massacre, Weyanoke plantation was quickly
reoccupied by 1622–3 by Yeardley. By 1623, Captain Nicholas Martieau brought to Weyanoke patients who were sick with the "droopsie" (presumably dysentery or chronic diarrhea) to "perfect a cure," where notably not one "miscarried" (McIlwaine 1979:11).

The other duties at borough lands included the "beginning of a stocke of Cattell" as a sort of public commons. Weyanoke's beginnings in this capacity may have occurred through the gift of two heifers from the Virginia Company (Reps 1972:47). In terms of hard evidence from Weyanoke, the public stock of cattle, presumably used to feed public servants in residence at Weyanoke, may have also occurred through "common usage" of the former Governor Argall's (1617–19) eight theoretically "impounded" cattle. Argall's cattle were in limbo as public property, presumably pending Virginia Company suits against Argall's estate in Virginia (Hatch 1957:19–21; Powell 1977:76–79). Notably, the Muster of 1624–5 recorded that Piersey's personal household contained not only the plantation's cattle herd but also "8 neat cattle young and old" that are specifically listed separately as "MR. SAMUEL ARGALLS CATTLE" (Jester and Hiden 1956:22). In other words, the livestock at Piersey's Hundred constituted a public or corporate cattle herd impounded along with his own. When Argall ran afoul of the Virginia Company in 1618, these publicly appropriated cattle may have wound up at Weyanoke for the same reasons that mischievous, privately owned hogs at
James City were forfeited to be ringed at public holdings at Bermuda Hundred (Kingsbury 1933:93).

Because Argall's governorship technically ended in 1619, the transfer of these cattle in 1624–25 from the Governor's Land or Governor's estate in James City Corporation to Piersey's Muster cannot be explained adequately as emergency behavior resulting from the 1622 Indian Uprising. Jamestown Island in James City was considered the safest place for cattle in 1622, not Flowerdew (Kingsbury 1933:612). Therefore, although Argall's cattle may have been originally sent to Bermuda Hundred, we can explain how the cattle got to Flowerdew only through Yeardley's use of borough lands at Weyanoke much earlier. Given the Yeardley borough land connection, Piersey had to legally account for Argall's cattle in 1625, suggesting that the livestock were inadvertently acquired as part and parcel of his "largesse" purchase of Flowerdew and Weyanoke borough lands in 1624 (McIllwaine 1979:55).

A fourth suggestion that Weyanoke was a borough land is offered through post-massacre documentation and modern archaeology. In November 1623, the same years as Martieau's use of Weyanoke as a rest area, there was public court discussion of setting aside 2,000-acre plantations to create secure "fortified Towns" for all willing to settle there. This discussion, as well as the size of the plantation/rest area (2,200 acres), would be fully appropriate to Weyanoke as an apparent Charles City public
corporation, "borough land" holding (Kingsbury 1906: 482–483, see also 488–489). In reality, all Weyanoke did was support the emergency fort across the river, but borough land association would surely help in rationalizations of where fortified towns were.

The evidence supporting the notion that Weyanoke was a public corporation land is provided largely through historic archaeology, which has revealed what appears to be the ultimate fate of the privately held Flowerdew side of the macro-plantation. Flowerdew became a borough district fort and administrative center to Charles City Corporation during the period 1623–32. The change at Flowerdew may have occurred by default, since it was initiated following the sacking of Weyanoke during the 1622 Indian Uprising (Tyler 1946:369). It may have originally been intended that the public fort be established at Weyanoke, or at least be supported by tax revenues from Weyanoke. The effort may have been shifted to Flowerdew, or at least recombined with Flowerdew, since Flowerdew had experienced minor losses during the Uprising as compared to Weyanoke. By at least 1622-23, Flowerdew had also erected its own significant defenses (Kingsbury 1906 II:363; Tyler 1946:369). In these emergency activities, the through sacking and abandonment of both Bermuda Hundred and Charles City, the original fountainhead of Charles City corporation government in the immediate post-massacre period only serves to strengthen our hypothesis about the fate of
Flowerdew as the seat of a privately and publicly financed Charles City borough fort (Kingsbury 1933 3:612, 670).

Two other documentary notes will conclude our discussion of Weyanoke as a hypothetical borough land. If we examine Morgan's (1975:122–123) somewhat venomous account of Yeardley's refusal to surrender about 54 tenants when he retired as governor in 1621 and look at the date of the original agreement of 1618–19, part of the wrangling may be due to at least 20 or so tenants who were financed by Yeardley and wound up as part of the Yeardley borough land "gift horse." This is because either Governor Argall (1617–18) or Sir Thomas Smythe tried to attach Weyanoke to Smyth's Hundred. This Hundred was directly analogous to Martin's Hundred in size at 80,000 acres. It is described as having an eastern boundary in the western side of the Chickahominy River area and bounding on the west by "Weyanoke territory." This hypothetically makes Weyanoke Marsh Point the western boundary of James City borough. It certainly helps us understand how Argall's cattle got to Weyanoke and how Virginia Company officials attempted to undermine Yeardley's trans-river estate (Hatch 1957:39, 42).

Close analysis of Piersey's will helps confirm our hypothesis that public and private affairs had become entangled at Flowerdew and Weyanoke. Piersey's will was made in 1626, the very same year we find that half the "grete ordnance" in Virginia is at Flowerdew (McIlwaine 1924:120).
In it Piersey included a special provision that "the Governor [then Yeardley] and counsell [should have] a true Inventorie in upon her oath [executrix, wife Frances Piersey] of all my estate soe left as aforesaid" [author's inserts] (Neill 1886:405). This highly unusual provision anticipates public and private complications in his estate resulting from his association with borough lands and with his co-sponsorship of what had become a royal colonial artillery fort. As a result of the special provision of the will, government officials were allowed to peruse the estate inventory for public property such as artillery, powder stores, and a public granary to ensure that these items were not recorded as Piersey's personal property (as was the case with Argall's cattle). This would also include separating "men at the castle" paid for by borough taxes from his servant household. So when Piersey as a capitalist magnate purchases Flowerdew and Weyanoke, what he is really doing is purchasing the rights to patronize a local government concession as well as large tracts of personally owned private property.

**THE CONTEXTUAL CIRCUMSTANCES LEADING TO THE BUILDING OF YEARDLEY'S FORT**

Now we must focus on the particular historic context that would cause this private or particular tobacco plantation to rapidly eclipse Jamestown, Henricus, Bermuda City, Point Comfort, and Warrascoyack in military improvements during the desperate period of 1622–32. In order to do this we
must again get underneath the surface impressions of the scattered historical records and pull this together with the otherwise mute archaeological record.

Based on insights outlined by Garvan (1951) and Reps (1972), it is suspected that the inferred fortification introduced below will mesh closely with the modest urbanization attempts noted above, which would make both less not more ambiguous.

The Flowerdew Fort was built in the 1622–23 period, a time of bitter warfare with the Powhatan Chiefdom and the dissolution of the Virginia Company. What was going on at this time? The Virginia Company—including especially the liberal Wyatt, Yeardley, Sandys, Southampton, and Ferrar "patriot" faction—saw the post-massacre reconsolidation of the formerly scattered 40 to 50 tobacco plantations along the James River into only seven or eight strongholds primarily as accomplishing three very specific goals. First and foremost, they saw this as an opportunity "to unite more neerly together in fewer places the better for to Strengthen and Defende ourselves" (Kingsbury 1933:612). This provided settlers with the labor to build plantation fortifications that would be defended by pooled manorially and privately held swords, powder, and muskets employed against Native Americans (Kingsbury 1935:73–75). Due to famine in 1622, initially Yeardley could locate only a maximum of 180 able-bodied men to go on Indian raids, of which 80 were only fit to carry stolen Indian corn. These of course are roughly the same amount of healthy men who were also the real
substance behind seven plantation defenses during a period of increasing famine (Fausz 1977; Kingsbury 1935:12, 67).

Second, without these bases of strength they could not leave each stronghold to also attack the Powhatan Chiefdom with great amounts of men and arms lest the core sedentary plantation strongholds and their livestock left behind would be poorly defended both within and without of their palisades. The agricultural base of the English meant that protection from Indians was a common need during normal outdoor farming practices, much less within defenses (Kingsbury 1906 2:509; 1933:613–616, 1935:9–10, 12, 67, 236–237). Indeed, reliance on sedentary agriculture or horticulture meant that both the English and Native American were very vulnerable to one another during this period.

The overall tactics of the Virginia Company in building the seven strongholds of 1622–23 before mounting offensive Indian raids in June of 1622 are sound Renaissance military ideals. They are evidence that the English were subscribing to modern military practices that encourage a reasonably secure defensive base before any offensive attacks (Parker 1986:28–32). Planned attack and defense were seen as tactically one in the same in the modern crisis of European warfare or emphatic controls of territorial claims (Parker 1986:6–8, 28–32; Vauban 1969). Yeardley's offensives against the Weyanocs, Nansamounds, and Pamunkeys in the summer and fall of 1622 therefore argue that these raids were launched from
an analogous secure position due to Yeardley's training in that "greate
iversity of warre the lowe Countres" (from 1601–09 under Sir Thomas
Gates), and indeed this popularized citation from John Pory refers
specifically to Yeardley (Fausz 1977; Kelso 1996:10; Kingsbury 1933 3:220,
1935 4:9–10).

Third and most importantly for our present study, the Virginia
Company saw the consolidated eight plantation strongholds as public
relations opportunities to build badly needed towns due to mounting
criticisms attenuated by Nathaniel Butler in the post-massacre period
(Kingsbury 1906:381–385). As Reps (1972) has demonstrated, this was an
effort which did not begin or end during this crisis period, but one that got
everyone's attention as directly spurred by Native American warfare and
mounting London Company and Royal political criticism. This population
concentration provided an opportunity to minimally urbanize the seven
strongholds the Virginia Company decided to hold.

These included reading up-river to down river: West and Shirley
Hundred (once part of the greater Bermuda Hundred and Bermuda City
Corporation and that James River community agglomeration), Jordan's
Journey, Flowerdew, and Newport News (all private holdings). In the
meantime, James City and Pasbahegh (Governor's Land) were parts of the
James City Corporation administrative complex. Elizabeth City (formerly
Kecoughtan) was another public Corporation center (Kingsbury 1833 3:612).
From this list alone Charles City stands out as a borough devoid of public lands and funds—unless you count Weyanoke, which according to Fausz (1977), was also sacked.

In August 1622, George Sandys wrote, "wee think it fitt, that the houses and buildings be so contrived together, as may make if not handsome Townes, yet compact and orderly villages; that this is the most proper, and successful manner of proceeding in new plantations" (Kingsbury 1933:669). When the London Company arrogantly asked the Virginia Council to re-occupy abandoned plantations such as Martin's Hundred and Weyanoke in late 1623, Sandys wrote, "by your Comaunding vs to dispearse wee are like quicksilver throwne into the fire and hardlie to be found in so vast a distance...," along the lower James River basin (Kingsbury 1935:66, 70–72, 73–75). How grim were things during this period? George Sandys, the secretary of the colony, was humbled by having to pull palisade guard duty during this period and might have died of famine. He lost 23 servants to famine by March 30, 1623 (Kingsbury 1935:70–72). We suspect that Yeardley "rolled up his sleeves" and made similar contributions beyond guard duty in order to survive. What did he do and what was his role?
In the winter of 1622, Nathaniel Butler, the ousted governor of Bermuda Island and anxious to tap into handsome tobacco profits, sought a political alliance with the critics of the indigenous liberal Virginia Company. Butler wrote a scathing assessment of frontier Virginia civility and its defenses, called the "Unmasking of Virginia." In this document, Butler made the following statement about Virginia's defenses, which although exaggerated, probably had some basis in reality (Kingsbury 1906 2:374–375):

“I found not the least peec of ffortifications: Three peeces of Ordnance onely mounted att James Citty and one att flowerdue hundred butt never a one of them serviceable; Soe yt [it] is most certaine that a Small Barke of 100 Tunn may make itts time to pass vpp the River in spite of them; & cominge to an Anchor before ye Towne may beat all their houses downe aboute their ears and soe forceinge them to retreat into the woods may Land vnder ye favor of their Ordnance and rifle the Towne att pleasure.”

Butler saw Jamestown, and this is surely the "Towne" to which he refers, although he never traveled in Virginia north of the vicinity of the Chickahominy River. Thus, his comments about Flowerdew probably were based on hearsay (Fausz 1977; Kingsbury 1935:450–451; McIlwaine 1915:24). His statements suggest, however, that it was commonly known that Flowerdew had at least one cannon and that Flowerdew was one of only two poorly defended settlements in Virginia worth mentioning at all, which were intended to guard against foreign incursions by ship.
Commenting in their 1625 "Discourse of the Old Company" on the immediate post-massacre period, the Ancient Planters (settlers who arrived in Virginia by 1616) recorded information that largely supports some of Butler's basic contentions (Jester and Hiden 1956:xxi). The Ancient Planters noted that, "As for Fortifications agaynst the forraigne enimy, there was none at all, onely foure peeces mounted but althogether unserviceable." The four cannon the Ancient Planters enumerated are certainly the same as those mentioned by Butler (three at Jamestown and one at Flowerdew). The Ancient Planters continued: "There was onely eight Plantacions, all which were but poorly housed, and as ill fortified agaynst the Sauages" (Kingsbury 1935:520–521). If contextualized, these comments appear to pertain to the period early during the efforts to organize the eight strongholds, when very little had been accomplished in the way of fortification. In contrast to Butler's statement, however, the Ancient Planters' use of the term "ill fortified" does suggest that by late winter some palisade fortifications had been installed against the Indians. Later in their "Discourse," the Ancient Planters note how planters suffered under martial law. These last comments clearly suggest that the more serious fortifications were erected after the fall harvest was secured and processed when martial law forced them to build some forts.
Not ironically, time wise, sometime during the winter of 1622–23, the Virginia Council and the Assembly issued a sharp reply to the criticisms of Butler and the London-based Virginia Company:

"We have as yet, no Fortifications against a foreign Enemy, altho' it hath been endeavored by the Company, with a Success unanswerable to the Care and Expence: as also ourselves. But the Work, being interrupted by the Scarcity [of food] of last Summer, shall, proceed again, God willing, with all convenient Expedition; and almost all our Houses are sufficiently fortified against the Indians with strong Palisadoes. His [Butler's] Envy would not let him number truly the Ordnance at James City: four Demi-Culverins being there mounted, and all serviceable. At Flower-de-Hundred, he makes but one of six: either was he ever there, but according to his Custom, reporteth the unseen as seen. The same Envy would not let him see the three Pieces at Newport's News, and those two at Elizabeth-City. Two great Pieces there are at Charles Hundred, and seven at Henrico. Besides which, several private Planters have since furnished themselves with [anti-personel] Ordnance [murderors and fowlers]. So that it were [would be] a desperate Enterprise [to sail up the channel and attack the colony], and unlikely to be attempted by a Man of his Spirit, to beat downe our Houses about our Ears, with a Bark of that Burthen" {author's underlining} (MacIlwaine 1926:24).

For our purposes, the key aspects of this document are the great number of cannon at Flowerdew above all others (one-and-a-half times the capital at Jamestown), and the fact that defenses in the seven strongholds had, so far, been made by strong "pallisadoe" against the Indians (although not all strongholds were palisaded by then). The efforts mentioned in the document are surely a result of a shameless scramble of the liberal Virginia Company patriots to improve the defensive and political situations in
Virginia in response to Butler's criticisms, although the limitations to what had been accomplished by this date appear to be honestly reported.

The type of cannon ball which predominates in the archaeological collections from Flowerdew represent long-range demi-culverns, weighing 3,400 pounds each, which were normally employed as "ship-killing" cannon by pointing them toward a river (Stone 1961:162). It might be incorrect, however, to assume that all the large cannon in Virginia were employed in defense against foreign ships, although this is the emphasis in the reply to Butler. At Newport News in 1622, for instance, what were clearly large cannon were mounted against the Indians when this need was the most pressing (Purchas 1926 19:169). In ca. 1614, the Ancient Planters noted that only four large ordnances were mounted, and these were employed "against the natives," probably by using them to flank palisaded defensive works.

The historical record also suggests, however, that cannon alone, by implication without earthworks and perhaps even without palisade fortifications, could constitute Virginia's defenses against foreign ships. In the 1622–23 passage cited immediately above it is admitted that "We have as yet, no Fortifications against a foreign Enemy," yet, by winter, the cannon were mounted and serviceable, and now pointed toward the river (McIlwaine 1915:33). Still, although it would be difficult to underestimate the shabbiness at times of Virginia's international defenses, the ideal defensive format during this period would nonetheless have had cannon inside a fort.
comprised of palisades and earthworks (Duffy 1979). By spring 1623 this also was done in but only in a few places due to great costs in labor.

On April 30, 1623, a document made by "divers Planters" and mariners was read in London in further reply to appraisals of Butler and other critics of the Virginia Company:

"Itt is true ther is as yet no other artificiall ffortificacons then Pallisadoes wherof allmoste everie Plantacon hath one, & divers of them hath Trenches. And this last yeare Capt Each was sent for ye purpose [.] As for great Ordnance there are fowre peeces mounted att James Citty and all serviceable, ther are six Mounted att fflowerdue all of them likewise serviceable, And three mounted att Kicoutan and all of them serviceable, ther are likewise att Newporte Newes three all of them serviceable ther are likewise at Henrico seaven peeces and att Charles hundred two, and in other places, besides fflowlers and Murders att divers places" [author's underlining of key words] (Kingsbury 1906: II:383).

This document appears to support the general accuracy of the Council and Assembly's earlier response to Butler, prepared in the fall or early winter of 1622. However, the later document notes that, in addition to palisades against the Indians, "trenches," or earthworks had been added to some ("divers") of the seven strongholds. What is going on here? The colonial authorities recognized two basic types of fortification and the orthography of fortification citations noted above shows this simple division. Those with "trenches" are the ones "for enduringe of assualts and Battery" (from potential "foreignne" enemy cannon), built by high-status patronage and the other made of, "Pallysadoes [without earthworks] wch wee conceiveth the
fittest" for protection against Native Americans or the "domestic enemie" for better than average status plantations or building wooden blockhouses especially within the seven or eight strongholds originally held (Kingsbury 1906 1:317; 2:381–385).

"Trenches"—that is, earthworks made from trenches—are normally a defense against the European threat and accordingly associated with more tactical river controlling "greate ordnance" (Kingsbury 1906 2:363; OED 1978 11:321). Those forts at Henricus (1611+) and Charles Cittie 1612+) were by "Trench and Pallizado and diuere [divers] blockhouses made of great Tymber built vpon passages [built near entrances, and these were] for scouring the Pallizadoes," often supported with "Sodds" (turves as part of earthworks) (Kingsbury 1935 4:238). The references are useful, as they are reflections of the same closely correlated wording which is only slightly differently used in the Virginia Assembly's reply to Butler's Dismasking cited above, and indeed the wording may be Yeardley's own in both cases. Thus, since we know that on the most important early works (James Fort, Henrico, and Charles City Fort) there were "blockhouses" made of "greate Tymber" since otherwise there could be no "scouring" (flanking fire) of the curtain walls with projectiles, this clearly sets up a predictive model for the Flowerdew work which is documented by archaeology at 44PG65 (see Brown 1890:481, 515, 634, 660; Hodges 1993; Kingsbury 1935:259–262; OED 1978 11:321; Kingsbury 1935:109). Spanish spies such as Don Diego of the 1611–13 period
and other sources describe English curtain walls (walls connecting bastions or blockhouses) as "stockades and posts" or "encompassed with small young trees." This clarifies the English use of closely set "ditch-set" palisades, which are synonyms for stockades in coordination with these earthworks, facts defined archaeologically at 44PG65 as early as 1973 (Barret 1969:250; Brown 1890:519; Brown 1898:108; OED 1978: 7:395, 10:996).

The above inferences about two basic types of fortifications are considerably strengthened by additional analysis of the orthography of the statement of 1623 in the colonies rebuttal of Butlers' "Dismasking of Virginia." This document records that, "six [cannon were] Mounted att fflowerdue hundred," and therefore in effect states specifically that cannon were placed on a mount (hence "mounted") or "platform" or terreplein of some sort, which we know is true from the archaeological evidence at 44PG65 (Barret 1969:253; Hodges 1993; Kingsbury 1906 2:383; Norton 1973:84, OED 1978 6:769; Purchas 1926:205). For instance, John Smith noted that the ordnance at James Fort was mostly, "well mounted upon convenient platformes" [authors emphasis] (Tyler 1946:397). "Riches Mount" a freestanding terreplein for a shore battery at Bermuda Island, illustrated by John Smith, is a good example of this word usage backed by contemporary graphic illustration and a written label. Smith's Fort and Pagent's Fort, also at Bermuda Island, show similar examples of cannon supports (Arber 1910 2:624). (See Figure 13.)
Not only did "mounts" provide space for recoil and reloading as well as physical support to the massive guns—they were critical to the gunner who was expected to mathematically adjust the sighting of each gun from the same point of "zero" or origin based on previous results of cannon fire. This was done for exactly the same reason archaeologists level transits or plane tables before making calculations (Norton 1628:Tract 2, Dialogue 20).

Figure 13
In other words, mounted large ordnance is normally culturally associated with fortifications intended to endure an artillery duel with foreign vessels. Presumably, the earthworks ("trenches") were built by late winter or early spring of 1622–23 only at settlements holding large cannon "mounted" to contend with foreign threats that the documents say specifically is only the case at Jamestown and Flowerdew. The earthworks protected this artillery from "battery" (bombardment from ship's cannon).

In summary, orthographic analysis of the triangulation of (1) "great ordnance" (large artillery publicly owned) as opposed to "ffowlers and Murders" (privately purchased), (2) "trenches" (earthworks), "pallisadoes" equaling "trench and pallisado" and (3) "mounted and servicable artillery" (on terrepleins or other platforms) is (again) actually a remarkably informative statement about precisely what was done at Flowerdew by Spring 1623 as documented by archaeology (Hodges 1993). In addition to transporting the sick to Weyanoke, Nicolas Martiau during his three-week stay beginning in March 8, 1623, probably brought salvaged iron from Falling Creek to Flowerdew at the same time to repair cannon mounts and even more likely enhance fortifications with long spikes. Notably Martiau, a French Huguenot was as close as Virginia had to a "singular good" military engineer in building palisades and blockhouses (Kingsbury 1:317; MacIlwaine 1979:10–11; Rutman 1959:296). In Sandys' letter of April 11, 1623, this is the exact same period in which Yeardley was "taken vp with his private and attende but the
other [by implication public works]," while he was in full residence at Flowerdew (Kingsbury 1935 4:110). So sometime between the winter of 1623 and March or April of 1623 is exactly when the partially entrench ed artillery fort was completed.

Because Virginia Company officials were being discredited at the time, the second reply to Butler was intended backup to the Virginia Council and Assembly's potentially biased, earlier reply. Accordingly, the second reply is followed by the signed depositions of various people, including colonists and mariners who happened to be at Jamestown at the time the correspondence was drafted (Craven 1959; Kingsbury 1906 II:385–387). Some colonists were more insular than others and noted that they had not traveled from Jamestown and, thus, had not seen the other settlements. Others noted that not every plantation was palisaded and that they had not seen all the ordnance (because of the dispersals orders from the seven strongholds); and still others, such as some mariners, who presumably had traveled extensively on the James River, readily confirmed the entire statement. For instance one Gregory Pearle, "hauing been Maistermate and lived in Virginia 16 monneths doe affirme all the answers within written save I have not seen the Ordinnce att Henrico and Charles Citty" as both sites were abandoned and were stripped of their artillery. So we also have signed depositions witnessing Yeardley's artillery fort by spring 1623.
YEARDLEY'S KEY ROLE AS ACTING COMMANDER IN CHIEF OF VIRGINIA MILITIA 1622-23

So far we have located cryptic but useful references to the fort at Flowerdew. What role did Yeardley play in Virginia society when the fort was built? Machiavelli wrote, "Nothing brings a prince into greater respect than the undertaking of great enterprises and setting a fine example" (Bergin 1947:65). In Virginia in April 1622 such an enterprise was a place "defensable to seate upon" so that Indians could not "infest...nor forraine enemy subvert us wch wilbe the master peace of this greate worke" (Kingsbury 1933:612–613)

Sheer political and military clout within the Virginia Council, in combination with the light initial mortality of only six people at Flowerdew, is probably why Yeardley-held Flowerdew was initially chosen to be one of the eight plantation strongholds to be retained by the Virginia Company in the immediate aftermath of the Massacre of March 22, 1622, in which about 1/4th of the colony was killed (Kingsbury 1933:612). The emphasis on the light mortality at Flowerdew is intended to be a direct reflection of rational Native American warfare input into probing each plantation's defenses and organization rather than sophomoric chauvinism toward Flowerdew's "supposedly heavy defenses" (Deetz 1993:47). The former notion, that Flowerdew was defended by "decisive defensive action" is one sensitively developed by ethno-historian Fausz (1977:385–386) to incorporate carefully
directed Native American warfare activity—into American history. Fausz wants less—not more bias, since Weyanoke was devastated and Flowerdew wasn't.

Following from the above, how much real clout did Yeardley have in post-Massacre Virginia? Studies by Rutman (1959:272–275, 296) indicate that Yeardley, for all intents and purposes, was the acting Marshall of Virginia from 1622 to 1623+ or about a year. This is largely because recently appointed Governor Wyatt (1621–26) freely admitted to having limited military skills and experience and was often ill during this period due to his lack of seasoning and unrelenting mental stress. Also quite ill due to famine was Newce, the "on paper" Marshall of Virginia who died in 1622. For example, typical military commands or instructions ordered by Wyatt in the March 1622–23 period were received from "either my self [Wyatt], or Sr. George Yeardleye Knight" (Kingsbury 1933:609, 678–679; 1935:6–8, 1935:9–10). Yeardley did not seize control; his authority derived from governmental appointment and was apparently supported by popular sentiment, especially since he warned settlers of a major forthcoming Indian attack in 1621 (Rountree 1990:68–73). One settler commented succinctly in a poem, "Bould worthy Sir George Yardly, Commander cheife was made, Cause foureteene years, and more he hath, within this Country staid" (as cited in Fausz 1977:451). The effective military title of Marshall makes Yeardley the senior full-time military leader unencumbered by politics in the colony, if it is
possible for such a person to be unencumbered. This was a factor especially true within the Charles City Corporation before 1623 when Captain Madison took command of all plantations "above Flowerdew" within Charles City Corporation, probably on the advice of Yeardley. By September 1624 Yeardley even became the acting Governor of Virginia by personal commission from James I in Wyatt's absence to settle his diseased father's estate (Kingsbury 1935:504). Between 1623 and 1625 he was Deputy Marshall of all Virginia (Rutman 1959).

Thus, since the martial law of the old Anglo-Dutch-trained military regime was gradually softened and nearly abolished between 1615 and 1620, Yeardley in some very real ways was personally probably most responsible for laying the foundations of the indigenous Virginia militia system during this period that set up men like Captain Madison (Rutman 1959:243–295). Indeed, between 1622 and 1623 successful militia action was one of the few positive accomplishments the Virginia Council could report back to the London Company (Fausz 1977). So when we look at post-massacre Flowerdew, we must be aware of the real possibility that Yeardley was trying to lead by example on the only plantation where he still retained any controlling influence or ownership due to Native American depredations at Southampton Hundred (also called Smith's Hundred) and Tanks Weyanoke (Hatch 1957:38–39,42, Kingsbury 1935:9–10).
The earliest forts were built on martial law authority, giving men like Yeardley "absolute power and command in all matters of war over all people...upon all occasions," backed by specific legal threats in writing stating that these leaders were to be obeyed, "upon paine [penalty of] of death" for those who did not knuckle under to the resurgent English military command system (Kingsbury 1933:609). Through fits and starts and rebuilding, many of these "forts" were still standing in 1627 and probably until 1632 (MacI'llwaine 1979:103, 147, 192).

**CONTEXTUAL EVIDENCE OF THE MOVEMENT OF CANNON TO FLOWERDEW**

So far we have looked at cryptic although surprisingly useful original documentation of the Virginia Company under Yeardley's leadership doing everything it could to make a liar out of Butler in regard to its fortifications after the Massacre of 1622. In the movement of artillery to Flowerdew and its embellishment with "trench and pallisadoe" fortifications, is Yeardley using this situation for his own personal aggrandizement or is he thinking about the colony? Are there ways in which we can remove bias in the fortification of Flowerdew and place them on a larger plane?

Let us briefly look at the overall pattern of artillery movement in Virginia between 1621 and 1626. In the Virginia Company's second reply to Butlers' dismasking (cited in full above), they take pains to minimally separate "grete ordnance" (very expensive tactical, anti-ship's rigging, and anti-personal artillery) from "murdorers and flowlers" (privately purchased
inexpensive totally anti-personnel [shooting people] cannon). While Robinets (which are quite small) and any of the other "great ordnance" cannon might have been used to shoot people, Table 2 uses their simple cultural separation in order to produce an unbiased appraisal of terminal Virginia Company and early Royal Colonial artillery dispositions in relation to cannon range, corporation, and specific site. This information is based on the following sources: Arber 1910 II:486; Barka 1993:320; GMCO's James River Map 1991; Jester and Hiden 1956:5–69; Hecht 1973:73; Kingsbury 1906 II:363, 1933:16, 609; McIlwaine 1926:120.


TABLE 2:

GREAT ORDNANCE DISPOSITIONS IN VIRGINIA FROM MARCH 1621-22 TO 1626

(Robinets, Falconets, Falcons, Sakers, Minions, Demi-Culverns; Culverns)

MARCH 1621-22 TO WINTER 1622-23 MUSTER 1624-25 TO 1626

<table>
<thead>
<tr>
<th>Corporation/Site/Range*</th>
<th>#</th>
<th>% Total</th>
<th>Site/Minimum Range</th>
<th>#% TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Henricus Corporation</td>
<td>7</td>
<td>28%</td>
<td></td>
<td>0%</td>
</tr>
<tr>
<td>Henricus City, 0.05 mi.</td>
<td>7</td>
<td>28%</td>
<td>Abandoned Apr. 1622</td>
<td>0%</td>
</tr>
<tr>
<td>Charles City Corp.</td>
<td>8</td>
<td>32%</td>
<td></td>
<td>11%</td>
</tr>
<tr>
<td>Charles City, 0.1 mi.</td>
<td>2</td>
<td>8%</td>
<td>Abandoned Apr. 1622</td>
<td>0%</td>
</tr>
<tr>
<td>Flowerdew H., 0.42 mi.</td>
<td>6</td>
<td>24%</td>
<td>Flowerdew Hundred</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Chaplain's C., 3/5mi.</td>
<td>5%</td>
</tr>
<tr>
<td>James City</td>
<td>4</td>
<td>16%</td>
<td></td>
<td>7%</td>
</tr>
<tr>
<td>James City, 0.7mi.</td>
<td>4</td>
<td>16%</td>
<td>James City</td>
<td>4%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Treas. Plts.(2) ½</td>
<td>2%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Martins H., 2.2 mi.</td>
<td>1%</td>
</tr>
<tr>
<td>Kecoughtan/Eliz. C.</td>
<td>6</td>
<td>24%</td>
<td></td>
<td>3%</td>
</tr>
<tr>
<td>Newport News 3.4 mi.</td>
<td>3</td>
<td>12%</td>
<td>Newport News</td>
<td>3%</td>
</tr>
<tr>
<td>Eliz. City, 3 mi.</td>
<td>3</td>
<td>2%</td>
<td>Eliz. City Occupied</td>
<td>0%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>25</td>
<td>100%</td>
<td></td>
<td>21%</td>
</tr>
<tr>
<td>Smith's Total 1607-09</td>
<td>24(error + 1)</td>
<td></td>
<td></td>
<td>(error) 24</td>
</tr>
</tbody>
</table>

**MURDERORS BY SITE 1624-25**

<table>
<thead>
<tr>
<th>Corporation/Site</th>
<th>#</th>
<th>% Total</th>
<th>Site/Population</th>
<th>#</th>
<th>% Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charles City</td>
<td>7</td>
<td>35%</td>
<td>James City (125)</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>Flowerdew/Piersey's H.</td>
<td>2</td>
<td>10%</td>
<td>Flowerdew (57)</td>
<td>12%</td>
<td></td>
</tr>
<tr>
<td>Chaplains Choice</td>
<td>5</td>
<td>25%</td>
<td>Chaplains Ch. (17)</td>
<td>6%</td>
<td></td>
</tr>
<tr>
<td>James City</td>
<td>5</td>
<td>25%</td>
<td>James City (125)</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>Neck of Land</td>
<td>2</td>
<td>10%</td>
<td>Neck of Land (16)</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>Blaney's Plantation</td>
<td>1</td>
<td>5%</td>
<td>Blaney's Plant. (15)</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>Basses Choice</td>
<td>1</td>
<td>5%</td>
<td>Basses Choice (12)</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>Elizabeth City</td>
<td>7</td>
<td>35%</td>
<td>E. C. Comp. Land (93)</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>Eliz. C. Company Land</td>
<td>2</td>
<td>10%</td>
<td>Elizabeth City (255)</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>Elizabeth City</td>
<td>5</td>
<td>25%</td>
<td>Newport News (20)</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>TOTAL MURDERORS</td>
<td>20</td>
<td>95%</td>
<td>TOTAL CANNON+MURDRS.39</td>
<td>99.5%</td>
<td></td>
</tr>
</tbody>
</table>

CANNON RANGE is shown at Minimum modern James River Channel width.
Flowerdew, whose "greate ordnance"—that is, ordnance above the size of murderor or falconette and jumped up from 1 to 2 in 1622, to 6 in 1623, to 10 or 12 cannon in 1626—was already the top runner in mounted large ordnance by 1623–4 through Yeardley's initial efforts on an active plantation. The two cannon recorded at Charles City (so low that this is surely where Yeardley got his) and seven at Henricus in 1622–3 were probably not serviceable due to rotted carriages. This is a fact the Virginia Company was not entirely honest about in 1623, hence as few third parties as possible were allowed to see these ruined forts and ruined cannon carriages as they were pulled to active forts (Kingsbury 1906 2:385–7). Accordingly, by the Muster of 1624–5, neither Henricus nor Bermuda City has any cannon at all (Kingsbury 1906 1:363).

Also by 1624–5, Piersey Hundred (Yeardley's company cannon) has 6 cannon, Chaplain's Choice possibly has 1, James Cittie has 3 cannon, the Treasurer's (Sandys') plantation on the Neck of Land has 1, Martin's Hundred has 1, and Newport News has 3, all remounted from former military regime forts. These figures were obtained by subtracting the murderers from the Muster totals in order to get back to the contemporary segregation of larger and often tactical "great ordnance" over the smaller anti-personnel guns (Barka 1992:320; Quisenberry 1901:367; Jester and Hiden 1956).

The largest cannons documented by archaeology at Flowerdew were long-range demi-culverns weighing 3,400 pounds, the predominant cannon
ball size at 44PG65. The presence of such river-controlling tactical guns, represents a major engineering feat and investment in labor through moving these from Henricus and Bermuda City (Stone 1961:162). Yeardley was able to do this because he had an ocean-going three-masted ship, called a barque (or bark) of "40 Tunn [with] 7 men belonging to her" (Jester and Hiden 1956:27). Yeardley "freely employed his shippinge, maryners, and servants" to the Virginia Company in both moving settlers, militia levies, cannon, and captured Indian corn (Kingsbury 1935:9–10). Notably, it was one of the few boats or the only boat in the colony capable of moving such heavy guns without capsizing. Based on the Muster this privately owned ship was the largest centerpiece of Virginia's pitiful indigenous "navy," and placement on this ship may explain what happened to some of the other upriver cannon. In light of this, Yeardley was given license to "make prise" on foreign shipping plying the James River should he so desire (Kingsbury 1933:656–657).

Why is Table 2 information important? It means that between 1622 and 1626 we can conclude that Yeardley's Fort at Flowerdew was the most important artillery fort in the terminal Virginia Company Period with the highest number of large "pieces" at 24% or 1/4th of the available artillery. In Piersey's court deposition of 1626, we find that he has 10 or 12 pieces. In the chart we gave Piersey only 10 large cannon because the it seems clear that the two murderers are present and he seems to want to separate them from the larger cannon (rather than being confused by how many cannon he has).
Even at 10 large cannon at its means Yeardley's and Wyatt's policy was maintained and even enhanced to include 48% of the "grete ordnance" present in colonial Virginia well into the early Royal Colonial period through patronage by Piersey and the colony at large.

So the movement of artillery to Flowerdew cuts across any personal endeavors of Yeardley and Piersey or the Virginia Company "patriot party" or the "pro royalist court party" during the 1622–24 period to apparently become part of a larger Colony-wide policy endorsed by both the Virginia Company and the Royal Colony.

Historical analysis of this period indicates that the importance of Yeardley's Fort at Flowerdew was only magnified by down-river bungling of similar efforts. Thus, in sum, the failure of Captain Each's fort at Point Comfort and the failure to build anything of tactical significance at Warrascoyack—only in combination with the temporary abandonment of Henricus and Charles City—placed a sort of default emphasis on Flowerdew due to the relative tactical value of Windmill Point (Kingsbury 1933:16–17, 670; 1935 4:100, 129-130, 191, 259-262, Rutman 1959:274, 295).

As a reflection of this fort, after October 1623, Charles City Corporation or borough militia commands suddenly begin to constantly use terms regarding militia troop levies for offensive Indian raids that are dispersed "from Flowerdew Hundred vpwards" or "above Flowerdew
Hundred." It is thought therefore that Flowerdew protected—and militarily defined—the beginning of the western limits of the colony (Kingsbury 1933:664-665, 1935:292, 400, 404, 407, 441, 448–489, as cited in Rutman 1959:274) (Rutman 1959:292). Buried in these written statements is the strong argument that Flowerdew was by then a stationary regional garrison that could no longer participate in offensive raids as it had done in the summer and fall of 1622. This is almost certainly because its plantation force was now sedentary and on defensive duty to man the cannon at the fort, documented through archaeological excavations and colonial records. Moreover, various additional supporting court documentation suggests that Flowerdew had become the main regional gun powder repository and public granary as well as initial court center for Charles City Corporation by 1623 at the very time the above militia orders shift in their references to Flowerdew (MacIllwaine 1979:11, 62). Hence, every settlement above the fort landmark at Flowerdew was offensively attacking Indians under the direction of West and Shirley plantation-based Captain Madison, while Flowerdew defended all of the same from potential foreign attacks. This is a complimentary reciprocal exchange system whose new fort center allowed a rational division of offensive and defensive military power and regional administrative authority with which Yeardley attempted to bind Charles City borough together.
ANTI-EUROPEAN THREAT FORT STRATEGY AND ITS CONNECTION TO FLOWERDEW

We have now established that cannon movement to Flowerdew is part of a larger pattern endorsed by the Virginia Company and the Royal Colony. However, we still don't know how fortification activity at Flowerdew plays into overall Virginia Company strategy, and why would Flowerdew have more artillery than Jamestown or any settlement? In addition to palisaded anti-Native American defenses, the original company plans were that at least one or two strong points would be held with massed Virginia Company-owned cannon to resist potential opportunistic European raids on the weakened colony (Kingsbury 1935:12). This was a policy already advocated by Yeardley in 1619 who, "purposeth at a place or two upon the river fortifuable to provide for them [the Spanish], animating in the meane while this warlike people (then whom for their small number) no prince can be serued wth better by his example to preserve their courage" (Kingsbury 1933:220). Yeardley had begged the London Company to send "choise men [real military engineers capable of building a semi-permanent fort] from the Lowe Countries to raise ffortifications" capable of resisting foreign threats (Kingsbury 1906:I:257, 317, 326-327, 339, 482, Kingsbury 1933:220). As will be systematically demonstrated below, it will become very evident that Flowerdew and Point Comfort (Each's Project in the quote above and defaulted to Warrascoyack) were the selected locations for these special types of fortifications in excess of simple palisades during the post-massacre period.
The policy of one serious fort at the mouth of the James River and one upriver fort refuge hearkens directly back to the praxeological constraints of the instructions to Sir Thomas Gates in 1609. These instructions almost certainly reflect the wisdom of Robert Tindall, the master gunner to Prince Henry (Henry is James 1's son, indicating Tindall was the second best artillerist in all England) who sailed and mapped the James in 1608 (cf. Jester and Hiden 1956). These rational and modern Anglo-Dutch tactics as they are applied in Virginia can be readily observed by a careful reading of the rejection of James Fort as a potentially important tactical fortification:

"itt [James Fort and Jamestown] onely [should be seen] as a fitt porte for yor Shippes,...[as it was] ...so accessable with [to] shippinge that an enemy may eazily [be] vpon you with [and take] all the povision [and] ordnance and muniiton and it is not to be expected that anie fortification there can endure an enemy that hath the leasure to sitt down before yt" [author's inserts] (Kingsbury 1906 2: 16–17)

These comments are of course echoed in Nathaniel Butler's Dismasking, since both authors were reading the same theory (Kingsbury 1906:383, 385; 1933 3:16). Thus, the wide and straight channel here near Jamestown can be directly approached by deep-water vessels that could send point-blank broadside fire on the fort even from an anchorage, or alternatively simply run the guns in a straight course upriver.

Given the grim circumstance of Jamestown, Gates was told instead to go upriver and fortify in a strong place where European rivals would be forced to launch smaller boats to offload men for a ground assault where the
defenders had every advantage. It is important to remember that Yeardley was Gates' senior Captain when these instructions were given him, and it is likely that these sentiments were well remembered by Yeardley during 1622–32 military policy decisions which left James Town (Yeardley's fitfully shared main residence) a politically correct but militarily incompetent site from the very beginning in terms of current military theory (Jester and Hiden 1956:376).

In order to remove any bias that might infiltrate this discussion, Table 2 was amended to include the width of the James River channel in direct relation to artillery dispositions to see if Tindall's and Gates instructions were honored. The table uses modern channel widths which are somewhat wider than the 17th-century channel widths. I do not include channel widths plus the distance to the forts (the exact fort location not always known) which would be about 100–371' or so plus the width of tidal flats. Nonetheless, the chart provides reasonably good baseline information.

In terms of artillery range in relationship to James River channel width, the Flowerdew Fort—at 0.42 mile wide—was decidedly inferior to the earlier forts at Henrico and Charles Cittie built by Gates and Dale and Yeardley, at 0.05 miles and 0.1 miles wide, respectively. Nonetheless, Flowerdew, whose modern channel has been deepened and widened by engineers, is still from a tactical standpoint nearly twice as effective (twice 0.42 is 0.84 minus 0.7 is 0.14 miles) as, for instance, Jamestown at 0.7 miles
wide. Since Gates and Dale removed most of their artillery upriver between 1611 and 1616 where it still was in 1621, the larger aggrandizement of artillery at Flowerdew is simply a consequence of continued common sense and the liquidation of two borough arsenals (Henrico and Charles City) into one. As a borough fort, Yeardley's Fort is placed as near as possible to the south of Charles City borough specifically in order to protect as many upriver settlements as possible.

As was the case at Jamestown, the defenses at Newport News and Elizabeth City at 3.4 and 3 miles wide, respectively, are thought to be entirely defensive artillery placed at important ports there, rather than river-controlling defenses. They also served as auditory warning guns for upriver settlements (three shots or more). While the mouth of the James has been severely changed by modern engineering and hurricanes, here the import of their tactical value in the 17th-century artillery disposition would not be greatly different until more modern rifled cannon and better gunpowder were invented in the 19th century.

Having seen clear inferiority to Henrico and Charles City, what are the relative tactical merits of Flowerdew? Compared to 19th-century Fort Powhatan (on a bluff opposite the tip of Weyanoke peninsula), for instance, Windmill Point is not the best military tactical position even along the James River here. These two locations are therefore good places to compare the defensive settlement models of the two periods. Both forts are intended to
fire on ships specifically making a "tact"—that is, slowing down while reversing their sails in order to corner sharp turns in the James River. The rich flood plain at Flowerdew was the best surviving location to support a subsistence economy dependent of corn and tobacco, which was a key element in the war from the beginning as were all Indian conflicts during this early period of 1610–14 and 1622–32 (Fausz 1977, 1990). Thus, in excess of the relative tactical value of Windmill Point, Flowerdew was a good tactical location because it already had an established plantation with a very large population under a single increasingly powerful leader supported by some of the most productive corn lands in Virginia. Here the superior high bluff locations of Henrico, Charles City (and probably Fort Powhatan) are also inferior to Flowerdew because, as stated in a contemporary documents, all the land nearby was, "ouergrowne wch great Timber Trees so that there is little or no land fitt for present culture but by industrie is cleared of wood" (Kingsbury 1935 4:259–262).

In contrast, Fort Powhatan at Hoods, built by 1819, was fed rations by a state-supported army that probably used slaves to drag huge cannon up the high bluff there above the tactically superior narrower river passage opposite the tip of Weyanoke Point (Clary 1990:9, 70). Not ironically, not local effort, Virginia Company, nor Federal was capable of keeping a fort standing indefinitely in this portion of the James River. Ironically, had the United States been able to build a permanent fort at Hoods, with subsequent
Confederate seizure, Grant's army could not have crossed the James here in 1864 (see Deetz 1993:149–151).

Now focusing on military tactics in the early 17th century, the base of Windmill Point allowed archaeologically documented cannon from sacker, minion, to demi-culverns size to fire on ships involved in a particularly difficult tact around Windmill Point (a treacherous turn in the James perhaps sarcastically named "Careless Point" in 1607), where they would be sailing directly into the typically stiff prevailing south-east winds emerging from a long reach to the west (Arber 1910 l:li). This is a river turn navigation whose waters hid a shallow massive subsurface shoal which makes ship navigators who knew the channel swing very widely around Windmill Point, although not out of accurate cannon range. Indeed, the larger Flowerdew cannon could destroy targets on the opposites shores on all sides of Wind Mill Point, much less within the river channel (Peterson 1969). Ships attempting to turn their broadsides (long sides of ships were most cannon were present) toward the fort would be subject to being driven by strong water currents into foundering off course. In turn, they would be risking potentially being driven onto banks on either side of the channel or on the hidden shoals of Windmill Point itself. At such a time, these ships would be Flowerdew's "oyster" for systematic cannon fire.

In turn—and here the difference between Flowerdew and Jamestown becomes dramatic—the tidal flats at Flowerdew would not let deep-draft
vessels directly approach any of the east or north side of the entire Flowerdew Plantation land mass, much less the tip of the Windmill Point peninsula. Therefore, as Gates was instructed, only "lightered" small boats could approach any shore near the entire Flowerdew holding because of tidal shoals along the entire peninsula (Kingsbury 1933 3:16). In the meantime, ships firing on the fort would have great difficulty also targeting the redoubt at 44PG64 which was specifically intended to triangulate cannon fire on a vessel in concert with the fort at 44PG65 (Hodges 1993).

"Lee Necke" battery in Kent Country, England, built below London along the Thames River by 1588 for defense against Spanish invasion, closely matches the Flowerdew tactical position with a peninsula shore battery targeting a tact zone (Walker 1981:73). Similarly, a Dutch fort center supported by lines of redoubts lies within the tip of a peninsula in a sharp bend in the line of the IJssel and Waal River along the "Great Wall of the Dutch Republic" (Parker 1986:Figure 14). As noted above, these are of course also the exact tactical positions of Henricus (Ferrar's Island [sharp peninsula]) and Bermuda City (City Point, Hopewell [sharp peninsula]) forts (Hatch 1957:32–33) chosen by Sir Thomas Dale for serious fortification where cannon could actually control the narrower up-river channels.

EVIDENCE OF YEARDLEY'S PERSONAL AND EARLY PATRONAGE OF THE FORT

Public patronage would have documented the actual financing of the work similarly to the well-documented Captain Each (Point Comfort) and
Warrascoyack examples, which, as we have seen, both wound up as fiascos, has not yet been found for Flowerdew, although it may exist (Kingsbury 1935:450–451). The archaeological evidence suggests that Yeardley's own personal power between 1622–23 under martial law ultimately made a mockery of similar later Virginia Company efforts to build a publicly financed fort in 1623–24 (Kingsbury 1935:236–237). For instance, the Virginia Company drafted 1 of every 20 men to build a fort at Warrascoyack that would up as "Dwelling houses, 2 in several Pallisadoes" (the paired palisades [stockades] were to be in filled with earthworks) (Jester and Hiden 1956:46; Kingsbury 1935:188, 191, 229; Rutman 1959:295). Indeed, therefore it is the early date of the Flowerdew work specifically before major public support through the institutionalization of the regional castle tax of 1623+ that very specifically suggests that it was largely built through Yeardley's martial law and "knightly" patronage between 1622 and 1623 (Kingsbury 1935: 100, 129–130, 188, 191, 229; as cited in Rutman 1959:293).

This was probably done not only to protect the upriver James and his private holdings, but as a patriotic gesture on behalf of the English liberal faction of the Third Charter of the Virginia Company against pro-Royalists. Again, the latter were trying to find any means possible to dissolve the Virginia Company charter due to alleged bad management in which poor defenses and general neglect of public works both loomed largely in a mounting list of deficiencies (Brown 1901:64–68).
The foggy documentation of financing of the Flowerdew work is also probably a by-product of English cultural practices as well as an indication of deficiencies in the documentary record. The captains of the Elizabethan army were in Corelli’s (1970:45) words, "a strange mixture of private contractor and public servant." Warfare was a business and the captain would feed, house, arm, and train his men from funds disbursed from a paymaster or Muster officer (Broyndon 1967; Parker 1986). Many soldiers had to be frequently fraudulent contractors as may have been necessary to sustain legitimate military initiatives through unavoidably creative or predatory means—or among the unscrupulous, to obtain personal gain.

A frequent debilitating partner in this process was Elizabethan administrative supply incompetence and crippling parsimony, factors which daunted both Roanoke and Jamestown colonization initiatives from the beginning (Oman 1937:372–389). Thus, this strange professional paradigm, which often forced soldiers to be a mixture of rascal and magician, is probably a good description of the fort at Flowerdew, its ambiance in Virginia society, and financial arrangements at the time (the Virginia Company is essentially bankrupt). It simply appears as a solution from out of a fog of mounting problems. It does so probably as an exponent of the Machiavellian ethos of the Dutch military under Maurice of Nassau and English general Vere who had attempted to cure chronic problems in British military organization in
order to make the British more effective allies (Bergin 1947, Parker 1986:18–23).

Thus, when Yeardley attempts to finance his public and private initiatives as a military contractor to the bankrupt Virginia Company through raids on Indian corn, he is demonized by Morgan (1975:122–123) and Fausz (1977:476–478) who demonstrate a complete misunderstanding of the Elizabethan soldier's peculiar predicament in society. Accused of selling stolen Indian corn to starving colonists, Yeardley only has 20 barrels in his Muster of 1624–5 (Jester and Hiden 1956:23). This is presumably because he is trying to act like a Dutch state-supported soldier rather than as a feudal baron by selling the corn at the Virginia Company's going price probably fixed by Sandys who undertook to disburse corn through questionable Virginia Company auspices (Fausz 1977:479). Hypothetically, this system tried to disperse the stolen Indian corn to more than lusty militia who took it directly by booty on various Indian raids.

If "boote corn" did not finance the fort, possibly Wyatt's permission giving Yeardley the power to punish public drunkenness on January 25, 1622–3, may have been the basis of some public support Yeardley received to build or improve the fort of 1622 (Kingsbury 1935:18). If this is not a correct inference, then by April 1623 when Yeardley was, according to George Sandys' complaint, "taken vp with his private," the fort may have been built on his private plantation which received a public burden in Yeardley's
reckoning of needs to defend the entire upriver community on behalf of Charles City Corporation (Kingsbury 1935:110–111).

In plain fact, when the London Company officials told the settlers to leave the strongholds and return to their many private plantations in 1623, apparently everyone was made to "look to his private [plantation]" (Kingsbury 1935:12). This order, of course, was calculated to become a self-fulfilling prophesy showing the disorganization of the colony which went from over somewhere near 50 plantations in February 1622 to 7 or 8 in April 1622 and back to 28 by 1624–5 (Hatch 1957; Barka 1993:334). In between these brutalizing shifts in private commercial and defensive policy, Native American warriors fired many abandoned buildings, while poorly provisioned, unseasoned, and often deathly ill immigrants arriving from England were dumped on the colony, leaving another 600 dead by the end of the year 1622 (VMHB 1911 2:115–118).

At Flowerdew about six months after Yeardley completed the fort, the "cattle tax" was created to provide public funds to specifically support fort garrisons (Kingsbury 1935: 100, 129–130, 188, 191, 229; as cited in Rutman 1959:293). This was a tax levy, typically in tobacco poundage, which constituted the pay or a sweetening subsidy for soldiers who were also servants engaged in tobacco and corn production.
CHARLES CITY BOROUGH'S AND PIERSEY'S PATRONAGE OF THE FORT

The defensive strength of Flowerdew improved under Charles City borough's and Piersey's patronage. It is likely that Piersey continued Yeardley's patronage of the public corporation fort and town at Flowerdew since throughout his period of ownership of the plantation "castle tax" funds were available. These funds probably were supplemented through Piersey's able management of the borough land at Weyanoke. Piersey's takeover of the Flowerdew macro-plantation may or may not have been viewed as hostile.

Overall, we suspect cooperation between Yeardley and Piersey, for as early as 1622–23 Yeardley had been promoting Piersey to the Virginia Council through "large letters." George Sandys both expressed mistrust of and strongly supported—as if it were his own idea—Yeardley's promotion of Piersey (Kingsbury 1933:616–617). Given that Piersey was a pro-Royalist and Yeardley was a liberal patriot in the politics of 1622–24, it is very likely that both Sandys and Piersey at one time or another "double crossed" Yeardley, even as Yeardley was promoting the latter and bringing "boot corn" to the former (Powell 1977:115).

In any case, it is doubtful that Piersey's pro-Royalist politics adversely affected his career in Virginia, although he may have not been liked in private circles. This is because he was a such notorious extortionist that McIlwaine (1979) decided to put a special sub-index heading for "extortion charges" under the Piersey index heading with one colonist noting "they
[Piersey and Hamor] deale in nothing but extortion" (Morgan 1975:125).

While the author has not studied this information in any detail, perhaps this seemingly private interest extortion also relates to Flowerdew's duality in its public role in early Virginia. Most of the extortion cases so far examined by the author pertain to the period of post-massacre chaos between 1622 and 1623 when the needs of starving soldiers, businessmen, and public officials often clashed or were awkwardly handled when they played against private planters. In any case, Piersey was made a member of the Council by 1624, and his term of service as a burgess in the Convention of 1625 until his death in 1627–28 included service from 1626 through 1627 to Yeardley's administration (Jester and Hiden 1956:264).

That Piersey's takeover of Flowerdew was amiable or at least an institutional obligation is suggested by the fact that he retained Yeardley's borough minister, Grivell Pooley, and the Anglo-Dutch veteran, Captain Samuel Sharpe. Most importantly Piersey retained 15 servants and tenants, who among the males are now suspected to be previously trained "gunners" (artillery crews) who were the very "men at the castle" supported by public funds, rather than a further example of Piersey's extortion of Yeardley's previous labor pool.

Samuel Sharpe is listed at the head of Piersey's Muster of 1624–25 in order to honor his role as plantation commander as was established by Yeardley (Jester and Hiden 1956:19; Kingsbury 1935:584). His military title
is not indicated in the Muster, however, either as a result of sloppy recording, humility, or the gradual gentrification of the militia by borough parish (Shea 1985:44, see footnote 12). As Governor in 1626, Yeardley had instituted gentrification of the militia, and this law had effectively softened military professionalism (a former monopoly of military veterans) in Virginia in favor of a militia that reflected Virginia society at large with special acknowledgement of gentry status (military veterans and high-ranking businessmen). By gentrifying the militia, Yeardley intended to bind Chesapeake society together by uniting military veterans and businessmen toward common goals. For instance, during this period, according to Fausz (1977), Piersey had become an honorific militia "Captain." Yeardley's move contrasts sharply with the social arrangements made during the period 1610–18 under Smythe's harsh and authoritarian command of the military regime under which Yeardley also suffered. Lest the reader be confused here, Yeardley clearly hated both military and civil authoritarianism and this surely came from his republican experience in the Low Countries when the Dutch applied the Machiavellian ethos to founding their own free country.

Can we document any improvements in Flowerdew's defenses during this period of gradual gentrification? If we use the Virginia Company's replies to Butler and the Muster of 1624–25 as a document of the amount of artillery at Flowerdew six large cannons (1623–1624–25) and two murderers (1624–25) we can isolate certain improvements under Piersey. In response to
continued laws (which began in 1623) forcing settlers to palisade their houses in 1626, Piersey was largely exempted since:

"The Court at this time, uppon ye demonstrance of Mr. Abraham Piersey, yt ye aforesaid order would prove very heauye & burthensome vnto him at Perseys Hundred is content, in reguard he hath many houses allreadye paled & palizadoed in [Yeardley's Fort], & that all ye whole necke is well railed in & that he hath 10 or 12 pieces of ordnance well mounted & planted [dug in] for ye defense of ye place." [author's insert] (McIlwaine 1979:120).

Why were even more cannon added to Piersey's Hundred at this particular time? Two things are happening. First, the original fort was a very considerable investment in men, labor, and material and the cheapest thing to do was to support that investment rather than start from scratch elsewhere. Second, if placed in a broader perspective, this continuing and possibly rapid deployment of additional cannon to Piersey's Hundred is directly associated with specific threats of active international war in 1623–24—in 1625 there were renewed fears of attacks on the still weak colony caused specifically by King James I's decision to enter the Thirty Years' War (1618–48) against Spain. Specifically, Spain considered James' dispatch of 1,200 English troops to help the Danish in Germany an act of war by England (Brown 1898:576, see note 1; Dupuy and Dupuy 1970:549). This paranoia spilling into the Chesapeake probably not only increased the cannon at Flowerdew, but got the redoubt at 44PG64 built (Hodges 1993).
We have already looked at the orthography of early "mounted" artillery colonial forts above and we have already looked at how the numbers of Piersey's cannon play into overall Royal Colonial policy. However, there are a few things that we must note here that we can get out of the Piersey's cryptic court deposition (cited in full above) that compliments our interpretations of fortifications associated with earthworks at Flowerdew. The 1626 deposition records that the "10 or 12 pieces of ordnance" were not only "well mounted," but "planted." The word "planted" seems to imply they were dug in behind earthworks. The assertion of this phenomenon in contemporary military slang was repeated in descriptions of military regime forts build between 1611 and 1613 where Spanish spy Don Diego noted the English, "forts are surrounded with earthworks on which they plant their artillery" (Brown 1890 2:660).

If we look at the fine texture of Piersey's deposition, we must also note its broad defensive perspective. The artillery at Flowerdew is situated "for the defense of ye place" that is in a defensive landscape. It is not defending a fort so much as it is defending the entire settlement and Windmill Point peninsula and accordingly the James River. Through archaeology we know that included a redoubt whose earthworks probably comprised turves and whose ditch was not as deep as its palisades, which were only 0.8-0.6' below the plow zone. According to contemporary British soldier Barret (1969:126), the Virginia militia is attempting to follow the prevailing military wisdom of
the time that you cannot defend a landscape with a single work (Hodges 1993:195–199). Not only can the redoubt triangulate artillery fire on ships in the James, it can "second" (defend) the fort. Also, if the fort is taken, it can become a defensible retreat for the surviving fort garrison. Moreover, it adds considerable purchase as a grid anchor to the inferred railed-in peninsula location.

The title of the redoubt "Yeardley/Sharpe Redoubt" is a reference to who actually was behind the redoubt. At this time Yeardley was Deputy Marshall (1623–25) to "Captain General" Francis Wyatt (Governor). Yeardley was the Captain General (1626–27). Yeardley was surely the militia borough district commander (1624–25) who commissioned the work. The inferred plantation commander at Flowerdew, Captain Samuel Sharpe was the man who directly supervised construction (Jester and Hiden 1956:19). Interestingly, Piersey contracted carpenters in 1625, but we have no idea what this contract was for or where it occurred (McIllwaine 1979:71).

YEARDLEY AND PIERCEY'S LABOR INVESTMENTS COMPARED

Deetz (1993:50, 51–52) has suggested Piersey ran the plantation better than Yeardley had. In fact, we don't know if this is the case. Yeardley, who was anxious to leave public office in 1621 to pursue private endeavors, had established his protégées Rossingham and Jefferson in responsible positions with considerable discretionary power, just as Dale had established Yeardley, Ralph Hamor, and John Rolfe at Bermuda Hundred. At the latter plantation,
the net result of these freedoms and creativity was that Virginia had its first
and, for all intents and purposes, only cash crop—tobacco (Hatch 1957:16–18,
63, 64). Warfare and politics prevented Yeardley certainly from enjoying his
retirement to Flowerdew. In the meantime, his personal attachment to
Smith's (Sir Thomas Smythe) or Southampton Hundred was soured by its
joint stock nature dominated by political rivals or open enemies. Although
Yeardley paid for 25 servants there and he had a "mansion house" (perhaps a
precedent for the manor at 44PG64), Flowerdew was a pure family holding at
least on the west side of the river (Hatch 1957:39).

In a cash-and-carry capitalist society, what evidence do we have of
Yeardley's and the Flowerdew family's labor investments at Flowerdew
which would support such ambitious undertakings such as patronizing a fort?
Deetz (1993:47–48) unfortunately grossly underestimates the extent of the
original investments at Flowerdew Plantation because key elements are not
published. He suggests a pre-massacre population of 25 to 35 that
approximately doubled after the massacre. Yet according to the Census of
1619–20, under George Yeardley, Flowerdew Hundred had a population of 77
people (66 men, 5 women, and 4 children) or 5 more than Martins Hundred
and three times his Smith's Hundred investment (Ferrar Manuscripts,
Colonial Williamsburg Foundation Archives). So, if this population doubled,
you would get 154 people. Since the 1619–20 Census has no entry for
Weyanoke, it is assumed that about 20 of the total of 77 were at Weyanoke
opposite Flowerdew. This is cautiously based on the massacre loses of 21 at Weyanoke on March 22, 1622.

Hotten (1980:171–172, 191) notes a total of 63 people at Flowerdew in February 1623–4, including 52 whites, and 11 African Americans, with 18 dead, for a total previous population of 81 people before his sale to Piersey in October 1624 (Barka 1976). Thus, the population figures for Flowerdew were fairly stable from 1619–20 to 1624 under George Yeardley, regardless of where the population came from. Therefore, Yeardley and Virginia Company officials did not greatly increase the population of Flowerdew during the post-massacre period probably in order to more magnanimously strengthen a larger number of regional settlements in a more egalitarian fashion. This would include West and Shirley Hundred and Jordans Journey within Charles City Corporation during the immediate post massacre period.

The scattering of six of "Yeardley's servants" to Charles City, and West and Shirley Plantation, James Island, the Eastern Shore, Elizabeth City, and Newport News noted by Deetz (1993) almost certainly reflects people from other plantation servant households seeking succor in numbers at Flowerdew and being redistributed or willfully leaving afterward. Some of these people surely felt they were asked to "to forsake their houses...to joyne themselves to some great man's plantation" (Morgan 1975:116). Others, such as those from James Island and east, may have had special fort-building or carpentry skills or were simply people using the Charles City borough rest area at Weyanoke.
Together with the large servant population recorded by 1624 and a tobacco crop of 9,000 pounds in 1623–4 (which was ruined by Sergeant Fortesque, the then plantation overseer), the Massacre of 1622 appears to have had little impact on cash crop raw production within less than 1–2 years at Flowerdew (Hatch 1957:72).

Despite this information, Yeardley by 1622–23 had by the account of Sandys lost 2/3 of his estate during the post-massacre period (Kingsbury 1935:22–23). Southampton Hundred (Smith's Hundred), a Yeardley-run but not Yeardley-owned project opposite Pasbahegh on the north side of the mouth of the Chickahominy, was initially held and then abandoned again, suggesting there was little bias toward Yeardley in overall Virginia Company policy though the Earl of Dorset (a heavy investor) was very displeased (Hatch 1957:38–41; Kingsbury 1933:612; Morgan 1975:123). Thus, with the loss of Southampton Hundred and temporary loss of Weyanoke, Flowerdew was just about all he had left of the Yeardley/Flowerdew family holdings during a very critical and turbulent period in Flowerdew's history. Hence, the complaints that Yeardley was a "right worthy Stateman for his own profit" by Capps when he fortifies Flowerdew or seizes labor to mount Indian raids (Morgan 1975:123). Part of this financial ruin for Yeardley may have been from his personally financing the fort between 1622–23, which was a remarkable financial gamble. Thus, the combination of the 1623–4 crop failure and patronage of a fortification, probably combined to ruin Yeardley
financially. In reality Yeardley was a "right worthy statemen" for his own financial ruin.

In view of this it is likely that Yeardley borrowed heavily from Abraham Piersey during this period. This seems quite possible, as Piersey extorted or otherwise obtained no less than nine tenants and seven servants from Yeardley between 1623–4 and 1624–5, while Deetz (1993:47) notes 14. This can be determined by comparison of the Hotten (1981:171–172) Muster of 1623–4 with the Piersey's Muster of 1624–5 (Jester and Hiden 1956:20–22). Since we now suspect these very people are the forts' trained militia garrison (as noted above), the likelihood of Yeardley borrowing from Piersey still remains due to the latter's soaring wealth and close relations with Yeardley. With Piersey's purchase of both Flowerdew and Weyanoke Plantations from Yeardley in 1624, this left Yeardley with only his house at Jamestown, forcing him to scatter some of his servants to Hogg Island (a plantation affiliated with Smith Hundred) led by his secretary companion from Bermuda Hundred days (1611–16) Ralph Hamor, who is now a militia Captain (Jester and Hiden 1956:27, 42–43).

Despite Yeardley's frequent political success as governor, Marshall, or Deputy Marshall, Sir Thomas Smith, the Earl of Warick, Sir Robert Rich, and much of their big English merchant conservative faction in the indigenous and non-indigenous Virginia Company remained his unrelenting personal enemies (Morgan 1975:92–93). To the person including William Capps, the
Earl of Dorset, and Nathaniel Butler, virtually every negative comment cited by Morgan (1975:122-123) and Deetz (1993:51-52) against Yeardley's character or self-promoting business practices emerges from this specific openly hostile faction within the indigenous Virginia Company or its English parallels (Craven 1932:157-158, 163-164, 185-186; Kingsbury 1935:76-79; 119-122 as cited in Fausz 1977:481—see note 239; Eve Gregory n.d.). John Smith's second-party popular history simply passes on and thereby apes this deliberately negative political and factional propaganda which filters back to England through these specific parties. This is because John Smith specifically wants Yeardley's job as military commander, so he presents Yeardley in as negative a vein as possible or ignores or downplays any successes. Smith wants to bring over a huge professional army while Yeardley is trying to build a grass roots militia more in line with Machiavellian theory in order to prevent authoritarian military control (Arber 1910 II:595, 588-591; 599-600, etc.). Yeardley felt this deeply prejudicial "malignancie" made this faction always find something wrong with virtually anything he did (Kingsbury 1933:217).

The contrast between the fortunes of Yeardley and Piersey during the 1622-25 period is dramatic and in microcosm they record the fate of the colony in general as real wealth began to be passed from land-poor old Anglo-Dutch soldiers with new political titles to savvy English gentry businessmen. Abraham Piersey, former Cape Merchant, with blood-level, high-class social
connections, lost his "plantation off the College Land" near the mouth of the Appomattox river during the post-massacre period in 1622. Piersey had only 13 servants before the Massacre, which killed four, leaving him with 9 servants in the immediate aftermath of the massacre (Hatch 1957:66–67; Jester and Hiden 1956:263–265). Clearly supported by the London merchant faction that recommended Royalist takeover of the Virginia Company—through war profiteering and extortion—Piersey was able to purchase Flowerdew and Weyanoke in October 5, 1624, from Yeardley (Kingsbury 1935:22–23; Flowerdew Hundred Foundation Archives, MacIllwaine 1979).

By the time of Piersey's Muster of 1624–5, the population of Flowerdew and reoccupied Weyanoke had shrunk from Yeardley's 81 in 1624, to 57 living people and 7 dead, for a total of 63 people during 1624–5. If you deduct the 16 (or 15) tenants and servants potentially extorted from Yeardley by Piersey or who are partially subsidized by the castle tax, you get about 47 people who were brought in by Piersey for a net investment of about 5/8 the equivalent of Yeardley in 1619–24 (Deetz 1993:47).

The Muster of 1624–5 indicates that the majority of Piersey's servant population (26 of 39) did not arrive in Virginia until 1622–23, when he began selling rare commodities at inflated prices including fish from New Foundland. This was a program that was begun in 1621 and potentially supported by Yeardley's salt works project on the Eastern Shore (Fausz 1977:559; Hatch 1957:66–67; Morgan 1975:119). The dress rehearsal for this
alternative protein source was the First Anglo-Powhatan War (1610–14), as Native American warfare prevented successful hunting and killed many cattle, and the James River and Chesapeake Bay provided seasonally indifferent fishing (Fausz 1977; 1990; Purchas 1926 19:62).

**Contextualizing the Muster 1624–25**

Both Barka (1993) and Deetz (1993:20–23) have shown great interest in the Muster of 1624–25 from entirely different perspectives. In the present document we will try to add some texture that helps us understand who did what and when and how these things might help us underscore the identification of special borough or public activities that are going on that are larger than either Yeardley or Piersey and pertain to our identification of a small town within a fort or, comprehensively, a Charles City "borough fort."

**In Piersey's 1624\25 Muster Whose Improvements are Being Tabulated?**

If one goes to the trouble of contextualizing the Muster of 1624–5 and trying to determine who did what and when, certain conclusions are relatively easily derived. Of extreme importance—the 1624–25 Muster was prepared between January and February 1624–25—this is notably only three or four months after Yeardley's October 1624 sale of the property. Therefore, the count of 10 dwellings, 3 store houses, 4 tobacco houses, 6 cannons, 1 windmill, a later trans-peninsula palisade, possibly the redoubt at 44PG64, etc. at "Piersey's Hundred" recorded in the January 1624–5 Muster, in court records of 1626, or through archaeological initiatives, arguably tell us more
about Yeardley (and possibly even the Stanley Flowerdew occupation) at Flowerdew than it does of Piersey's endeavors beyond his recently acquired purchasing power (Flowerdew Hundred Foundation Archives; Hodges 1993; MacIllwaine 1926:120).

For instance, the incentive for Piersey to build new houses would be retarded as fewer servants and tenants where present. In turn, this relative labor decline probably also precluded the need for additional tobacco and storage houses, much less dwelling houses. Since we know the fort was built in the 1622–23 period, repairs and embellishment would be Piersey's only practical option for input into the fort (Kingsbury 1906 2:363). Piersey's patronage did render changes to Flowerdew which are discussed elsewhere but they have to do with financing, not clearly conceptualizing. As we have seen, the redoubt and probably the railed-in peninsula are things instigated by Yeardley as Deputy Marshall since they pertain to the militia. These factors, which may have contributed to a forceful psychological impact on Piersey, may have resulted in his more original focus on building a pretentious manor house at 44PG64 (if it is not a glebe or "parson house" or "mansion house" also founded by Yeardley) (Barka 1975:9; Deetz 1993:35–39; Hatch 1957:40).
NON-DOMESTIC ARCHITECTURE IN THE 1624–25 MUSTER AND WHY IT’S IMPORTANT

Besides fortification evidence and the immense wealth and power of Yeardley and Piersey, there are other lines of evidence that help us move to the conclusion that Flowerdew, by both political and financial clout as well as pure wartime default strategy, became a paranormal particular plantation acting as a public corporation by the 1622–25 period at the beginning of the Second Anglo-Powhatan War (1622–32). One way to isolate objective data on the development of the Flowerdew particular plantation is to examine its cachement features and other forms of non-domestic architecture. These improvements might physically address the sorts of surpluses of foodstuffs or commodities which are required to create towns and the divisions of labor needed to sustain them. For instance, from a comparison of the size of architectural cachement features at Martin’s Hundred and the Hampton site, as learned through both archaeology and the documentary record, Andrew Edwards (1994:95) observed that higher economic status is positively correlated with larger cachement features and, accordingly, a more unequal distribution of goods.

With the above notions in mind, Table 3, which is based on data from the Muster of 1624–5, presents a brief summary of non-domestic specialty buildings, most of which are specifically dominated by cachement features for food stores and tobacco. The buildings are listed by plantation or town.
center, based on pioneer research by Barka (1993:325). However, below the information is adjusted to correlate Barka's list by public corporation, based on Hecht's (1973:3) population analysis. The buildings are listed by corporation to determine if Flowerdew can be suggested to be a rolled over borough land or public corporation land of some sort by at least 1624–5.
TABLE 3.
NON-DOMESTIC BUILDINGS LISTED IN THE MUSTER OF 1624-25, CORRELATED
BY PUBLIC CORPORATION
(after Barka 1993:325 and Hecht 1973:73)

<table>
<thead>
<tr>
<th>CORPORATION</th>
<th>SETTLEMENT</th>
<th>SPECIALTY BUILDINGS</th>
<th># BUILDINGS</th>
<th>% CORP.</th>
<th>% VA</th>
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<tbody>
<tr>
<td>Henrico:</td>
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<td></td>
<td>College Land</td>
<td>0</td>
<td>0</td>
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<td>0</td>
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<tr>
<td>Charles City:</td>
<td>235 people, 19.3% of total VA population (Flowerdew comprises 24% of Charles City total)</td>
<td>Flowerdew Tobacco Houses 4 100% 57%</td>
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<td></td>
<td></td>
<td>Flowerdew Windmill 1 100% 100%</td>
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<td></td>
<td></td>
<td>Flowerdew Storehouses 3 100% 6%</td>
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<td></td>
<td></td>
<td>(Commodities*: Corn and Peas, 300 bushels; Mr. A Piersey, Fish 1,300)</td>
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<td>James City:</td>
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<td></td>
<td>James City Church 1 100% 100%</td>
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<td></td>
<td>James City Storehouses 3 25% 6%</td>
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<tr>
<td></td>
<td>(Commodities: Corn, 10 barrels; Gov. Wyatt, Fish, 4,000*)</td>
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<tr>
<td></td>
<td>Treasurer's Silk Worm Houses 1 100% 100%</td>
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<td></td>
<td>Plantation Storehouses 3 25% 6%</td>
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<tr>
<td></td>
<td>(Commodities*: Corn, 100 barrels; G. Sandys, VA Company Treasurer)</td>
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<td></td>
<td>Mr. A. Piersey Storehouses 2 16% 4%</td>
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<tr>
<td></td>
<td>Burrows Hill Tobacco House 1 25% 14%</td>
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<tr>
<td></td>
<td>(Mr. Burrows)</td>
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<td></td>
<td>Blaney Over Tobacco Houses 3 75% 42%</td>
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<td></td>
<td>Water (Mr. Blaney)</td>
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<td></td>
<td>Matthews Storehouses 3 25% 6%</td>
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<tr>
<td></td>
<td>Plantation (Commodities*: Corn, 240 bushels; Mr. Matthews)</td>
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<td></td>
<td>Wariscoyack Storehouses 1 8% 2%</td>
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<tr>
<td></td>
<td>(Commodities*: 54 Corn bushels; Mr. Bennett + 10 barrels, 3 Musters) (in military agglomeration)</td>
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<td></td>
</tr>
<tr>
<td>Elizabeth City:</td>
<td>419 people, 34.5% total VA population (Company Land is 22% of total)</td>
<td>Company Land Storehouses 2 4% 4%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TABLE 3 cont’d.
<table>
<thead>
<tr>
<th>CORPORATION</th>
<th>SETTLEMENT</th>
<th>SPECIALTY BUILDINGS</th>
<th># BUILDINGS</th>
<th>% CORP.</th>
<th>% VA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5 Musters</td>
<td>Storehouses</td>
<td>10</td>
<td>28%</td>
<td>21%</td>
</tr>
<tr>
<td>(Commodities: Corn, 15 barrels; Capt. West Fish, 700 count*, + 4 Musters, Meale 2 hogsheads)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sgt. Barry</td>
<td>Storehouses</td>
<td>6</td>
<td>17%</td>
<td>6%</td>
</tr>
<tr>
<td>(Commodities*: Corn, 53 barrels; Fish, 900 count)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Capt. Epes</td>
<td>Storehouses</td>
<td>3</td>
<td>8%</td>
<td>6%</td>
</tr>
<tr>
<td>(On Eastern Shore. Commodities*: Corn, 80 barrels)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>14 Musters</td>
<td>Storehouses</td>
<td>14</td>
<td>40%</td>
<td>29%</td>
</tr>
<tr>
<td>(On Eastern Shore. Commodities: Corn, 163 barrels)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Stored food commodities thought to be associated with a regional public granary/store in one or more "Stores" or "Store Houses."
In Table 3, when storehouses of any sort are listed, they are followed by known quantities of stored food items to see if a pattern will emerge. The cachement of large quantities of food items is thought to be often associated with various public granaries, as required by law beginning in 1623 (Hening 1809:125; Kingsbury 1935:582). Items in Table 2 have been marked with an asterisk when large, hypothetically public cachements of stored food stores may be present. All the sites thought to be public granaries or stores are associated with social titles, and half of these are associated with military titles (e.g., Sergeant, Captain), a fourth associated with governmental titles (e.g., Governor, Treasurer), and a fourth associated with the title of Mister ("Mr."). Within the latter two groups, the military titles include Captain General (Governor Francis Wyatt), (acting militia Captain George Sandys, treasurer), and honorific or real militia Captain (Abraham Piersey) (Fausz 1977, 1988; Fausz and Kukla 1977; Rutman 1959).

If we can trust that these data are accurate for all public and private holdings in Virginia in 1624–5, the data in the table support the notion that Flowerdew had become a high-status settlement in its own right by 1624–5. Notably, Flowerdew has all the windmills and 57% of the tobacco houses in Virginia, although only 6% of the storehouses. This suggests a specialization in maize and wheat processing and tobacco production, with peas appearing as a potentially rare, bulk-stored commodity.
Most storehouses listed in Table 3 are thought to be associated with food stores, typically corn, salt, or dried fish, although "meale" and peas are also noted. The number of store houses at Flowerdew is dwarfed by the large number in Elizabeth City (Kecoughtan) (40% of those in Virginia) and Elizabeth City's associated Eastern Shore company venture (37%). Many of the storage units in Elizabeth City, however, are not thought to be associated with public granaries because of the limited size of the Muster households. Rather, they are simply storehouses typical of medieval and post-medieval farmsteads, with most planters storing their food in lofts within their dwelling houses (Beresford and Hurst 1971:Figure 19B).

Of utmost importance for this study, when Flowerdew is considered solely in the context of the Charles City public corporation, the number and types of non-domestic buildings at Flowerdew suggest the settlement was the only logical place for a public corporation center at about 1624–5 or earlier (remembering that most of what is listed for Piersey was Yeardley's). **Flowerdew has virtually all the non-domestic architectural resources**, including valuable store and tobacco houses. Unfortunately, we do not know how many of these non-domestic buildings were at the mysterious borough lands at Weyanoke. It is logical to conclude from this that at least during the 1624–25 period it is very possible Flowerdew is the main port for Charles City Corporation for tobacco sales, suggesting a public market housed there which also represented the College Lands (Henrico), Neck of Land/Charles
Cittie (Bermuda Hundred), West and Shirley Hundred, and Jordan’s Journey. Neck of Land (Bermuda Hundred) settlers may now be paying rents to Flowerdew government. Moreover, we can be entirely certain that Flowerdew is the only possible location of the Charles City public granary and it would be logical that such a unit would lie in the safety of the fort during wartime (cf. Structure 2 in Hodges 1993:188–190).

**WHY YEARDLEY’S FORT ISN’T IN THE 1624–25 MUSTER**

The Muster of 1624–25 lists six "forts" and numerous palisades at various locations in Virginia, but no mention of a fort or even a palisade is made in reference to Piersey’s Hundred. The Muster even fails to note that Piersey’s cannon are mounted. Let us try to get underneath this puzzling matter. The documentary record cannot be ignored if the archaeological evidence of a fort at 44PG65 is to be interpreted objectively.

There are small things in the Muster itself worth noting initially. The gunpowder at Piersey’s Hundred is reckoned in barrels (1-1/2), rather than pounds, the latter of which is more typical of household Musters (Barka 1993:320, 326; Jester and Hiden 1956:22). An ink blot obscures the count of muskets at Piersey's Hundred, and it is possible that this blemish was made deliberately to conceal a large number of weapons per capita at the settlement. There are more large cannon at Flowerdew than anywhere in the colony (Jester and Hiden 1956:22).
If we contextualize the negative information contained in the 1624–25 Muster, we find that it might be strikingly useful in establishing when and by whom the fort at 44PG65 was built. The fact that no fort at Flowerdew is mentioned in the 1624–25 Muster suggests that the fort was erected early during the 1622–23 period (between the spring of 1622 and the spring of 1623) and, by the time of the 1624–25 Muster, was very possibly in ruins (Purchas 1926 19:44–45). In such condition, it could hardly be described as a material "asset" worth tabulating. It was difficult to maintain a fort in Virginia's humid and stormy environment. James Fort, for example, was rebuilt three times between 1607 and 1610, only once because of a fire (Dufy 1979:93; Hatch 1957:11; Hatch n.d.; Purchas 1926 19:44–45). Wood rot, which was exacerbated by the use of green rather than seasoned wood, often up against earthworks, erosion of the earthworks, and neglect were chronic problems.

Now shifting to broader arguments, it would appear that the 1624–25 Muster is an imperfect representation of Virginia. A law had been passed about a year or so before the Muster requiring that all planters palisade their houses by 1623–24 (Kingsbury 1935 4:583). Thus, Flowerdew was required by law to have palisade defenses. Does it make sense that a senior militia officer or the senior officer like Yeardley would be remiss in this respect? Could he ask others to fortify their plantations if he had not done the same? The absence of fortifications at Flowerdew in the main is a ludicrous
documentation if contextualized. More distressing than the Muster's omission of defenses at Flowerdew, however, and more suggestive of the Muster's lack of comprehensiveness, is the fact that the document fails to even mention palisades at any of the seven strongholds other than Elizabeth City held by the Virginia Company during the post-massacre period ( Barka 1993:326; Jester and Hiden 1956:49–66; Kingsbury 1906 II:363, 1935:580).

If you contextualize the 1624–25 Muster, political reasons are probably the main culprit in this regard and this insult specifically zeros in on the seven strongholds which we carefully noted above. The pro-Royalists or "court party" who are tabulating the Muster are here clearly deliberately obfuscating the original forts championed by the Virginia Company in their spirited reply to vicious critic Butler (Kingsbury 1906 2:381–385). Here we are seeing James I's desire to make Virginia a Royal Colony that previously could not create public works such as forts. Therefore, previous or standing forts made by Virginia Company "rebel/patriots" were subject to open and shameless crown censorship of any documentation which might say otherwise (Brown 1901:30–87).

How vicious was this period? In answer to Alderman Johnson's pro-Smythe propaganda (ca. 1623–24), Wyatt and the Assembly offered the wisdom that rather than submit to anything remotely similar to Smythe's absolute government or its libel, they would rather have the King send over commissioners "wth authoritie to hange us" (McIlwaine 1915:22). The
unmistakable patriotic tone of this statement is highly reminiscent of Patrick Henry's mythic speech at the beginning of the American Revolution: "give me liberty or give me death." Governor Wyatt and the Assembly were expressing true republican sentiment. Given the politics of the time, their response exhibited great bravery. In sum, the Muster's fortification list appears was yet another example of triumphant pro-Royalist propaganda.

The Muster's lack of comprehensiveness is also likely the result of an emphasis on households and the material items within them, the whim of various Muster officials (with the Elizabeth City tabulator being honest), errors in recording and copying, and social disruption caused by the recent order for planters to disperse from the seven "trench and palisado" and palisaded strongholds to re-occupy previously abandoned plantations (Barka 1993:313–314; Hecht 1973 30:75; Noel Hume 1991:141–142, 153).

A few specific examples of the inaccuracy of the 1624–25 Muster with regard to fortification must be cited. At Newport News, immediately after March 22, 1621–22, "Captain Nuce called his neighbors together...entrenched himself, and mounted three Peces of Ordnance, so that in three or four dayes hee was strong enough to defend himself against all the Barbarian forces" (Purchas 1926 19:169). John Smith mentions Nuce's "fort" in an account from this early post-massacre period (Arber 1910 II:595). The defenses at Newport News, which, like the work at Flowerdew, appears to be composed of "trenche and pallizadoe," are also mentioned in the Virginian's
replies to Butler's "Unmasking of Virginia" (Kingsbury 1906 II:383; MacIlwaine 1915:24). The Muster of 1624–25, however, mentions no entrenchments or fortifications of any type in association with Newport News, although the cannon are listed under Mr. Danniell Gookine’s Muster as "mounted" (Jester and Hiden 1956:48).

Captain Nuce (also Newse), an Ulster, Ireland, veteran, was the Marshall of Virginia from 1621 until his death sometime in 1622 (Jester and Hiden 1956:110). While surely Nuce’s efforts to erect defenses were motivated by personal necessity (his settlement was attacked repeatedly by the Indians), he also undoubtedly was trying to set an example of his military prowess given his social title (Fausz 1977; Kingsbury 1906 I:446, 468). As Rutman’s (1959) research has indicated, Yeardley apparently replaced Nuce as Marshall of Virginia; and there are very strong parallels between the personal and social reasons for evolution of the defenses at each man’s plantation. Like Nuce at Newport News, Yeardley was quick to erect defenses at Flowerdew.

In addition to modern archaeology at Flowerdew contradicting the Muster, this site is not alone. The presentation of Jordans Journey, one of the 1622–23 strongholds, in the Muster is yet another example. Here, the archaeological remains of hole-set palisades have been found surrounding five large domiciles packed in like a sardine can—yet this early palisade is not listed (Mouer et al. 1992). Again, John Smith also mentions fortifications
at Jordans Journey in the 1622–23 period, when Samuel Jordan, "fortified
and lived despite the enemy" (Arber 1910 II:584).

Deliberate deception may be another reason the Muster of 1624–25
fails to mention that there is a fort at Flowerdew. Deception, after all, is an
element of the art of war (Fausz and Kukla 1977:114). Only by surprise
could Flowerdew have expected to stop a serious attack by one or more
foreign warships and a full fleet would be typical. Accordingly, the
Virginians would have taken care not to broadcast the presence of their last
anti-foreign rival "trump card" in the public record. We know, for instance,
the Virginia Company was deliberately lying about artillery at Henrico and
Charles City in 1623; since both sites were sacked and abandoned in June
1622, the ruined artillery are truly "there" but of no use to anyone (Kingsbury
1906 2:383).

SUMMARY APPRAISAL OF YEARDLEY AND PIERSEY: A SENSE OF PEOPLE AND
HEART

What ideology went into the fort/town center at Flowerdew? Here we
will appraise this best through the people behind the fort and focus on
Yeardley and Piersey. We have noted that Fausz (1977), Morgan (1975:122–
123), and Deetz (1993:51) saw Yeardley as a "vainglorious" self-promoting
"robber baron" and ruthless abuser of public office to his own selfish benefit.
In contrast, Hatch (1957:26) is amazed that Yeardley fared as well as he did
given the clash of private interests then present. Powell (1977:76–79) credits
Yeardley's success in this regard because it was aided by the watchful eye of Secretary John Pory, who didn't want Yeardley to suffer the fate of Argall. Fausz (1977) and Morgan (1975:125) saw Piersey as a shameless war profiteer and extortionist, whereas Deetz (1993:51-52) saw him in a kinder light.

Given these often contradictory modern scholarly assessments, we will try a novel approach here. It might be useful to observe how Yeardley and Piersey's actions were perceived by their peers, which should level scholarly bias. This is arguably more important to us here from an emic (an insider's view of a past culture) perspective than this etic (an outsider's view) view created by modern scholarship.

Beginning with Yeardley, when such an examination is made, a remarkably positive transformation is made. Yeardley openly resisted Edwin Sandys' policy of dumping boatloads of poorly provisioned and often seriously ill colonists into Virginia during his administration whom Yeardley had to house and feed out of his own funds with no notice (Craven 1932: 154, 157–158, 161, 164, 165, 168, 185–186). Most of the settlers arriving in Virginia between 1619 and 1621 who lived through the post-massacre period owed their very existence to Yeardley's nursing them back to life. Settlers who lived through the 1622–23 famine did so through Yeardley's recommendation of their eating summer "green corn" (corn on the cob) and Yeardley's fall booty corn (stolen Powhatan maize). The Virginia Company was so upset by
Yeardley's "open scandal" of selling corn for tobacco to starving settlers, the selfish behavior of making the militia fortify his "private" plantation at Flowerdew, and his breaking the back of the Powhatan Chiefdom, that the Virginia Court awarded him a special grant of 3,700 acres at Hangars on the Eastern Shore in May 1623 (Fausz 1977:476–478; Jester and Hiden 1956:378). Thus began a tradition of great patriotic patronage through public works by the Virginia self-made aristocracy which shines through the basic contentiousness of both his own turbulent period and near-sighted modern scholarship (Bemiss 1964:44).

The overall regional appraisal of Yeardley's alleged ruthless violation of the "public trust" between 1622–25, resulted in Yeardley being chosen by unanimous vote by the entire Virginia Council and Assembly as their first elected Governor under the crown at the "Convention of 1625" (McIlwaine 1915:43–44). Among the signatures on this vote, which seems to summarize Yeardley's true legacy from 1622–25, was Francis Wyatt, George Sandys, Abraham Piersey, and Samuel Matthews (the latter two libel-ridden pro-Royalists). While observing that Yeardley lost two-thirds of his estate in March 1622–23 (when it is clear the "trench and pallisadoe" fort was built), Sandys commented, "to give him his dew [due] he [Yeardley] hath behaved himself very nobly in ye service of ye Country to his great expenses" (Kingsbury 1935:23). So had we not performed any archaeology at Flowerdew, the overwhelming statement of personal public support for
Yeardley might reasonably contribute to the notion that we can trust the Councils, Assemblies, and "divers planters" that artillery and fortifications were indeed installed at Flowerdew in 1622–23 by Yeardley, and that his actions throughout this period were remarkably honorable—and downright impressive patriotic behavior (Kingsbury 1906 II:363; McIlwaine 1915:24).

From 1626 to his death in 1627, Yeardley was made governor of Virginia by appointment of Charles 1. The legislative body of the Virginia Assembly and Council installed by Yeardley's, Ferrar's and Sandys' "Great Charter of 1618"—the prototype of the Mayflower Compact—was preserved intact by brilliant courtly behavior by both Wyatt, Yeardley, and the 1622–24 Council who proved themselves worthy "courtiers" (Simpson 1959). By all reasonable accounts, Yeardley must have been an extraordinarily brave and genuinely charismatic natural leader. Even a frequently jealous John Pory would admit in 1619 that his ability to animate people to defend against the Spanish was considerable despite their small numbers such that, "no prince can be serued wth better by his example to preserve their courage" (note the direct reference to Machiavelli's, The Prince) (Kingsbury 1933:220). Yeardley apparently had the rare quality of being able to exert authority without being oppressive, as the Assembly was hypersensitive to anything less. Yeardley clearly led primarily by exemplary actions and not words—while his enemies made the mistake of never getting beyond words.
By Yeardley's arming, feeding, and defending the population, their arms became his arms literally and figuratively in a brilliant exercise in Machiavellian politics (Bergin 1947:61, 65). However, it is likely these politics were not cynical, given the spirit of freedom and idealism imbued in Yeardley by the Free Estates General and his sincerely given public accolades. Machiavelli wrote, "The best fortress a prince can have is simply not being hated by his people..." (ibid:64). Yeardley's real fortress was apparently the genuine love of the majority of thinking people of Virginia. His strength was a genuine understanding of their feelings and the shared history of trials and tribulations under previous absolute authority.

When emic perspectives are used, the popular conception of Piersey takes a different turn. Piersey was remembered by the Ancient Planters in 1623 as the personal factor of the hated Sir Thomas Symthe (dignified by the title "Cape Merchant"), the key figure in instigating the absolute authority of the military regime's harsh rule (1610–18). Moreover, it is doubtful that anyone was pleased with the "mean" English prices being paid for tobacco after 1624, whose London merchant monopoly and import taxes Piersey helped secure (McIlwaine 1915:26, 33). This may be why Piersey decided to move to Flowerdew by 1626; many planters hated him. Besides pure mercantilism, the British trade monopoly is the only thing we can find in Piersey that hints at ideology unless you count his vote for Yeardley.
Nonetheless, Piersey's conception of the role of the colony follows the Roman imperial model; as all colonial roads lead to Rome—that is, to England.

Other aspects of Piersey's personal character are readily evident. Piersey, upon purchase of Flowerdew, immediately renamed the plantation after himself, a "vanity" shared by many colonists who were determined to put their own personal mark upon the land. This is in sharp contrast to Yeardley's courtly behavior at Flowerdew or virtually any of his own plantations, all of which bear colloquial names (1, "Hungars") or more typically those of other relatives and patrons (3: Flowerdew, Smith's Hundred, Stanley) (Jester and Hiden 1956:378). "Yeardley Hundred" was Virginia.

Deetz (1993:51) suggests that Piersey cared more deeply about Piersey's Hundred than Yeardley. Given this potentially useful humanistic insight, it is not without a sense of irony that we read of Piersey's "intense" personal attachment to Flowerdew recorded in his will. Piersey's will, written in January 1626, ordered his executrixes at his death, "to make sayle of all my land [,] housinge [,] and other buildings...[and to also]... make sayle of all the estate I the said Abraham hath in Virginia as namelie Servaunts [English servants] cattle hoggs corne tobacco and all other kinde of moveable or household stuffe or chattels [African American servants]" [authors underlining and insert to show attitudes toward people]. To what end did he do what he did in Virginia? This is clarified in his own words. The document
states plainly, "all the estates as aforesaid [are to be sold] to the profit it can be sold for" (Neill 1886:404–406). One knows these are not rare sentiments for a calculating businessman who was looking for, "a present Cropp, and their hastie retourne; but coming from someone in Virginia from 1616 to 1628, the fundamental detachment is even more striking here (Morgan 1975:111–112). So using Piersey as an example of many, this does not sound like a rural "folk society" which placed "the group ahead of the individual in importance." Rather, it sounds like an icy and modern liquidation of assets before a court inquiry could intervene (Deetz 1993:70–71).

While Yeardley gave his children Virginia land, Piersey's quite different attitude toward the Virginia experiment was the notion to totally liquidate Piersey's Hundred and his considerable Jamestown holdings and make cash awards to be paid in silver or tobacco poundage to his family as their tangible share of his realized personal legacy in Virginia (Jester and Hiden 1956:378–379). Given the land sales and servant liquidation, it appears inarguable that he expected them to immediately leave Virginia with this portable cash, or other provisions surely would have been made. Clearly, Piersey's will does not show any personal care whatever for the actual land at Flowerdew, its buildings, fortifications, or working inhabitants except toward what cash rewards he might gain from them during his lifetime.

With Piersey's cold mercantile attitude almost certainly in mind, in 1629–30 (a year after Piersey's death), "Piersey's Hundred" was promptly re-
named to "Flowerdieu Hundred" by resident burgess man John Flood in perhaps a statement of heart intended to honor larger people well remembered (McIlwaine 1915:xi; 33). Behind this sentiment, Flood probably figured that although Piersey left supposedly the best estate in Virginia, most of it at "Piersey's Hundred" was a pony ride on Yeardley's adventure. Indeed, when the tally was made of Piersey's worldly goods, his liabilities exceeded his assets and, because of claims made by Samuel Matthews and others, the estate was not settled for another eight years. During this tally, it was quickly found that Piersey had not even bothered to settle any accounts from his 1616–19 operation of the Susan and George as Cape Merchant even by 1626 (Morgan 1975:120; see McIlwaine 1979).

During this period his orphan Mary Hill was barely able to feed herself or her children, a doubtful prospect for children of a father well loved by a closely knit rural community, although readily imaginable for a genuinely unpopular family legacy. In turn, this may help explain the clear desire to liquidate the Piersey assets into cash for immediate departure to England. In reality, it took until 1636 for his daughter Mary Stephens to regain control of the estate which she had chosen not to sell or more likely could not legally sell until then. Within three years she sold it also as "Flowerdew" and specifically not "Piersey's Hundred." Her father's servants and chattel, who could have been useful to her or Mary Hill—having long since departed as was her father's wish (Deetz 1993:51–52, 57; Jester and Hiden 1956:246,
266). Piersey's chief legacy is that he "left the best Estate that was ever yett
known in Virginia" a legacy of 60,000 pounds of tobacco turned into
promotional literature for prospective investors (Jester and Hiden 1956:265;
Morgan 1975:120).

Yeardley's death was treated as a colony-wide day of morning, honored
almost certainly by a tomb in James Town church. His estate was not
liquidated but given to his wife and children, who were not trapped there by
litigation, but who willingly stayed in Virginia (Jester and Hiden 1956:377–
379). Yeardley's estate was worth 10,000 English pounds or 1/6ths that of
Piersey, but his true legacy appears to have had more value than can be
counted in money—at least from an emic perspective (Morgan 1975:123).

Despite the essential coldness of Piersey's legacy, we must remember
that on borrowed credit and extortion, Piersey soundly maintained the best
military holding of the Royal English Colony and greatly stimulated a
regional cash economy in creative ways (for example salt-fish from the Grand
Banks). After being shocked by the amoral nature of the colony's leaders,
Fausz (1977) relents and credits men like Piersey and Sandys' quest for
merchantable rare commodities as greatly stimulating a later wartime
economy that not only boomed but diversified beyond tobacco. In the
meantime, one reason it took so long to settle the Piersey estate was that
Samuel Matthews had married Frances (Greville-West) Piersey in 1628.
Matthews, we find, was trying to build a fort at Point Comfort which,
although done by public commission, was completed largely through private contract, as was Yeardley's Fort. The Point Comfort fort was completed in 1632, almost certainly by the grabbing up of Yeardley and Piersey's (Charles City and Henrico boroughs) publicly owned artillery and gunpowder stores (Jester and Hiden 265-266; Weinert and Arthur 1978:8).

**SUMMARY OF THE HISTORIC CONTEXT PLUGGED INTO THE CULTURAL LANDSCAPE**

With as little fanfare as possible, let us pause to grasp the social significance of Flowerdew and Weyanoke's owners between 1619 and 1628. In all, Piersey could be fairly reasonably described as Virginia's first and foremost indigenous successful frontier businessman between 1616 and 1628. If we bracket Yeardley's career as the son of a London tailor, and note that we was but one of many young Captains to arrive in Virginia, then follow him to his Governorship of Virginia in 1619–21 and again in 1626–27 as a titled knight, we can call Yeardley the most successful rising indigenous soldier, politician, administrator, and comprehensively "military entrepreneur" created in the crucible of the Virginia frontier between 1610 and 1627.

In sum, therefore, if we contextualize Flowerdew, it is possible to accurately describe the archaeological complex between 44PG64 and 44PG65 as physical evidence of the cognitive visions of the very first self-made rural English tobacco and corn barons, "river barons," or (if the reader prefers) "Chieftanes" Virginia ever produced—namely Sir George Yeardley and
Abraham Piersey. That these wealthy large-scale planters existed about 60 years before we are told such things occurred and achieved their commercial (Piersey), social, political, and military ascendancy (Yeardley) predominantly by white indentured servant labor, is extremely important to understanding and modeling a balanced conceptualization of the full development of elite Chesapeake plantations before the substantial introduction of slavery and the allegedly new Palladian villas of the great Virginia aristocrats of the 18th-century (Kulikoff 1986; Issac 1982).

Looking at their built landscape, what is already strikingly different for us is not how similar this settlement is to Ulster towns (Deetz 1993), but rather how essentially different this settlement is from Ulster plantations. At least in terms of town planning, there would be agglomerated occupants of Ulster bilinear streets or an urban center strung out along a road on half-mile centers or less that stretches roughly 3.5 miles long across the macro-plantation in a series of tenant farms (Flowerdew side, particular plantation) that breaks into clusters of rest areas and tenant farms (Weyanoke, borough land). These little semi-independent enclaves that commercially reward the plantation owners, Charles City Corporation, and themselves (tenants get a share of the profits) support an unfortified separate mansion and garden plot (Yeardley or Piersey) or glebe house (Grivell Pooley), and a small-scale regional administrative center within the fort occupied by a militia Captain
(Rossingham or Sharpe) and a businessman (Rossingham, Jefferson, or symbolically Piersey).

These tenants are colonists who are more psychologically at ease, physically healthier, and therefore and more productive out on their own away from urban areas. Although they do not own the property, and in some real ways neither do Yeardley (borough land and borough fort) or Piersey (bad or false credit not tested until his death), the tenants have been given a little piece of what they want—a share in the profits and at least some control over the day-to-day activities and arrangements of their rented tenant land. This we suspect is because, in the post-Renaissance credo, they as men see themselves as the true measure of their own independent destiny.

The fort in turn protects the entire upriver community and, within a less-than-desirable trade port (tidal shoals), it markets both upriver goods and its own to either Dutch- (Stanley Flowerdew and Yeardley) or English-trade monopoly ships (Piersey). The conception of the "mongrel baroque landscape" is markedly similar to prior public corporations efforts, especially at Bermuda Hundred and Bermuda City. This is a working compromise between defensive needs, commercial needs, previous Native American improvements, and the Renaissance-driven atomistic desires of the colonists. Except for possibly the mansion house (44PG64), most conceptual aspects of the macro-plantation (the strung-out layout, the focal point defined by a redoubt, windmill, and fort, the railed-in peninsula) are readily identified as
Yeardley's and are strongly influenced by strings of garrisoned redoubts and forts in the Low Countries and Native American dispersed hamlets, whose focal point is also a palisaded area within or near the English fort (44PG65).

The most humanistic and idealistic aspects of the ideo-technic ideology of the plantation are also Yeardley's through his patriotic support of free trade and representative Assembly, as well as English dominance of Native American land, both derived from a Machiavellian (militant nationalism by the consent of the people) and Dutch republican spirit (anti-absolute and anti-Royalist: authority). He did not want non-indigenous and authoritarian professional soldiers like John Smith to take over Virginia again, so he strengthened the militia to include military veterans and gentry. It was this very system, together with French intervention, which finally threw the British out in 1781. Yeardley, of course knew Virginia was too weak to resist the Crown, but he fought to preserve it as a politically legitimate part of England—taxation with representation and a regional voice in the colonial leadership.

Yet Yeardley lost his very fragile plantation to commercial bungling since his plantation overseer was a militia sergeant, not a planter, and he was literally one failed tobacco crop away from disaster. Consequently, this once idealistic plantation model became the seat of purely English trade monopoly and purely English capitalism through Piersey, as would be the case until 1776, based on the classically inspired Roman Imperial model.
Despite building on borrowed credit and extortion, Piersey nonetheless soundly maintained the best commercial and military holding of the Royal English Colony (1624–28) and greatly stimulated a regional cash-and-carry economy in creative ways in the process.

It is entirely possible, therefore, that the fort churned up or otherwise consumed much in the alleged financial greed attributed to Yeardley and Piersey by Morgan (1975:119–121) and Fausz (1977). Given the pathetic financial conditions of the colony as a private plantation, hypothetically, it may have been systematically compelled to act as a public corporation-fortified town. (See Figure 14.)

One suspects this means that a sort of state capitalism was activated through these men's private enterprise to support the fort since they operated Weyanoke as a business whose borough land profits managed Flowerdew based Charles City government and its militia garrison. This is a curious public and private mixture that may recall a sort of modern capitalist version of feudalism and the odd paradigm of the Elizabethan soldier himself as a, "strange mixture of private contractor and public servant."
Figure 14

Similar tactical positions to Yeardley Fort. (Top) The Great Dutch wall of 1605. Note arrow pointing to fort in tact zone. (Bottom) Lee Neck Battery on the Thames, England ca. 1588. Note arrow, the battery targets tact zone. (Top) Parker 1988: Fig. 14. (Bottom) Walker, 1981.
THE TOWN PLAN BASED ON ARCHAEOLOGY

In the sections above the author has concentrated on the frequently colorful and contentious history of the development of Flowerdew's Charles City borough fort and associated economic development during the 1617–1632 period. We also focused briefly on the trans-river or macro-plantation's settlement landscape spanning Flowerdew and Weyanoke. In this section we will look at the key archaeological features at the Yeardley/Piersey Complex with an eye to isolate mental template and town design especially in relation to architectural layout. (See Figure 15). The excavations at 44PG64 associated with minister Grivell Polley's glebe house or Piersey's Manor were conducted by the College of William and Mary (1971–78) (manor completely excavated, most of garden fence excavated, redoubt found and mapped) and the University of California (1982–93) (more work on redoubt, discovery of saw pit, more of garden fence) (all periodically) (Barka 1976; Carson et al. 1981; Deetz 1993:28–31, 35–38; Hodges 1993:195–199). 44PG65 was excavated entirely by the College of William and Mary (1971–78) (Barka 1975; Carson et al. 1981; Hodges 1987, 1993:186–195, 1995). (See Figure 16.) University of Virginia archaeologists working with James Deetz found the 1621 Windmill in 1994.

The accurate illustration of this area was greatly facilitated by William and Mary's creation of an AGNU Master Grid between 1971 and 1975 (see
Figure 15

Detail of Yeardley/Piercey complex showing feet-and-rod relationship.
Barka 1976; Hodges 1993:Figure 1, 195–199). Figure 15 illustrates the basic archaeological plan of the area spanning 44PG64, Piersey's Manor and garden plot, and 44PG65 Yeardley's Fort. In the illustration, the top of the drawing is north, the left west, the right east, and the bottom south. On this drawing, isolated cardinal numbers, 14', 8', 7', 6', and 5' represent the elevation of the landform at above sea level (asl) typically once the modern plowzone was removed. One will notice immediately that the Yeardley/Sharpe Redoubt and Piersey Manor are both
about 14 feet above sea level, whereas the fort is typically between 7 to 6 feet above sea level. The west half of the Fort is on a 5- to 20-year flood plain; the right half is within a one-year flood plain. There is a scarp running right across the site dropping out aboriginal post molds. This latter river scarp was possibly created by the "Great Gust" (Hurricane) of 1667 when the James took a shortcut around Windmill Point and surely destroyed any remaining earthworks (Morgan 1975:242).

In the vicinity of the fort there was about two feet of erosion prior to modern plowing, for a total destruction of 3 to 3.5 feet in depth. Despite the low elevation of the fort, roughly about the same amount of fort trench depth was found, indicating that it was built on a contemporaneous sloping landform—probably the last remnants of the original first terrace. The presence of two Native American palisades within or immediately near the fort indicates that, in the early 17th century, it was a very commodious place; that is, prior to sea level rise of 1 foot every 100 years. Yeardley probably chose this sloping area to help drain posts in the fort trenches.

The low topographic elevation of the fort, which is intimate with a riverine environment, is a very Dutch choice of site in that it takes advantage of water and swamps to the east for defenses and provided a low target for enemy artillerists (Duffy 1979:91–93).
Because of this low elevation, Dr. Barka and Levorette Gregory felt the Fort was integral to the river dock area. The present author has shifted it to the west to make it compatible with the present river "put in" or boat ramp still used by farmers today for launching small boats (see Carson et al. 1981:149, 152). According to the Virginia Institute of Marine Science, the 17th-century shoreline was about 371 feet away from the present shoreline (Byrne and Anderson 1977:47). The actual dock area is purely hypothetical, but the reader should be advised this is the most logical place for launching boats within the entire Flowerdew peninsula topographic entity as there are beach cliffs elsewhere. Moreover, this ramp area is still used today within feet of the fort. In this drawing the author has placed the road to the river arbitrarily in between the 1621 windmill (280 feet, 17 rods east) and Fort entrance (17 rods west), where a conjectural road leads to it. Before leaving the dock area discussion, it is important to remember that very heavy objects are being dragged or carted to land here. This would include sledges carrying demi-culvern barrels weighting 3,400 pounds each, and cartloads of heavy siltstone (initially used as ballast on ships), used for the interrupted sill of Piersey's Manor. In brief, such heavy objects were not to be found anywhere else on the floodplain among the many sites surveyed on the property, further anchoring our dock vicinity interpretation.

While the author first identified the layout in feet, study of this plan indicates the key architectural units were clearly laid out in rods (16.5 feet)
The most crystal-clear and striking mathematically pure relationship is that between the entrance of the Fort and the Redoubt, which is 1,000 feet or 60.6 rods. These two units were added together between 1622–23 (Yeardley's Fort) and 1626 (Piersey's Redoubt) and were hypothetically laid out by either Yeardley (Marshall or Deputy Marshall) or Samuel Sharp (Plantation Commander) and the Charles City militia. The author obtained this figure by extending the A-B line from the north center of the hearth in Structure 3 (plantation commander's house) within the fort to between the two most central fort gateposts. These reference marks have already been established in a previous publication and will be explained in greater detail below (Hodges 1993). The 60-rod line is suspected to be the sort of thing one would get when trained military people were present.

Another potential planner may have been none other than the bright young surveyor William Claiborne. Claiborne was the very person we observed in Chapter 1, who laid out the presumed bi-linear extension of James Fort known as New Town (Jester and Hiden 1956:131–133). So there is nothing strained in either our use of him here since we know that not only was there a campaign to create "orderly villages" by August, 1622, but by November 1623—especially on 2,000-acre tracts of public corporation land—there were plans for "Citties and fortified Townes are to be built" on behalf of the Virginia Company when Flowerdew was rolled over as the main seat for Charles City public corporation (Kingsbury 1906 II:482–483; 1933:669).
Notably Yeardley presumably lived in a town lot probably surveyed in by Claiborne in 1621 (Foreman 1938). This surveyor joined the council in 1623, and we know he became very close to Yeardley, even to witnessing his will along with Abraham Piersey (Fausz 1988:59-76; Turman 1959:183–185).

The windmill built by Sir George Yeardley in 1621 was located in 1994. It consisted of a sextagon of large rotted timber molds that were clamped together with massive wrought iron staples. This huge footing was set into a prepared builder's trench. At present, the author is unable to provide a foot-by-foot precise measurement of how this fits precisely into the master plan, but we do know that it fits within AGNU grid units that are about 300 feet or 18.2 rods east the entrance of the Piersey Manor (Flowerdew Hundred Foundation archives). The windmill appears to be parallel (slightly north of line) to the southern line of the garden plot fence of the Piersey manor and slightly south of the entrance to Yeardley's Fort.

In the drawing the author has added hypothetical roads to reflect rational movement between the archaeologically defined units. Of these, the most clearly defined is an inferred roadway following a Pleistocene Terrace or old river levee that is 14 feet above sea level. This terrace runs straight to 44PG79 and 44PG86 with the former 2,700 feet south of 44PG64 and the latter 2,700 feet south of 44PG79. A "T" in this road has been inferred to be opposite the lobby entrance into Piersey's Manor (south side of H-shaped hearth) (pers. comm. Henry Glassie). The west leg of the "T" leads to the
redoubt entrance. The right leg of the "T" leads past the windmill to the fort entrance. A north "T" runs toward the river to a fort and redoubt-protected dock (described briefly above).

Modest attempts at architecturally harmonizing the agglomeration are labeled "Key Alignment." The south curtain wall of the fort is in line with the south facade of Piersey's Manor. In turn, this same line defines the north curtain wall of the redoubt. The meaning of this alignment is simple—Piersey's Manor is well secured between two military brackets that can protect it with artillery (or in the case of the redoubt, with artillery and musketry).
From the overall plan described above, it is possible to tune the primary field of fire of the redoubt. Clipped corners on the northwest and northeast side of the redoubt not only eliminate "dead ground" (areas near the redoubt where the occupants cannot see or shoot out, but they define that the cannon (one or two) typically faced the river in contemporary disposition. See Figure 17 (Hodges 1993:Figure 4.) The details of the redoubt are shown in Figure 18.


Figure 17
The 44PG64 Redoubt from Hodges 1993:Fig. 4.
We are able to infer this because of the location of Yeardley's windmill. Unless it was moved in the 1622–25 period, it would make flank fire supporting the fort somewhat prohibitive; nonetheless, fire to the southeast would be possible. The Piersey manor would make fire restrictive in some locations to the northwest. Despite this, if one thinks about it, neither the windmill nor the Piersey manor could be placed anywhere north or south of where they are without greatly compromising the bracketed fortifications. Yeardley's fort can flank the south and north side of the Piersey manor, the redoubt can flank the south and west sides of the manor and portions of its north. Consequently, the area between the redoubt and fort become a sort of "safe zone" for residential and commercial activity (see also Deetz 1993:41). Here, in addition to the mill, a sawpit and "impaled" kitchen garden features were probably present. Also pre-war calf pens can be anticipated, which were closely associated with dairying activities.

No one knows exactly how the trans-peninsula palisade intersects the western end of the Yeardley/Piersey Complex presumably at the redoubt. Traces of closely set "impaled" sapling molds (larger than typical aboriginal molds) were found penetrating sub-soil on a terrace rise to the south of the redoubt, but the author was not allowed to map or pursue this by then-current Flowerdew Foundation staff in the 1980s. The sapling traces may have also been garden features, and the most logical position for the pale
here would run toward 44PG68 which, along with 44PG82, may have been "bordering houses"—that is, houses set into the trans-peninsula palisade.

In sum, the Yeardley/Piercey Complex is not a perfect defensive package, but it is seemingly not without its general rational merits. Given that this plantation is engaged in more than defense, it is a fairly good master plan for a defended commercial and administrative agglomeration.

Figure 18
The archaeological features at the 44PG66 Redoubt (Len Winter 1982 n.d.).
Is this a town?—well, sort of for the Chesapeake. But mostly it is an administrative center and defensive refuge for the entire macro-plantation. Settlers from Weyanoke would rapidly descend down roads across a ferry and, together with Flowerdew tenants, down roads to rapidly retreat into the redoubt and Fort if attacked by European treats. This complex is not like any Ulster settlement agglomerations we are presently familiar with. It is an essentially linear layout and not a bilinear layout centered below a central bawn. The administrative agglomeration at Flowerdew is bi-polar or bi-nodal rather than bi-linear. Its east node is the fort where Yeardley and Piersey housed most of their servants and the fort garrison. Its west node is the Piersey Manor and Redoubt. Its main street (running east to west) presently has nothing below it to the south. A single commercial feature, the windmill, lies between these two nodes. It spatially trends toward the Piersey Manor (or Yeardley Mansion), where it is only 300 feet east of the entrance. In contrast, the windmill is 560 feet west of the fort entrance. This greater distance almost certainly reflects the zone of what the contemporary English called a "Campania" (an Italian-derived word spelled campagna in better dictionaries). The settlers and militia had to clear a "campania" or "plaine Champain" (that is, cutting down all visual and physical obstacles) anyway to create an unobstructed field of fire around Yeardley's Fort, so it is likely they were more than tempted to "kill two birds with one stone" by using these same materials to build the fort. English soldier Barret (1969:128) explains
that the campania was the "field without the Cittie ought to be raised or plaine"—that is, cleared for 500 to 1,000 paces. Using the windmill as a reference point, at two feet per pace, Yeardley's downscaled vernacular campania was 280 paces (or 560 feet). Again, military planning and town planning were one in the same here.

The linear rather than ordinal bi-linear settlement plan is inferred by this author to be related to Anglo-Dutch military practice seen in Holland in the great Dutch Wall and at Bermuda Hundred as described by John Rolfe (see discussion with citations above).

YEARDLEY'S FORT

While the defensive linear nature of the settlement and the presence of a campania aren't totally satisfying clues, together they help us infer a basic context for the inception of the beginnings of the Yeardley Fort complex which are considerably strengthened by its historic context. In 1621, Yeardley retired as governor, and built the windmill indicating that Flowerdew received his undivided attention then. Also in 1621, three major things occurred while Yeardley was still governor: (1) During the Jack the Feather incident (the killing of a famous Powhatan war chief) Opechancanough completely lost his temper in front of Yeardley, indicating his true and unremitting hatred of the English intruders. (2) Yeardley found out from spies that the Powhatan Chiefdom was collecting plant materials to make poison arrows in order to compete with muskets. (3) In view of the
above (1 and 2), Yeardley personally visited every plantation and, "tooke a
generall muster of all the men and their armes, [and] gave straight charge yt
[to] watch and warde," against imminent and potentially explosive Indian
hostilities (Kingsbury 1935 3:586, 1935 4:10; Rountree 1990:68–73). In short,
this activity postponed the "Massacre" (a successful surprise attack) by a year
and made Yeardley a very popular leader when it did occur in 1622 since
while still in office he told everyone in effect "all hell was going to break
loose" sooner or later.

One does not "watch and warde" well from a wide open, unenclosed
administrative seat and labor-housing concentration. Consequently, when
Flowerdew received Yeardley's undivided attention in 1621, he built a
fortification which we know from our historic context was first palisaded
(1621–22); then, by the winter of 1622–1623, some portions where built of
"trench and pallisadoe" which we know from both the historic context and
course the palisaded phase could have been built between 1619 and 1621
following a generalized Ulster model as described by Garvan (1951), Reps
(1972) and Noel Hume (1981; 1991), but then fortified settlements were also
built by the Spanish and French as a logical extension of the European
Renaissance colonial expansion (Cumming et al. 1974; Reps 1972). So what
the author is saying here is that whether or not you think the palisades were
built between 1619 and 1622, we can be certain that by 1621–22 Yeardley had every reason to palisade and did just that.

One of Parker Potter's (1992:10) uses of mid-range theory suggests that it is the "organizational behavior" of the original cultural protagonists that allow us to more clearly see the documentary records in their own terms. Thus far we have seen that only when Yeardley was in authority as acting Marshall of Virginia (1622–23) and Governor (1626–27) is there any serious hint of a fortification at Flowerdew. These appear through such things as references to "mounted" ordnance, which go hand in hand with "trenches" (earthworks), and regional gunpowder repositories associated with a militia effort in 1622 to 1623. It also occurs through court documentation in 1626, also denoting militia fortification efforts that are ignored in the Muster of 1624–5. Ironically, 1624–25 is not the period of the royal takeover of the colony when militia efforts were deliberately obfuscated by the crown up to and including the actual censorship of documents. Thus, the documentation of the accomplishments and behavioral organization of the Virginia militia appears to reflect the changes in the political organization of Virginia itself.

In any case, following Potter's reasoning from above, militia organization is clearly the key organizational behavioral framework which we should be seeing in this fortification, and how this relates to a town center might reveal some of the fundamental aspects of a capitalist society its social
hierarchy and the technological subsystems that were required to define it as an architectural statement.

Figure 19 shows the enclosed settlement as recorded in 1977 to give the reader an idea of what the archaeological plan looks like before more formal structural analysis (Barka 1993).

Figure 20 shows the basic identification of the fort’s features with minimal structural analysis.

**The Fort Master Plan**

According to contemporary English soldier Davies, in English military protocol it was the captain who was expected to design and build the fort, a fort that would include, according to the Jamestown instructions, a variety of houses and a market place given a common spatial ordering principle (Brown 1890 I:79–85; Davies 1619:122; Purchas 1926 19:55)). In other words, the sum of the parts of a frontier fortification is a miniature defensible town or "Central Place" literally and figuratively. According to military engineer Digges (1579:69), the captain or senior officer could not perform his planning and fortification duties without knowledge of proportion, "and the more perfection they can have in this science, the more speedily & with lesse staggering shal they be able to discharge their duetie, & shal not neede to
Figure 19

The enclosed settlement 1977 before structural analysis (Barka 1993).
Figure 20
Yeardley's Fort with key components identified (after Hodges 1993).
rely upon the direction of any servant or any other hired person." From this information, we will presume that Yeardley designed the fort.

When Yeardley's commanding officer, Sir Thomas Gates, set out to rebuild James Fort largely from scratch in 1610, he "measured" the ground before beginning to fortify. Besides the dimensions of the new church, the only empirical information pertaining to his fort master plan that has survived pertains to the plan of the fort itself. Gate's Fort perimeters consisted of two "lines" or "curtain" (walls) 100 yards long (east and west) and one wall (south) 140 yards long. This indicates that the fort was based on the Pythagorean Theorem of right triangles, resulting in a right equilateral triangular fort plan (Purchas 1926 19:55; Wright 1964:79). This information suggests that certain geometric principles will probably be at work in Yeardley's fort, as is typical of Renaissance "works" (forts). Here the reader is reminded that in August 1622, Sandys recommended that the seven palisaded strongholds, should consist of "compact and orderly villages."

In fact, there was an abundance of skilled geometry experts and mathematicians at this site, especially through Captain Rossingham and Captain Sharp, who would need to know basic geometry and trigonometry in order to even pretend to operate the cannon placed within 44PG65 by 1622–23. In 1639, English artillerist Norton (1973:24–26) observed that the definition of, "Geometry is the Art to measure well, and is the Sinewes of the Art of Artillerie." Elsewhere, he provides instructions on how to make
various right triangles, and shows repeatedly how fortification is governed by principles of geometry. Figure 21 shows the complex geometry of a bastioned fortification (Robinson 1977:Figure 114).
Let us now focus on Yeardley's main labor agglomeration, administrative center, and cachement zone that we have deemed Yeardley's Fort. Readers not familiar with Yeardley's fort should be told here that \( \frac{2}{5} \) to \( \frac{1}{2} \) of the fort has been destroyed by the James River. The most basic identification of the fort components are shown in Figure 22; here the reader should note the A-B line referred to above which links the fort entrance to the redoubt entrance. The A-B line is a bisector or vertex of the equilateral right triangle A-C-D. Note that point A is centered directly above the hearth of Structure 3 (a partially block-founded structure). Lines A-C and A-D pass through the corner posts of Structures 1 and 2, the forts quarter and magazine (storehouse), respectively.

**The Known and Hypothetical Fort Master Plan**

In earlier manuscript versions, the author has gone into great detail in reference to the master plan throughout the fort text so that the poor reader is forced to return over and over again to finite drawings of the master plan to check the integrity of interpretive inferences. Knowing that highly detailed descriptions are available for readers who want more (which the author will be happy to provide), let us dispose of the entire master plan in a more streamlined fashion here. In this master plan (see Figure 6) (hereafter the "master grid"), we are presently only interested in the spatial, functional, and geometric relationships between improvements.
Figure 22
The Master Grid of Yeardley's fort and its interpretive implications.
The reader might find it interesting to know that one can readily follow how the author decoded this master plan simply by following the exhaustion of the alphabet beginning with the A-B reference points presented above.

One method of decoding the fort plan in shown in Figure 23, where the hypothetical completion of the fort is reinforced by the clean numbers of the angles within the exterior polygon which we got from Robinson's geometry of a bastion fort.

Figure 23
Yeardley's Fort; exterior polygon used as test of fort's structured analysis.
Note clean angle numbers.
The reader will notice that the master grid shows both the known (defined by archaeology) and hypothetical completion of the master plan (for areas destroyed by the James River) based partially on the model of Magherafelt, in Ulster Ireland. In this drawing the reader will note a wheeled cross defines master grid points. The key reference point of the civil layout is defined as a circle with a cross. The key reference point of the defensive layout is a diamond with a cross. Showing all the points on the same drawing is a necessary evil here.

How did the author come up with this plan? While the master grid drawing is intimidating looking initially, when broken up into digestible pieces the reader will find it very useful in understanding the mental template behind its design. Moreover its basic simplicity will also become apparent. For instance, we know Yeardley was trying to eliminate “dead ground,” which are areas where blind spots might be present in the fort perimeter. Modern fortifications tried to eliminate these areas (see Figure 24).

In Figure 25 we are looking at three sequences of the fort which are intended to show the evolution of it from ca. 1619–22 (certainly 1622) to 1623 since our strengthened historic context shows there were no earthworks present at Flowerdew in 1622, but by the spring of 1623 earthworks and cannon were present. Additions to the fort are shown in heavy black lines from A-C.
In Figure 25a, we are looking at the hypothetical fortification during the fall to early winter of 1622. The key elements of the plan consist of an equilateral right triangle A-C-D which links the hearth of Structure 3 to the southwest hearth post of Structure 1 (A-C), and the Structure 3 hearth and the southeast corner post of Structure 2 (a store or warehouse). If we take the right leg (A-D) of the triangle (A-C-D) so defined and extend it to the fortifications at exactly 100 feet, we hit the terminus of the flank angle of the half bulwark at point P2 (A-P2=100 feet). If we take the right leg (A-C) of the triangle (A-C-D) and extend it to exactly 100 feet, we get point P1 where the extended triangle hits the fort curtain (A-P1=100 feet). (See Figure 26.)

Besides a point on the curtain, what possible special reference point is P2, one might well ask? The meaning of the point is based on Yeardley's simplification of a "flanked redoubt" a sort of simple cartwheel-shaped fortification design so that one half bulwark or demi-bastion protects with flank fire only one wall of a quadrangular fort. Contemporary English fort engineer Paul Ive shows one such fortification with the basic design lines
Figure 25
The evolution of Yeardley's Fort. (a at top) ca. 1619-22, (b at middle) ca. fall/winter 1622-23, (c at bottom) ca. spring/winter 1623.
Figure 26
Breakdown of the Master Plan of Yeardley's Fort ca. 1619-22.
intact (see Figure 27). In terms of relative scale, Ive's demi-bastions are huge compared with Yeardley's impoverished works. Importantly, Ive shows 20-degree angles to define the expansion of his demi-bastions. Yeardley chose instead to "cheat" Ive's plan so that, at points like points P2 and P3, only then does the fort curtain contract inward toward each demi-bastion at a 5-degree angle. The author has shown these "cheated Ive lines" as dotted bars like a drawing scale. Since Ive is basing his plan on a square work, and we are dealing with a trapezoid, differences are going to occur.

The author has inferred that the missing corners of the fort (now in the James River) can be found by simply reversing the 100-foot lines (6.06 rods) A-P1 and AP2 to A-P3 and A-P4. This gives us a square 141.4 feet by 141.4 feet and defined by points P1-P2-P3-P4.

To create an accurate reconstruction of the missing demi-bastions, we returned to the known archaeological plan. The surviving east side of the parapet trench (outer of two paired stockade revetments) is a 100-degree angle; so moving up this line, we joined the P3-P4 line to create point Y, the terminus of the northeast
demi-bastion. The author has slightly stylized this demi-bastion to show what the known half bulwark probably looked like before it was eroded and plowed. In order to get the width of this demi-bastion, we observed that the known diameter of the southeast demi-bastion is 8 degrees north of the A-P2 line. So, to get an accurate restoration of the northeast demi-bastion, we made another 8-degree line south of the A-P4 line. To get the northwest demi-bastion, we returned to the master grid plan and struck an 8-degree line off YY and T. Notice that in this demi-bastion we have retained the style of the known southeast demi-bastion.

Let us complete a very basic description of the 1622 fort. During the 1622 period, there was no southwest demi-bastion because the bastard caponier protected the entire south curtain. Yeardley did install a full wall walk behind (hole set posts behind the southwest and west curtains) so solders could fire from an elevated planked platform. On the north and east wall which face the river, only relatively few hole-set posts were installed to create an elevated platform. These were at the center of each curtain between bastions and within the demi-bastions. Cannon were mounted on shabby platforms behind zonal areas of gabions. Yeardley created more of these than he had cannon (6) so artillery could be shifted around.

In figure 28 we are looking at the fort in a transition to an earthwork fort hypothetically during the fall and winter of 1622–23 when the second reply to Butler was made when "divers hath trenches" (Kingsbury 1906
The paired stockade revetments with the outer side consisting of a parapet and the inside consisting of a parade curtain should be noted when the fort is looked at, as these are associated with the earthworks.

This phase also allows us to learn more about a key portion of the master grid that animated the town plan such as it was. This was in order to administrate a profoundly impoverished Charles City borough which had lost all government and financially supporting borough lands, including possibly Weyanoke. Structure 3 has hypothetically sprouted two wings, one for a simple chapel and one for a courthouse. Two more buildings were added to the north. These were intended to create the architectural sense of a town square with the plantation commander's house—also resided in by Charles City borough minister Grivell Pooley—forming a central and hierarchal position. It was easy to locate where to put these buildings. The author simply doubled the A-C-D triangle noted above to the north, making for a 100- by 100-foot town square composed of master grid points C-D-F-E. Here also we can best see important aspects of Yeardley's town, for he deliberately left another 100 square block (Points C-E-G-H) as room for cattle, pigs, and other activities outside of the town square.

Let's turn briefly to the fort again. First, notice that in Yeardley's plan, the west 100- by 100-foot block is anchored at the terminus of the northwest demi-bastion at point G. The north flank terminus of a new southwest
Figure 28
Breakdown of the Master Plan of Yeardley's Fort ca. fall/winter of 1622-23. Note town square, the second phase at fort.
flanker (therefore shown in black) defines point H (archaeologically confirmed). Other black marks define where terrepleins were added (cannon "mounts" referred to in the replies to Butler). Notice that the plan allows 21 feet in all directions from the town square to provide for 8-foot-thick earthen ramparts and 13 feet for terrepleins. The typical archaeological measurement of terrepleins is 12 feet and ramparts 8 feet. The wider expansion of the terrepleins to the north is inferred to be due to the need to get large artillery up longer ramps into bigger bastions facing the river and not protected by the swamps to the east. Also, larger cannon can recoil more safely or two cannon can be pulled past one another. On the master grid plan, one section of the terreplein northeast of Structure 3 is enlarged to provide a down ramp, allowing artillery to be hauled anywhere across the town—for instance, to defend against a land attack.

Notice that we have retained as the style of ramp a reversed "U"-shape shown in the known southeast demi-bastion (or "half bulwark") within the two hypothetical bastions. Demi-bastion or literally half bastions could be easily turned into full bastions by doubling them on the reverse side. We have done this in this drawing (notice blackened lines), but we are showing here only a second stage in the work; so the faces of the paired demi-bastions are bifurcated and still not full bastions. The Elizabethan Belvoir manuscript shows just such a scenario, with a full bastion being created from two half bastions (see Figure 29 (Hale 1964). Notice how the "base court," a
utility area supporting the work, corresponds roughly to the west 100-by-100-foot block in Yeardley's Fort.

In figure 30, we are looking at the completed Yeardley Fort. This phase of the fort corresponds with spring and summer 1623 when Yeardley (in full residence at Flowerdew) was assisted by French military engineer
Figure 30
Breakdown of Yeardley’s Fort Master Plan ca. spring/summer 1623. Note structural method of calculating fort perimeter and bastions.
Nicolas Martiau and possibly Captain Maddison (later Charles City borough field commander).

Black lines indicate changes to the fort. These changes include turning the paired demi-bastions (a bastion with two flanks but only one face) into full bastions (a bastion with two flanks and two faces) by infilling them in the Italian Renaissance fashion. This allows all of the bastion faces to be swept by artillery from those supporting them from flanks on either side. In the ideal plan (see master grid), the capitals of these bastions (points W and W2) are each 1.41 feet from points A and T. In order to allow these bastions to flank one another, we had to make the northwest bastion larger than the northeast bastion. The northwest bastion is 5 degrees over the YY-V-A 90-degree angle, while the northeast bastion is only 2.5 degrees over the A-V-Y 90-degree angle (see master grid plan). The author has added a second black line on the west side of the northwest bastion to show how Yeardley may have cheated the ideal fort plan to allow the southwest flanker and northwest bastion to sweep each other's faces since the northwest bastion is one stage beyond the scale of the northeast bastion and bastard caponier.

Yeardley has added a hole-set blockhouse shaped like a ravelin (notice blackened area south central area). This allowed militia to move freely from along the earthen ramparts to the east across to the planked wall walk to the west. On the ground floor, the bastard caponier was retained as well as passages pertaining to a fortified entrance following the A-B Line.
In this drawing we have a deliberately different opportunity to understand the master grid plan of the fort in slightly different ways.

Here the reader can see clearly the points we used to determine the expansion of the demi-bastions (8-degree gorge) to full bastions (16-degree gorge). There is a 2-degree error (10 degrees) in the southeast flanker because it is 8 degrees to the south curtain. There is a 1-degree error in the northeast bastion (17 degrees total). Figure 31 shows a quadrangular fort built in the high style which shows bastions being cut in half by the fort's design in a manner similar to our analysis process.

The P-R-V-T points are highlighted in this drawing. They are all 100 feet apart and allowed us to calculate the north wall of the fort based on the known south curtain (P2-YYP) and a point on the east parade curtain wall. These points are the result of turning the town square C-D-F-E at a 45-degree angle and adding 21 feet for the terrepleins and ramparts (typical archaeological total 20 feet).
The error in the town (wheeled grid points on the master grid based on known architecture) verses the fort (diamond-shaped points on the master grid) should be noted. The distance between A-P and the nearest A-B line is 1.25 feet apart. The distance between A-C (present master grid) and A-CP (C-Prime a COVA grid point) is 3 feet (Hodges 1993). The master grid as a way of digesting a mental template is nearly perfect, but empirically it isn't exactly the same as previously published material, and there are certainly errors—which might be corrected by a computer program. Nonetheless, for a 17th-century fort in severe archaeological ruin, we are surely seeing a relatively disciplined Elizabethan Renaissance approach to town and fort planning. Figure 32 shows how Yeardley's Fort used Renaissance methods to defend its perimeter.

RETURNING TO ARCHAEOLOGICAL PLAN FOR INTERPRETIVE INFERENCES

Let's return to an archaeological plan that will allow us to check the integrity and grammar of the known archaeological resources in a slightly different way (see Figure 33). Here, our goal is simpler. Below we don't want to be encumbered by treating the fort and its architectural improvements in a developmental perspective because we have limited space for such discussion. The master grid drawing and its three-part break down presented so far make a strong argument that the fort is a monolithic feature of mental template with all its components laid out in harmony with one another. Let's make sure we are right. More detail on the site features described below will
Figure 32
Yeardley's Fort. The basic fields of defensive fire.
Figure 33
The archaeological Master Plan.
Structural analysis of just the archaeology plan.
Note core tripartite plan.
appear elsewhere; here again, we are trying to dispose of the reader's need to constantly turn back to the master plan maps in the later text to follow interpretive inferences.

In this drawing the bisector line of the triangle A-DD1-CC1 (A-CC1 leg = 70.7 feet; A-DD1 leg = 70.7 feet; base CC1 - DD1 = 100 feet) runs right through the fort gate at reference point B, indicating a 0.5- to 2-foot error between the two plans. These figures are of course familiar as the hypotenuse of a 50-foot square. At point BB, the bisector line A-BB intersects the southern palisade curtain line at point BB for a distance of 70.7 feet, which is the exact distance between A-CC1 and ADD1. The line A-B also seems to halve the Weyanock Native American palisade. Returning to our work for COVA, we created the right triangle A-C-D that leaves the fort and spans the fort gate (Hodges 1993:Figure 2). The distance between D (extension of the right triangle on the left side) and EF3 (left corner of bastard caponier) is 70.7 feet. Also at 70.7 feet, this distance is the difference between the distance of the known demi-bastions flank angle (reference point D2) and the A-B line.

Focusing on the west side of the bastard caponier reference point, C2 is 70.7 feet from the A-B line, and COVA reference point C is 70.7 feet from WF3 (the southwest corner of the bastard caponier). While C2, C, and P2 are seemingly all arbitrary points except by virtue of being on the palisade, of these reference point C is the most useful here. If we square C back into the
fort (on the C-D line) at a 90-degree angle, we get the west facade of the well house at points "r" and "s." All of this, together with the terreplein distances of 12 feet, appear to be Yeardley's calculation of just how much space he can allot to buildings and artillery.

What is the relationship between the cattle pound which occupies the west side of the fort and its nearby curtains? Was this part of the original plan? In order to discover this, the author created point "v," the southern terminus of the cattle pound ("v" is inside the right-angle symbol). When we lay a right triangle across the hole-set base line t-v, we get point W, which has no connection to the archaeological master plan. This is also what happens when we square point "t" (inside right-angle symbol) along the v-t line. The product of this at point "y" is floating in space. Therefore, we can infer that the ordering principles of the cattle pound are based on the shape of the curtain since, when the hole-set perimeter turns out on the west side, so do the ditch-set palisade lines (note point Z). In sum, the hole-set posts in the vicinity of the ditch-set curtain form a complimentary parallelogram that reflects its ordering principles by the ditch-set palisades; when the latter shifts, so does the former. Note how reference point H1 is 99 feet from point CC; this indicates a 1-foot error from C and H in the "Known\Hypothetical Plan."

As a by-product of these same inference processes, we can safely infer that the hole-set posts along the outer perimeter of the entire cattle pound
and on the inside of the entire western half of the fort represent an elevated "wall walk" allowing militia to shoot from loopholes in the ditch-set palisade/stockade curtains. Part of the reason for this is that it wouldn't do to have militia dodge pigs and cattle in the cattle pound. We can scribe all of these hole-set posts associated with the wall walk with only two lines. If we continue the line Z-T-V eastward, we hit a single poorly defined postmold inside the rampart (below e1 and e2). Well-defined postholes (one devoid of a mold) marked as "e1" and "e2" are not on this line. One posthole in the bulwark (demi-bastion) is above it. The t-v extension line actually manages to nearly intersect with the ditch-set palisade, but it actually hits nothing. Note that repair posts along the wall walk tend to be placed parallel to the wall-walk scaffolding system. This phenomenon is not always true for posts along the wall walk that are near the bastard caponier, ravelin, or southwest flanker since different kinds of repairs or reinforcements are needed in those areas.

The hole-set posts inside of the stockade revetments along the east rampart wall do not form a single line between points u' (u prime) and near arbitrary-point q (que) (near the terminus of the flank angle of the bulwark). Instead, here they form a zigzag line that is not clearly connected to post holes inside the bulwark. One hole (e2 "east" verses south) seems to intrude at the ditch-set stockades along the outer parapet wall opposite another post hole. This is almost certainly a repair brace to the parapet wall. All of the
posts here along the east wall are inferred to be earthwork "piles" and counter-fort bolsters, or are associated with the cheeks of cannon embrasures.

Hole-set posts inside of the bastard caponier reflect lines that define both additional wall walks (west side) and a ravelin (V shape). Postholes inside the bulwark (a demi-bastion) reflect piles associated with strengthening the interior earthworks in general and also reinforcements to receive the weight of cannon mounted there. They do form a delta shape similar to the southwest flanker; however, the very limited size of a once-previous hole-set flanker here seems unlikely. If this were the remote case, it is certain the ditch-set bulwark trenches and ramp obliterated significant portions of such an incarnation.

Since we know one phase of the fort 1619–22 did not include earthworks, it is likely that temporary platforms were placed in front of the ditch-set stockades on the east or "water side" of the fort. These were absorbed into a double revetment. Some of the hole-set posts on the east side associated with the double revetment may also represent zones of isolated firing platforms which were later used as piles, counter-forts, or cannon embrasure cheeks, inside the 1623 double revetment.

SUMMARY DISCUSSION OF THE YEARDLEY FORT MASTER PLANS

In sum, the implication of the two master plan studies is that Yeardley put a lot of thought into spatial arrangements in the interior of the fort and
how it intersected with the exterior defenses. Vitruvius wrote (recalling Digges's later advice), "there is nothing to which an architect should devote more thought to than the exact proportions of his building with reference to a certain part selected as a standard." This physical standard seems to be the Structure 3 hearth at point A at 44PG65 and equilateral right triangles, based on rods and clean numbers of feet. Later Vitruvius comments, "Hence, the first thing to settle is the standard of symmetry, from which we need not hesitate to vary" (Morgan 1926:174,175). Yeardley did indeed vary ideal fort plans. The fort had to be very compact because it was built during a period of war and famine, but it had to function well or the entire effort would have been wasted. A very good example of corners cut is that only on the "water side"—that is, where large ships cannon could hit the fort—did he entrench the fort with earthworks. Yet there was space left to remedy this also should international politics take an ugly turn.

With regard to the ideal plan (five large buildings) on the master grid verses the "known archaeological plan (three buildings), something should also be said. In 15th- and 16th-century Europe, a square divided by four right triangles to form a consonance of diagonals emerging from the corners of the square and converging at the center is at the core of planning the ideal of both the Renaissance quadrangular bastioned fort, and the "foure square" "Leager," or military camp as influenced by the Pythagorean theory of right triangles (Clayton 1591:39; Ive 1589:31). However, such plans were not
restricted to quadrangular forts or military camps. For instance, sketches by Leonardo Da Vinci of the royal palace of Rommorantin also suggest that a square divided by a saltire spanning each corner (four right triangles) was at the core plan of the Renaissance villa and pavilion forms inspired by Italian architects (Pedretti 1985:Figure399). Such plans, which are similar to the number 5 expressed on a pair of dice, are the basic core plan at Fort Caroline (cf. Glassie 1975:22–25; Digges 1968:120; Lorant 1946:55). If this is the case, then we would be dealing with a plan remarkably similar to Nomini Hall Plantation built in ca. 1750–75. Notably, this particular plan features an equilateral right triangle emanating from the center of the mansion as a path (corresponding to points A-D and A-C at Flowerdew) to span the corners of two subordinate outbuildings of the four flanking units (Upton 1988: Figure 9). This plan probably owes more of a debt to fort design than might seem otherwise with the four outbuildings—once bastions also housing princely servants. This is since early modern villas (1400s to 1500s) were once fortified and therefore grew straight out of a late castle-building tradition. Through time the defenses became decorative military gingerbread and then disappeared all together, causing post-modern confusion since the original grammatical references and functional meanings were compromised and ultimately irrelevant (Platt 1996:150-196).
THE CORE TRIPARTITE PLAN: BUILDING IDENTIFICATION AND CULTURAL SIGNIFICANCE

The ideal of our fort model suggests that originally there were hypothetically five large structures present within the fort. Of these only three—Structures 1, 2, and 3—have survived as archaeological remains. Therefore, in the following section we will focus fairly carefully on the above three known structures, which together form what we will call in shorthand the "core tripartite plan." We will start with Structure 2, a storage facility, move on to Structure 1 the garrison house, and then look at Structure 3, the headquarters building.

Structure 2 Public Granary, Storehouse and Magazine

Structure 1 to the immediate right of the bastard caponier, with its 32-by 16-foot-long main core with interval puncheons and huge end-wall storage sheds, has already been described in various publications (Carson et al. 1981:149, 152; Barka 1993:329; Hodges 1993:188). Houses built of "cagework," perhaps a reference to the puncheons acting as studs which brace the main frame at Structure 2, are often noted in Pynar's survey of Ulster (Hill 1970). Hill (1970:452) suggests that, "these ancient houses were built in what is called cagework; the interstices were filled up with wicker and clay, some of which I have very lately seen [written 1814] in perfect preservation." Robinson (1983:53) suggests such cagework houses were fully framed and mortised in. Aalen (1978:279) describes the Ulster cage house as being
ttypical of the London plantations in Ulster, which had "oak beams and white panels" and, in contrast to Hill, suggests not one of these has survived the vagaries of the torch of the Irish rebellion of 1641 or the vagaries of time. The author has seen a 17th-century "tithe barn" remarkably similar to Carson's (et al. 1981:152) schematic illustration in a British real estate sales magazine, although the source has unfortunately been lost.

At Bermuda "Nether Hundred" of 1616, Rolfe (1951) notes farmers who could produce four servants were to pay "Rent Corne as other Farmours." It is likely that Structure 2 is where such rent corn from tenants would up in an administrative complex in much the same way a person might make a deposit in a bank against debts owed to creditors—hence, perhaps, a connection with tithe barns through such an analogy. Tithe barns in the medieval system are associated with ecclesiastical wealth; and, by the early 17th century, we suspect secular wealth in a tobacco and corn credit society (Harvey 1970:40–41). Originally a tithe represented \( \frac{1}{10} \) of produce paid to maintain a vicar (Beresford and Hurst 1991:138). For Virginia a more proper term would be a "quit rent" barn. Thus, there may be a connection here with the medieval grange which was both a defensive enclosure defended by soldiers and integral to a more insular ecclesiastical outreach system (Ryan et al. 1993). Both the "men at the castle" and the settlement minister, Grivell Pooley, were partially supported with corn and tobacco rents which might have been tabulated and stored here.
This identification can be strengthened. The Virginia Council and Assembly's "Law and Orders" of March 5, 1623, state in item 15 that, "in every parish a publique Garnery [granary]" be kept with everyone above 18 years old must contribute to this (Kingsbury 1935:582). Vitruvius (Morgan 1926:184) suggests for the farmhouse complex that, "rooms for grain should be set in an elevated position with a northern or northeastern exposure. Thus the grain will not be able to heat quickly, but, being cooled by the wind, keeps a long time." Within Structure 2, corn was probably stored in the loft, while tobacco "in cask" was stored below. Such a structure would need to be well secured, especially during the famine of 1622. Because of the hydraulic properties of major flooding, a key probably associated with Structure 2 was swept over to the parade curtain where it gradually descended into rotting stockade molds (Flowerdew Hundred Foundation Archives).

In the Roman court-yarded principia (or military headquarters building), two flanking ranges of unpartitioned rooms include a storeroom and an "armorie" and perhaps at 44PG65 these were rolled into one structure; in which case the word "magazine" offers no ambiguity whether or not weapons or provisions were stored there either comprehensively or exclusively in either case (Johnson 1983:108; OED 1978 6:22). Based on studies by Garvan (1951), we have no reason that such a parsed-down system wasn't still useful through models such as the medieval grange and post-medieval small campaign forts such as our study unit.
**Structure 1: Barracks, Quarter, or Court of Guard and Dairy Complex**

Structure 1, is an earthfast structure approximately 37 feet long east to west by 16 foot wide north to south. It is shown in Figure 37. A "C"-shaped fire-redened hearth stain is in the southwest corner. The presence of a possible gable post within the west core of the structure suggests the original structure may have originally been a three-bay structure 30 feet long with a 7-foot-wide bay addition to the west which absorbed the once-exterior chimney, thus allowing space for a pantry to the immediate north of the now-interior hearth. The house has a cross passage. An informally laid-out shed about 9 feet by 9 feet wide was also added to the already expanded west gable wall. The shed addition was probably used as a byre dating from a period when the house length was in its maximum growth
stage (Hodges 1993). In all likelihood the byre making this unit a sort of "byre house" was used as a cattle shed and milking station, only initially perhaps working in concert with a small earthfast enclosure or croft (paddock) to the west of the building (Robinson 1983:49; Rowley and Wood 1982:67). This protected the cattle from wolves and mischievous Native Americans at night and allowed the penning of calves to keep dairy cattle near the house. This is a typical west English plan with the provision that cattle were now entirely out of the house technically (Carson 1969).

When the well, well house, and now formalized well yard were installed in concert with the larger cattle pound discussed below, probably shortly after March 22, 1622, the well yard was specifically to keep cattle out. By this time the byre was turned into a dairy and buttery, while the well yard had become a full dairy complex. The well, replete with a well house and windlass along its north façade, was used to wash ceramic containers associated with milk, cheese, and butter production and water cattle within the cattle pound to the immediate west (Brown 1977; Fussell 1966:136, 146, 148). Manure collected from the cattle pound was heaped as far away as possible from the well yard. In some ways Structure 1 acted as a kitchen to Structure 3 or, under the military system, it became analogous to a "provisions quarter" for the entire community (Vauban 1968:153).

Who occupied Structure 1? A fragment of a gold band with the letter "F" on it also found in the well may possibly suggest this was the original
Stanley Flowerdew homestead (ca. 1617–19) (Kulikoff, pers. comm., 1995). Regardless of when the structure appeared at 44PG65, certainly by the time Structure 3 was laid out in the A-C-D arrangement, this unit had become a quarter which spatially submitted in a physically lower off-center subordinate fashion within the simple hierarchal building arrangement.

By 1623, at least, it was probably occupied by Sergeant Fortesque, who is documented to have also been the plantation overseer at Flowerdew under the Yeardley full militia social organization then present (MacIlwaine 1979:27). Interestingly, among the sergeant’s duties is care of "such Tooles as, as are required for the works at hand," apparently including tobacco hoes. Two different halberd fragments (one decorated with pierced holes, one not) found in the well were the distinctive training weapons of a sergeant who only carried a musket during anticipated combat (Flatherty 1969:75, 76). The more decorated halberd might indicate the presence of a sergeant major at Flowerdew. However, the halberd fragments come from a large secondary deposit that may not literally pertain to the occupants of Structure 1 except in a general way. Sergeants were responsible for taking charge of munitions, victual, cleaning, as well as the market and military duties. As noted above, Fortesque's failure to properly string tobacco probably forced Yeardley to sell Flowerdew to Piersey, suggesting that this was indeed a "private fortification" in the broadest definition of the term (Hatch 1957, Hodges 1993).
Also potential hypothetical residents of Structure 1 were 16 of Yeardley's tenants and servants who are listed by 1624–5 as part of Piersey's muster. These people may well have been extorted from Yeardley to pay personal debts to Piersey associated with the loss of the tobacco crop 1623–4 by the deeply stressed community (Deetz 1993; Hotten 1980:171–172; Jester and Hiden 1956:21–22). By March 1623–4 the Virginia Company officials having now institutionalized public support for the full-time militia (so that they would not prey on the communities) ordered that, "every man that hath not Contributed to the findinge a man at the Castell shall paye for himself and servante 5 pound of Tobacco a head, toward the discharge of such as had theire servante there" (Kingsbury 1935:584). Thus, alternatively, these very 16 people, including the wives of tenants, may have been the specific men "at the castle" as part of the fort's full-time previously trained gun crew and garrison. Some wives were included as part of critically important support-provisioning activities associated with the dairy activities noted above, and the well probably aided them in laundering the garrison's clothing. Returning to the men, hypothetically, as such trained men, they could not be spared to Yeardley, who probably financed them "to the castle," as they were now publicly funded by Charles City Corporation. After Yeardley's holdings prior to 1622 were liquidated, he appears to have spread them around to strengthen smaller plantations that needed more servants to defend themselves and maintain subsistence initiatives simultaneously, including
dispersal to Hog Island and the Eastern shore. So these people at the castle may be yet another magnanimous dispersal within a reciprocal regrouping of plantations.

Added to this sardine can at Structure 1 just may have been Yeardley's 11 African-American servants who are likely to have been deeply involved in building the fort as well as working corn and tobacco fields. Thus, it is likely that from a numerical standpoint, black military history principally began right here at Flowerdew. Fortification was so labor intensive that many wanted to convert captured Indians or their children as slaves to work on public works such as surely forts (Kingsbury 1933:672). By cramming these people hypothetically into Structure 1 we are acknowledging that the probable five buildings originally here are a theory. Some may have slept in the loft of Structure 2. So we are trying to adhere to our concrete material evidence here and stick to two domestic buildings at 44PG65.

Very tentatively there should be mention of the possible presence of Native Americans in residence at 44PG65, although neither official muster list records such occurrences between 1623–4 and 1624–5 at Flowerdew (Hotten 1981, Jester and Hiden 1956). Prior to 1622, and perhaps afterward, a Christianized Native American may have been occasionally in residence at Flowerdew, perhaps through travel within Yeardley's barque (large sailing vessel noted above). Yeardley was known to have had full-time fully trained "musket toting" Indian hunters under his employ at Bermuda City at ca.
1615–17. Such persons may have acted as trusted guides and interpreters to Yeardley (Purchas 1926:119). One of Yeardley's military files was lead by an Indian in 1617 at Jamestown, a fact that shocked arriving Governor Argall (Barbour 1969 1:262; Purchas 1926:44–45). Through Yeardley and Dale this is the beginning of the Indian guides who did not have "knives at their throats" from this time until the end of the 19th century. After 1622, when Yeardley was attacked for such policies of arming Indians with muskets, the scenario appears unlikely, although the real demand for such special talents appears not to have relented.

In sum then, it seems Structure 1 acted as a "military quarter" almost certainly literally. When applying this label, it is interesting to note that when specifically referencing a particular dwelling place of humans, the word "quarter" has had only three meanings in the history of the English language: (1) quarters for soldiers which officers were obliged to provide for soldiers, or the latter were compelled to build for themselves; (2) compulsory lodgings provided to troops by private citizens, and (3) in the U. S. (American) south to refer to cabins inhabited by slaves in plantation contexts (OED 1978 :27–28). Perhaps our use of the word "quarter" to define servant or slave quarters comes directly from the matter-of-fact military usage of the term by the English military that first organized Virginia (Barret 1969:159–161). If this appears a weak argument, the reader is encouraged to consult Fausz's (1986:93–97) list of council men and Virginia "oligarchs" and "warlords" to
observe the remarkably high bias toward military titles prefacing names. In any case, the direct analogy between overseer and sergeant at Flowerdew in 1623 is well precedented, as is the term "soldier" and "laborer" in the Roman army which the Dutch and English specifically modeled themselves after, as noted above (Shea 1985:15–17).

**Structure 3: The Ordinal or Hierarchal Structure**

Structure 3 is extremely difficult to interpret beyond basic information. It probably consisted of a partial or complete silled frame resting on a block or groundsill seat (Carson et al. 1981:129). There is evidence of posts probably associated with chimney scaffolding or room divisions to the north and east of the hearth, but it is presently unclear how they link up (see Barka 1993:330). The latter information may suggest a "T"-shaped building with a wing pointing north. A divided north-facing double hearth (perhaps suggesting one-half was used as a bread oven), consists of dry-laid river cobbles, over-daubed cobbles, and brightly burned bricks. Traces only of a predictable "H-shaped hearth" are suggested at best. The hearth is associated with a chimney base or fire hood fall, also consisting of river cobbles that form a huge pile to the immediate east. Also especially to the east of the hearth are large quantities of clay roofing tiles. In all probability, roofing tiles from Structure 3 are strewn all along the north shore of Windmill Point to the east, almost certainly relating to the Hurricane of 1667 or similar catastrophic flooding previous to this. This phenomenon probably
also explains the east direction of the fire hood fall and roofing tiles nearest the hearth (Schiffer 1987:233–234).

Shallow, often amorphous stains nearby, which are very difficult to group together because of tree disturbances, may pertain to block impressions associated with the building foundations. Distinctive fragments of silt stone found in the general Structure 3 area may suggest Piersey demolished Structure 3 in order to found his new house at 44PG64 about 1626–27. Alternatively, this information minimally suggests similar European ballast sourcing was employed (Flowerdew Hundred Foundation Archival Collections). Domestic use of the structure is indicated by large quantities of fish bones from a kitchen midden, which suggest the hall was on the east side of the structure with a parlor presumably to the west—if this information has not also been biased by flood scouring. As a very generalized form, the building with a slightly offset or centered hearth and a lobbied entrance, can be vaguely construed based on well-defined Ulster and Virginia precedents that provide but a generalized model at best here (Barka 1976; Hodges 1993, Neiman 1993; Robinson 1983:62).

Who occupied the high-status tenement at Structure 3? If we apply a simple inference, Structure 3 was probably the equivalent of the headquarters building within the administrative complex. This model is the equivalent of the Roman "principia" or "praetorium," which in the Roman fort administrative center functioned as both the religious and military
headquarters. The principia was normally at the apex of a central street at the architectural head of a tripartite plan and typically flanked by at least two large subordinate buildings within a courtyard (Johnson 1983:104–106). Regardless of whatever classical connections are present at 44PG65, Yeardley probably stayed at this high-status tenement when he visited Flowerdew to supervise work there and hunt. Only after 1621, when no longer in public service as Governor (1619-1621), did he really have time to visit Flowerdew for any length of time. To him it was most likely a sort of a hunting lodge and country seat.

Structure 3 was probably, however, the continuous annual residence of Ensigne Edward (or Edmund) Rossingham, a burgess for Flowerdew in 1619 as well as cousin to Temperance Flowerdew Yeardley's gentry wife (Kingsbury 1933:153–154). The military title "ensigne," modeled on the Roman title ""vexilla," means he was a flag bearer, normally a very honored title in the military for a man of extraordinary bravery and resolution (Davies 1619:86–94). The military title given Ensigne Rossingham may also mean Flowerdew was permitted to fly the English banner there, as the military trappings of the old military regime were not fully dismantled until 1621 and it was possibly a specific upriver Dutch port.

Other duties for Rossingham probably included being a senior "overseer and...husbandman," thus Ensigne Rossingham probably ran Flowerdew as a farm prior to the massacre (Flaherty 1969:Milner 1996:44–
45). As noted above, Rossingham was Yeardley's factor during his frequent trips to Holland for tobacco sales from 1621–23 in Holland (Rutman 1959, Kelso 1996:9–12). Rossingham almost certainly was at Structure 3 after 1622–3. He was promoted to a militia Captain by at least June 1622 (Kingsbury 1906 2:11). A man of letters in addition to being valiant soldier, he was sufficiently articulate and well read to have replaced the intellectual John Pory, the former secretary of the Virginia Council under Yeardley, as a pamphleteer in London (Powell 1977:123–124). If the fort master plan is not Yeardley's, then it was probably laid out by Rossingham, who surely was familiar with the Pythagorean theory of right triangles.

A second possible occupant of Structure 3 was Mr. John Jefferson (a potential ancestor to Thomas Jefferson), who in 1619 was the second burgess from Flowerdew. As we have seen, Jefferson was made a "tobacco taster" along with John Boys (Boise) of Martin's Hundred (Kingsbury 1933:229). The placement of one businessman (our Jefferson), with a military veteran (our Rossingham) is interestingly paralleled by Charles City burgesses in 1619 who include Samuel Sharpe (former soldier) and Samuel Jordan (businessman?) (Kingsbury 1933:153–4). It is unlikely that this is a coincidence. The title "burgess" had primarily civil trappings in early Virginia, yet interestingly the word originally meant admitting one to the freedom of a borough or "burgh" or fortified settlement. This is the same root word we noted in Chapter 1 for Williamsburg (William's Fort) and the Anglo-
Saxon and Norman "byrh" or "burgh," or originally a fort or fortified settlement (OED 1978:1184–1185).

A third occupant of Structure 3 was Samuel Sharpe, who was with Yeardley and Gates on the ship wreck of the Sea Venture on Bermuda Island and thus part of Gates' personal company of 150 (or 50) English soldiers pulled directly from Holland in 1609 and led by 22-year-old Captain Yeardley (Purchas MCMVI 19:30). Notably, Lieutenant Sharpe was the commander of James Fort in 1616 by specific request of Sir Thomas Dale, who left the major fort at Bermuda Cittie to Captain Yeardley, Deputy Governor of Virginia, when the capital of Virginia lay there (Brown 1890:782; Kingsbury 1935:259). This indicates that Yeardley, above all of the many captains brought over from Holland by Gates, Dale, and Lord Delawarre, was considered the ablest commander during the First Anglo-Powhatan War (1610–14). It also dramatizes the decreased importance of James Fort, which was left to a junior officer.

Sharpe was a Burgess from Charles Cittie in 1619 (Hatch 1957:65). He probably came to Flowerdew after March 1622, through specific orders from Yeardley to Captain Roger Smith to temporarily abandon Bermuda Hundred and Bermuda Cittie (Kingsbury 1906 2:11. 1933:153–154, 609). Sharpe was also promoted to Captain in 1622 when Flowerdew was momentarily autonomous (Rutman 1959:292). He apparently also helped organize the defenses of Westover in 1623–4, for he is listed as their burgess
He is listed in Yeardley's Flowerdew Muster of 1624 (Hotten 1980:172). By 1624–5 he is listed at the head of Piersey's muster devoid of a military title just before Mr. Pooley, the only person present with a social title (Barka 1976).

In the muster of 1624–5, alone of all Piersey's many tenants, Samuel Sharpe is described as having any personally associated houses at two houses. Perhaps this is because of the peculiar situation of the fort at Flowerdew as a public property mixed up with state and private capitalism (Jester and Hiden 1956:20). Thus, it can be cautiously inferred that this is almost certainly because Sharpe is living at the behest of the castle tax at Piersey's administrative center at 44PG65; hence, Piersey's hesitation to list Sharpe's houses as if they were his own. Each plantation now officially had a plantation "Commander," and Sharp, a Dutch veteran of Sir Thomas Gates' old company from Holland, former commander of James Fort, and a specifically requested soldier by Yeardley in 1622, is surely our only possible candidate for the position of commander at Flowerdew (Kingsbury 1935:584). It is possible he was a master of artillery in Holland given the overall implications of his original movement to Flowerdew and his stationary position there during the property transfer between Yeardley and Piersey in 1624.

Named military titles at Flowerdew also include one Lieutenant Gibbs resident there 1622–3. Gibbs may have had charge of protecting Yeardley's
livestock herd by daily attendance with an armed guard (in excess of a civilian cow herd) should they be slaughtered by Native American warriors while in **daytime** pasture and not in the cattle pound at night (MacIlwaine 1979:11). As we have seen, this was actually probably the most dangerous job at Flowerdew for, out of the fort, Native American warriors were still a potent force.

Let us pause here to count the military titles revolving around Flowerdew between 1622 and 1623. Yeardley (owner) "ad interim" Marshal or Deputy Marshall of Virginia, two Captains (tenants Rossingham and Sharpe), one Lieutenant (tenant Gibbs), and one Sergeant (overseer Fortesque), not counting a three-week stay by French Huguenot military engineer Captain Nicholas Martiau (MacIlwaine 1979:11; Rutman 1959:296). This is the only time there is a documented formal and **entire** military command structure at Flowerdew. So we must conclude that this is surely when the fort was built. This militant context, we surmise, helps explain the pains taken in the design of the fort and its internal improvements, which display a certain type of mental discipline we are not used to seeing within most 17th-century farmsteads or forts.

Babitts (1988:124–125) notes that military society was hierarchal, with officers who were literate gentlemen typically superimposed over frequently illiterate noncommissioned soldiers, typically of the "common sort." Such a system was articulated through a rigorous command system primarily based
on orders from officers performed by the common soldier who were led by
sergeants (Davies 1619:86-122; Flaherty 1969). At Flowerdew this plantation
command structure involved both military and plantation husbandry
commands communicated to laborers through the plantation overseer
Sergeant Fortesque to the "men at the castle." They articulated this
command structure derived directly from the plantation commander to
tenants and servants that were not always direct participants in the militia
structure. In other words, the production of corn and tobacco was seen as a
necessary form of personal discipline of colonists, as was military activity;
and the military were "at the backs" of all, least the fragile enterprise would
founder through famine or the financial ruin of patrons. This is a strangely
creative, if not brutal, marriage of state capitalism and private enterprise
that was essentially Elizabethan, Anglo-Dutch, and Machiavellian
simultaneously. This is the same personal discipline that required a Roman
soldier to be an engineer as well as a fighter, as without capital production
and food production the entire system—whether tenant, servant, or soldier—
would surely collapse.

Local courts documented to have taken place at Flowerdew were
probably held within Structure 3. For instance on March 7, various militia
officials were examined by "befor Sr. Geor Yeardely att Flowdieu hundreth 7
the tryall to be mad[e] the 20th this month" (MacIIlwaine 1979:11). Two days
later, one Lieutenant Gibbs was examined for his abuse of the manorial cattle
in his care as has been noted above. So in some ways Yeardley found himself in pretty much the same situation he was in at Bermuda City when local jurisdiction was necessary due to the insular qualities of the Virginia frontier (Hatch 1957:64–65). A model for where the court meeting room was can be tentatively inferred by the analogous meeting of Virginia's First representative assembly at Jamestown in the church where church seating appeared to have defined political seating (Kingsbury 1933:154). So, in order to locate this court, we must locate the chapel at Flowerdew.

**The Charles City Borough Minister at Structure 3: Grivell Pooley**

The minister Grivell Pooley's disposition at Flowerdew is also helpful in understanding the peculiar ambiance of the fort as neither clearly a public holding nor a private holding, for Pooley appears to have rested in this "nether" place also. He was part of Yeardley's muster of 1624 and at Flowerdew perhaps as early as 1621 (Hotten 1980:172). On November 30, 1623, the same efforts that were made to provide a solid financial foundation for the militia were made to underpin religious officials (Kingsbury 1935:284, 400). To this end a levy of, "10 pounds of tobacco for every 1500 weight of tobacco and 16 barrels of corn [was made] to contribute to the salary of the minister at Jamestown. For Charles City Corporation, "the like (mutatis mutandis) [with the necessary charges or difficulties having been considered] was granted to Grivell Pooley for ffloordieu hundred, Chaplaines Choice, Jordans Journey, and Sherley hundred save only it was not expressly to
1,500 li [pounds] because he confidently affirmed it would come to far less" (Kingsbury 1935:401–402). Is there any doubt that Flowerdew had become the religious center of Charles City borough?

One cannot be certain if this means Pooley visited the four Charles City plantations every Sunday to provide services, or whether they were held at Flowerdew since he was in residence there. What is certain is that he was based at Flowerdew on behalf of the local community in a very complimentary relationship to the ambiance of the community artillery fort.

By an act of March 5, 1623–4 (while Yeardley still held Flowerdew), it was enacted, "That there shalbe in every Plantatione, where the people vse to meete for ye worshipp of God, [a house] or Roome sequestred for ye purpose, And not to be for any temporall vse whatsouuer, and a place empladed in, sequestred onlye to the buryall of the dead" (Kingsbury 1935:580). This later legislation argues Pooley visited each plantation while his main services were held in a chapel at Flowerdew. Pooley used such visits to press the palm of wealthy widow Cisley Jordan at Jordan's Journey to no successful end. Undoubtedly on similar religious and secular missions, he was killed in 1629 by Weyanoc warriors who probably saw him as a particularly treacherous "witch doctor" (MacI11waine 1979 1:198).

In Piersey's Muster of 1624–5, "Mr. Grivell Pooley Minister" is simply listed as a tenant who has no dwelling like everyone but Sharpe, although he
is the only person given a social title at Flowerdew (Barka 1976; Jester and Hiden 1956:20–21). Notably, there is no listing of a chapel in the muster, but from the court records above, we know that he had one at the behest of the Virginia Company. Likewise, therefore, since the fort is not part of Piersey's tangible assets, it was not counted in his muster. This almost certainly places Pooley's giving services in a "roome set aside for that purpose only" in Structure 3 from 1623–25+. Based on the overall artifact distribution within Structure 3, Pooley's chapel would probably be on the west side of the structure, as few artifacts were found there, placing Pooley in the chamber. By default this places the plantation commander in the hall.

Pooley's physical placement in this cultural configuration is in a manner we have tentatively associated with the classical model of the principia in direct association with the senior military officer (Johnson 1983). While this association may seem exotic, it is actually familiar also through Garvan's (1951) work and our "small-scale variant models" noted in Chapter 1. Undoubtedly this was due to similar praxeological constraints and simultaneously political shrewdness.

Perhaps Pooley wound up in an attachment to the impressive manor at 44PG64 by 1626–28, where a paled graveyard was installed as ordered by the Virginia Council and Assembly (Barka 1976, Hodges 1993; Kingsbury 1935:580). Thus, 44PG64 could have been a parsonage, as it has both a "paled" fence and a graveyard. If Deetz is right also, Abraham Piersey's "new
frame" which stood in a "garden plott" was in violation of the statute that the burial plot be sequestered for burials only (Deetz 1993; Jester and Hiden 1956:265). Deetz's argument could be given some additional purchase by the meagerness of the graveyard. Unless the death rate went down dramatically between 1625 and 1627, seven people died, for instance, in 1625 at Flowerdew; so the three-person graveyard in the burial plot at 44PG64 is very small for an entire community, especially compared to Martin's Hundred and Jordans Journey burial complexes (Jester and Hiden 1956:22, Mouer et al. 1992, Morgan et al. 1995, Noel Hume 1982).

We know from the comparison of various census data that death rates went down dramatically from 18 in 1623–4, to 7 in 1624–5. So that three, as at 44PG64, is not an unusual reduction in numbers following from this pattern given Virginia's survival of the famine and increasingly seasoned new servants and tenants and the every brief period between the beginning of Piersey's new fame and his death (Hotten 1981, Jester and Hiden 1956, Deetz 1993). To add to our confusion, since all houses were required to be palisaded by 1623, this may be the real significance behind our obscure "paled parsonage." The dovetail in this perplexing puzzle may be the one or the other wings attached the 44PG64 manor, which was the real substance perhaps of a continually makeshift chapel at Flowerdew (Barka 1976). In any case, if the parsonage was moved to 44PG64, this would follow our small-scale variant model based on sites like Macosquin, in which a streets began
and ended with a church (44PG64 chapel) and a bawn (44PG65 flanked redoubt) noted by Garvan (1951) and Reps (1972).

Although, clearly we have no real evidence that Pooley lived anywhere but at the fort, his presence there is, alas, a familiar cultural configuration dating from the Virginia Company period such as that of Reverend Buck at Jamestown or Jabez Whitaker at Henricus and Bermuda Forts (Hatch 1957). One very good reason we think Piersey remained at the fort is that Elizabethan militia defenses in England up to and including the 1630s were organized around parishes, with many churches being the actual repositories of powder and arms for probably dismal holiday exercises (Boynton 1967: 116, 132–39). This church-parish militia association survived into the 18th century in Virginia (Issacs 1982:258–259). So when we look at this Flowerdew material, we are looking at some very important beginnings of a strong English tradition associating church and regional military power of the rising state that had its origin in such pitifully small settlements as 44PG65.

By 1628 the fort was commanded by one "Mr. Henry Careleffe," whose commission as plantation commander at "Perfeys hundred" was renewed that year (MacIlwaine 1979:192). In 1629, Anthony Pagett, newly renamed "Flowerdew's" burgess, probably was the plantation commander also (MacIlwaine 1925:xi). Captain John Flood served as Burgess for "Flowerdew Hundred" from 1629–32 and was surely the plantation commander by then
(MacIlwaine 1925:xi,iii). He was apparently a well-known Indian trader and possibly fluent in Algonquin, although perhaps his reputation as such, postdated much of the Flowerdew period. It is, however, likely that his initial experience as plantation commander at Flowerdew turned him in that particular direction, as plantation commanders dealt extensively and exclusively with Indians by strict law. This law always forced Indians to deal with Englishmen who had raw military power at hand. Such arrangements would theoretically provide the appropriate protocol to stabilize trade prices, while the secure nature of fort context provided the necessary atmosphere of security which would lubricate potential peaceful intercourse. For it is suspected that Native Americans readily understood such "headman" power systems (Jester and Hiden 1956:175–176; Kingsbury 1935:580–585).

**Sunday Events in Charles City Borough Directed From Structure 3**

Minister Pooley and his shadowy parsonage, like the fort, acted on behalf of all the upriver Charles City settlements. Services at Flowerdew and attended by armed men and their families were probably followed by militia exercises where colonists were drilled by none other than Sergeant Fortesque. For instance, after 1622 John Smith noted approvingly armed settlers gathered and, "everie Holy-day everie Plantation doth exercise theire men in Armes, by which meanes...the most part of them are most excellent marksmen" (as cited by Shea 1985:45). This is a policy Argall tried to continue from the old military regime as late as 1618 (Kingsbury 1933:93).
Besides the obvious defensive value of carrying arms everywhere, this weekly drilling is surely why people were required to carry their arms when going to church where formation into files could be organized (Kingsbury 1935:583).

Drill influenced by Maurice of Nassau literally used Roman military terms to command shooting formations which emphasized not only accuracy of fire but rapid fire through successive volleys created by lines of men who were firing, stepping back, and reloading as the next file advanced and so on. This devastating continuous fire known as the "countermarch" was developed by the Dutch in 1594 based on their "assiduous study of the military methods of the ancient Romans," who used the same system for slingers and javelin men (Jones 1987:222–223; Parker 1986:19–20). In order to ensure that Indians were hit, the English used their muskets very often like shotguns, firing multiple loads of "pistol shott" and "high swan shot" as well as single musket balls (Hening 1823 II:443–444; Hodges 1992b:19). Accordingly, archaeologically Yeardley's fort is literally peppered with lead shot. With little stretch of the imagination, fully 200 years before the Industrial Revolution, Virginia militia were being trained to manufacture flying hot lead in a highly regimented, tightly choreographed assembly line of specifically neo-classical origin (Shackel 1993:2, 47–50).
Corporate Activity Directed From Structure 3: Charles City Corporation

Trade Shops, Markets, and Other Diverse Activities

The huge and diverse concentration of artifacts associated with Structure 3 and due east of it (which include trade beads, copper scraps, and a forge midden) indicate this area was as close as Yeardley’s Fort ever got to a regional marketplace (Barka 1992, Hodges 1993). It is possible the casting counters found at the fort are tokens sold at the fort gate turnpike or wheeled abatis to entitle one to the regional market here. The contact with Jamestown is very strong here. Not only were many of the goods disbursed from the Jamestown depot, but according to Jay Gainer (pers. comm., 1992), there seem to be distinctive personal punch marks made between at least one Jamestown blacksmith that he also recognized through these same marks in the Flowerdew metals assemblage from 44PG65. From this we can infer that the itinerant Jamestown blacksmith came up to Flowerdew periodically to repair firearms and make such items as cannon hardware and calthrops. Hence the energy model of having a fort center in one location, which helped through maintenance relations to encourage other frontier settlers to come to Flowerdew, for not only market days, but for musket and tool repairs, shot, powder, and in spring seed corn (St. George 1986). The seed corn was something smaller planters may otherwise have eaten, while in the case of the shot and powder, they may have squandered it. In turn, should foreign vessels actually attack Virginia, it made a lot of sense to keep highly valuable
gunpowder in tightly monitored catchment at Flowerdew along with the artillery.

At this time laborers and militia, many whom helped row in minor gentry in small boats, provided labor to help repair a fort that was always crumbling and rotting and could be kept standing only with the greatest difficulty. Writing of a an analogous small fort at Blackwater, Ulster, Ireland, in 1598, one soldier on garrison duty reported succinctly, "the fort was always falling" (Bardon 1992:101–102). At the less well built than Yeardley’s Fort but larger Coleraine Town fortifications in Ulster, one homesteader lamented, "The Walls and Ramparts built of Sodds, and filled with Earth, do begin to decay very much, and moulder away; for the Ramparts are so narrow that it is impossible they should stand, and the Bullwarks are so exceedingly little that there cannot be placed any piece of Artillery, if occasion were. There are two small Ports which are made of Timber and Boards, and they serve for Houses for Soldiers to Watch in. The town is so poorly inhabited that there are not Men enough to Man the sixth Part of the Wall" (Hill 1970:576).

Despite all these problems, concentrated labor to fortify begot more cannon, as it made little sense to the occupants of Charles City Corporation to fortify upriver at Henricus and Bermuda City, leaving most of the population vulnerable to attack downriver and yet above Flowerdew. Hence, by 1626, half of Virginia’s tiny arsenal of ordnance or 10 or 12 cannon was
massed at Flowerdew because it was a community fort for Charles City Corporation following rather grimly in the surely more impressive footsteps of Henricus and Bermuda City when notably there was little habitation between these forts and Jamestown (Hodges 1993, MacIllwaine 1926:120). All of these things—including Native American threats, foreign threats, god, king, state, trade, and "maintenance relations"—surely helped bind the regional community strongly together (Deetz 1993:71; St. George 1986). Interestingly, we know that militia musters were occurring at Flowerdew as late as 1661, undoubtedly due to similar precedents as well as the convenient river landmark location of this holding (Shea 1985:75–76).

The Deeper Meaning of the Core Tripartite Plan: Renaissance Classicism

In this section the reader is reminded that we are using Flowerdew as an "exemplar model" to get from low- to high-range theory so that we can streamline our comparative models in Chapter 3. It is thought that at minimum, the core tripartite plan would help orient illiterate people as to the magnified architectural significance of the plantation commander's house, as all people unconsciously understand these sort of triangular architectural relationships. These are intellectually disciplined notions which anticipate Palladian reform of the 18th-century Chesapeake plantation complex because they have virtually the same origin in Renaissance classicism.

In the core tripartite plan, Yeardley has created a triangle that is not only based on the classical Greek Pythagorean theory in terms of geometry,
but one that references classical antiquity in another way. What do we mean here? In placing the plantation commander's house in a central ordinal position over subordinate structures, he has created a very simple but readily identifiable Vitruvian plan. Roman architect and engineer Marcus Vitruvius' _The Ten Books on Architecture_, written in the first century B.C., is the only classical book on architecture to have survived from the classical world. Because of this it became a sort of bible to Renaissance planners and was widely translated into French and English by the 15th to 17th centuries. Importantly, it was illustrated by Renaissance artists and printers with woodcuts or engravings, since the original illustrations did not survive the ravages of time. While these honored Vitruvius' thoughts, a certain amount of editorialization probably occurred.

The order of Vitruvian plans is that of the human body as, during the Renaissance, this was seen as a physical standard of spatial perfection. Leonardo Da Vinci's famous Vitruvian man is shown in Figure 35. Hence, the plantation commander's house becomes a metaphor for the head, the right arm and shoulder is the garrison house (Structure 1), and the left arm and shoulder is the Store house (Structure 2). Mercifully, we have Glassie's identification of the front door at Piersey's House as facing landward to strengthen our location of the fort's main gate—also facing south or landward—or we would be confused by which "arm" is which (right or left) in the above scenario. It is important to observe here that there is almost
certainly a cultural investment in this. People are on the right or favored side; objects are on the left. In a military Vitruvian model, the militia garrison, or the "men at castle," are literally the sword arm of the plantation commander. For instance, in later court books a superior is always allowed to walk on the right of two people, while the left hand or arm might be associated with evil or ill favor (Bushman 1993:39).

When choices were made as to which structure would be turned to
allow Structure 1 and 2 to flank one another with musketry fire, it is notably
the inferior structure—that is, the one containing objects that is shifted south
and further away from Structure 3. This is almost certainly because of the
"chain of being" which tended to rank things in the mental world of Yeardley.
The Elizabethan mindset conceived of the universal order of the world in
three main forms. The first consists of a vertical chain, which ranks
everything as a series of links moving like a ladder from lower orders (earth,
plants, animals, etc.) to higher orders (people by social class, God, etc.). The
second consists of a series of horizontal corresponding planes in order of
dignity. In the third there is a cosmic musical dance by degree in motion. So
to the late Elizabethan and early Jacobean mind, people had to be placed in
some way, symbolically or otherwise, in a superior position to buildings
containing objects. This is since in the natural order of the world people are
superior beings to harvested plant life and commodities in a connected chain.
In this chain, each increasing link touches on the next link, so all of these
things are interconnected (Tillard 1956:25–106).

There are horizontal corresponding planes set up in Yeardley's
tripartite plan, for in the nearness of Structure 1 (close) and 2 (not quite as
close) to the hierarchal Structure 3, structures 1 and 2 are otherwise aligned.
There are deliberate horizontal linkages between the planes because the fort
garrison in Structure 1 is storing part of their arms and munitions in
Structure 2. This lateral linkage (literally Points C-D-K-J on the master
grid), is also strengthened because the fort garrison are not just soldiers, but farmer/soldiers—the producers of objects such as tobacco in cask, corn in barrels, etc. which were stored in Structure 2. Yeardley is showing the symbolism of how these things are bound together, literally and figuratively.

If, for instance, the plan consisted of the master grid with Structure 3 being in the center of a four-squared structure, a sort of cosmic rotation or dance would revolve around it. To the north of the hearth one quarter would contain servants who were not the men at the castle, but brought into a direct relationship. Since they need living space, to the west this would be the structure associated with Reference points E-F-L-EF2. A second storehouse or the Charles City granary would be the structure comprising reference points (M-F-U). In creating such a minimal town square, we are reminded of similar care reflected in the original instructions to the Jamestown settlers, "And seeing order is at the same price with confusion it shall be advisably done to set your houses even and by the line, that your streets may have good breadth, and be carried square about your market place..." (Brown 1890 I:79–85; as cited in Reps 1972:33).

Perhaps tenuously, the symmetry of the master plan rests on the notion that Structure 3's hearth was centered within its block or ground sill based on comparisons with similar Ulster houses (Hodges 1993:188–190; Robinson 1983:51–53). We are not entirely reliant on this symmetry, though. Glassie (1982) notes that in Ireland the symbolic center of the house or its
architectural heart is the hearth. In Structure 3, the hearth most clearly turns toward a heated room facing the river. Therefore, Point A, the core of our entire town plan all the way to the redoubt at PG64, is literally centered above the terminus of a brick hearth footing and the beginning of an ash deposit; in other words, where the center mantel paneling would be (William and Mary Archives). This hearth in turn is directly linked to the chimney post in Structure 1 along the A-C line. Magherafelt, in Ulster (drawn in 1622), has a similar system centering a fortified gate with a manorial hearth, which is directly analogous to the A-B line at Yeardley's Fort at Flowerdew. The variant H-shaped hearth at Magherafelt is visible because, as fate would have it, the manor was never completed nor roofed and lay in ruins (Camblin 1951:Plate 12) (see Figure 36). So this seems to be an Anglo-Irish cultural selection of requisite Vitruvian core reference points which also cut through to some Anglo-Dutch models in early Virginia because of broader cultural trends.

While the competence of Yeardley tripartite plan (triangle A-C-D on the master grid) is excellent, the performance is not. The east facade of Structure 2 is 10 feet from the A-B bisector line, while the west facade of Structure 1 is 13 feet away, for an error of 3 feet against cold Palladian
Magherafelt 1622. Note how the Vitruvian triangle points right toward the hearth (Ramblin 1951).
symmetry. Seventeenth-century symmetry is warm, not cold. Yeardley is thinking the occupants of Structure 1 need more yard area than the objects in Structure 2. Further incompetence is noted in the two west bays of Structure 2 (an addition?); these are 2 feet south of the C-D line we observed above in our discussion of the chain of being.

While we do not know the full dimensions of Structure 3, we do know that one bay (to the immediate west of the heath) is 16 feet wide and this bay may have to do with chimney scaffolding or traces of block impressions seen most clearly in the hearth core area (elsewhere post or block impression patterns are very hard to find). We know for certain that Structure 1 and 2 are 16 feet wide, as are a fair number of 17th-century houses in Virginia (cf. Carson et al. 1981:appendix). Remarkably enough, this specific number 16 is also classical Greek and Roman Vitruvian in origin. Vitruvius (Morgan 1960:74) explained:

"observing that six and ten were both of them perfect numbers, they [Greek thinkers] combined the two, and made the most perfect number, sixteen. They found their authority for this in the foot. For if we take four palms from the cubit, there remains the foot of four palms, but the palm contains four fingers. Hence the foot contains sixteen fingers."

Elsewhere, he also explains that a foot is one-sixth of a typical human's height, and that the cubit once consisted of six palms, while 10 was a divine number because of its ease at adding to. Specifically, 10 is a number that is infinitely easy to add on to ad finitum (10, 100, 1,000, etc.). It is the number
of fingers on a human hand. Six is also a magical number because, "one is one sixth, two is one third, three is one half, four is two thirds, five is five sixths" (ibid.). Six is a number that is divisible by its first three numbers (1, 2, 3, 6 divided by 1 = 6; 6 divided by 2 = 3; 6 divided by 3 = 2). Early modern carpenters and architects loved these numbers accordingly.

Classical builders found these the best numbers to reckon with during day-to-day building processes. By adding 0.5 feet to 16, you get a rod; this allows you to add or convert these 16-based numbers into three-digit 10-based numbers. For instance, Yeardley's hypothetical town square was 100 by 100 square feet. The base of his right triangle was 100 feet wide when he created his core tripartite plan. Expressed in rods, 100 feet is 6.06 rods. Here seeming is a nearly magical numeric combination as 100 = 6, allowing 10s and the number 6 to be combined in one. This is probably how they came up with the dimensions of the town square at 100 by 100 feet; it is both practical and somehow relates to the magic of Greek and Roman philosophy.

Glassie (1975:22–25) observes that most 18th-century houses, in fact, consist of initial layout measurements that are derived from squares which are ultimately reduced to an origin in 16-foot-wide squares that are then converted into rectangles. At least in some cases, Glassie is really referring to 16th- and 17th-century architecture also, which are not part of his overall temporal scheme. Although some of his houses may be "folk" houses, they are deeply invested with classical wisdom whether their builders knew it or not.
We know literate clients did, especially in the 16\textsuperscript{th} and 17\textsuperscript{th} century, when Renaissance wisdom deeply penetrated practices in Northern Europe through Vitruvius and undoubtedly the use of measuring rods 16.5 long.

The Core Tripartite Plan: Comparisons with 18\textsuperscript{th}-Century Plantations and More Contemporary Architectural Complexes

After contacting Christopher Newport on his returning voyage from James Fort in 1608, one Dudley Carelton observed:

"They have fortified themselves and built a small towne which they call James-towne, and so they date theyr letters: but the towne me thincks hath no graceful name, and besides the Spaniards who think it no small matter of moment how they stile theyr new populations will tell I dOWBt it comes to neere Villiac" (Arber 1910 1:lvi).

In this statement Dudley with ease makes an analogy between a fortified outpost, a small struggling town, and a villa ("villiaco") in what appears to be sarcastic pig Spanish or pig Latin. If we note the term "villa" as a "diminutive from the stem vicus village, hamlet, country seat," and we stop to think about Sandys' request for "orderly villages" in 1622 which needed to be "fortified townes," then we have a fairly good "handle" on the Vitruvian based Palladian connection demonstrated at 44PG65. In Latin, villaticum is the neutral singular of villaticus, pertaining to a villa from which the French almost certainly derived the term village. Thereafter, the word probably penetrated English through the Norman invasion and later Plantagenet courtly language, which favored French (OED 1978 12:204).

Here we are reminded that instructions for the fortified town planned on
Roanoke Island by Sir Walter Raleigh note them as "For Master Rauley's Viage;" that is, his fortified village (or villa) (Reps 1972:27).

Besides window dressing, as planning models how much difference is there between the early settlements in Virginia and Ulster and 18th-century Georgian (Palladian) plantation complexes? With Yeardley's Fort as a model, a comparison with the early 18th-century Palladian layout of Shirley Mansion and its subordinate buildings illustrates the basic similarity between the ca. 1738–40 Shirley plan and the ca. 1621–23 Flowerdew plan. This is because the design concept in reconciling each of the three building groups respectively is remarkably similar, with only a variant arbitrary choice of anchoring the central measuring point or vertex for the isosceles triangular plan (see Figure 37) (Reinhart et al. 1984:Figure 17). The paired diagonals which seem to dominate both core tripartite building plans at Shirley and Flowerdew recall the same principles of single-house building layouts also based on single diagonals emerging from a square as described by Glassie (1975:22-23). Below we will observe that this also ties directly into town planning.

If we replaced the mansion house at Shirley with a fortified bawn and replaced the two rows of subordinate buildings for homesteaders, we would have an Ulster plan like Magherafelt or a town plan like New Town in Jamestown of 1621. So what is the linkage? The answer is these are all ordinal Vitruvian plans based on the ideal of a human body. Hence, in
Figure 37
Comparative drawing showing the classical proportions of Yeardley's Fort and Shirley ca. 1740.
(Bottom) Reinhart et al. 1984:Fig. 17).
Chapter 1 we described medieval plans like Flint, Wales, or Ulster Irish bawns like Magherafelt, Macoscin, or Moneymore as Romano-Medieval since the fortifications did not enclose the entire town. Using Flint as an example, the castle is the head of the community literally and figuratively, and the body—consisting of pairs of limbs and organs—are the buildings laid out along the bi-linear streets. So the main difference between the earlier settlements and 18th-century plantation complexes is the rigorous spatial order and the direct metaphors (Roman columns, Greek cornices etc.), things far beyond the circumstantial capabilities of early settlers in Ulster and Virginia.

In turn, Yeardley was compelled to build his town center inside a fort following the Romano-Renaissance model. Yet he is compelled to make direct references to Vitruvius to at least symbolize English civility in some small way as associated with the classical world. This is how Yeardley has chosen to interpret it. He does so as an exercise in humanitas.

**The Concept of Humanitas Briefly Explained**

Earlier we noted that the layout of a fort was the duty of the fort commander who would not have to rely on servants to help him, thereby underscoring his social ascendancy. This is a sort of "action-based" concept in architectural planning (Geertz 1973). Davies’ and Digges’ mentally disciplined preoccupation with perfection of proportion in planning are of course are not the preoccupations of a traditional folk society (Deetz 1977;
In other words, knowledge of the mental discipline of geometry was, in effect, a practical social demonstration of one type of intellectual power that reflected personalized social superiority over a folk society (if one prefers), even when creating a literal power symbol such as a fort. Larry Babbits (pers. comm. 1996) notes that a fort therefore is not really a symbol of power; rather, it is the personification and exemplification of "raw power" requiring no symbolization. This is an important thought because the fort becomes its own power symbol, if you will. Nonetheless, how it is used to architecturally underpin a type of social ascendancy is attended by the Vitruvian ordinal arrangement of the structures within the fort, of which Structure 3 is clearly the hierarchal center.

Such exactly similar thoughts of individual action and architectural expression probably occupied Thomas Jefferson's mind when he personally designed and laid out Monticello, placing his interpretation of a small Greek temple as a mansion in the ordinal center over two subordinate rows of slave housing and utilitarian shops. This pro-active similarity is because these are fundamental ideals originating in common heritage of the Renaissance and the rise of individualism, which has everything to do with aristocratic republican thought (Bushman 1993:414–415; Rice 1970:64–79). Moreover, they commonly document the rise of Castiglione's (1513) well-rounded "courtier" as the supreme exponent of culture through superior knowledge of humanitas. Humanitas is pro-active; it is "to be achieved in large measure
through the study and imitation of antiquity," rather than by superior basis in bloodline or religious preoccupation (Simpson 1959:v).

These Renaissance ideals of humanitas were not intended to commemorate Greek and Roman antiquity, but rather to "join in recreating it," which is exactly what Jefferson did (Argan 1969:27). Here, Geetz's active or action-oriented use of cultural symbols is especially useful. Yeardley or someone therefore chose Greek principles of geometrical harmony in the Pythagorean theorem to organize 44PG65 as his own active expression of humanitas. We know they were culturally striving for symmetry at 44PG65 because the equilateral right triangle simply features two common diagonal distances from a common point. Therefore, it is but a small step to realize we are dealing with a 16th-century Vitruvian-based plan in Yeardley's Fort that anticipates Palladian-inspired 18th-century mansion complexes..

Did these seemingly "Georgian" notions of space really penetrate early 17th-century behavior in Virginia? Yes, they did, because the "Georgian" notions of symmetrical space are really "Palladian." They are based on Andrea "Palladio's" (Andrea di Pietro della Gondola's, 1508–1580) interpretation of classical building. This north Italian 16th-century Renaissance architect advanced humanistic classicism based on the Roman architect Vitruvius' ideals of spatial harmony (Kruft 1994:81–92). The intersection with Yeardley and Palladio takes on new meaning in a fortification because Roman military camps were what both of them were
probably thinking about. Amazingly enough, Palladio extensively studied the organization of these camps and their use in the campaigns of Caesar and Polybius as a sort of hobby, then filtered military hierarchal designs into his villas to physically "dramatize" the main mansion house (Hale 1983:471–486). The English military camp (Figure 38) shows how the senior officer's tent is spatially dramatized. Even through Palladio we have a perfect military and civil intersection with Garvan's (1951:29–30) 17th-century homage to classicism. Using Carson's (1969;1994) model of development, once this language of Vitruvian and Palladian classicism through tripartite plans became an established "language," lower- and middle-class settlers tried to imitate what they could of the self-made aristocracy's simple language of English civility by making their houses more symmetrical.

Figure 38
An overnight cavalry encampment of 1579. Note ordinal plan due to personnel discipline (from Digges 1579, reprinted 1968).
Perhaps the best way to end this particular discussion is simply to look at concrete examples of similar plans that show parallel models of how the Italian Renaissance ideas affecting Flowerdew are part of a larger movement. This will provide an additional sense of comparative scope for the reader to make his or her own judgments.

A good early Italian Renaissance plan showing a tower house with battlements in an ordinal position over two flanking subordinate outbuildings has been illustrated in the Italian book, Crescenzio Agricultura (see top of Figure 39), apparently published in 1485 (Crisp 1924 I:Figure 82). Notice how the centered main gate to the post-and-wattle courtyard or "forecourt" points toward the equally centered main entrance to the tower house. This is clearly reminiscent of the A-B line within Yeardley's Fort. Notice also how the two structures nearest the main gate, a farm house or kitchen (left) and a outdoor oven (right), attempt to preserve the spatial rhythm of tripartite core architectural master plan though in a less formal manner. This is since they are of unequal size and uneven function, so you need to compromise and regiment functional items if you want full symmetry. This plan also clearly anticipates the forecourt at Shirley.

In W. Lawson's, New Orchard and Garden (1618), the Vitruvian plan is shown with an ordinal house with a centered entry plan which presides over gardens and orchards rather than outbuildings of homesteaders' houses (Crisp 1924 II:Figure CLXXXVIII) (see Figure 39 bottom).
Figure 39
(Top) A house and garden from Lawson 1618 (Crisp 1926:CLXXXVII), compare with Ulster model, (Bottom) a small Italian villa from Crescenzo’s Agricultura 1495 (Crisp 1926:Fig. 82). Note core tripartite plan.
The centered house-garden-gate-entry plan is also analogous to the A-B line at 44PG65 and the parent Italian work noted above. Note how a garden house or small quarter (built in mock castle style) is at every corner of the courtyard, the upper two of which (N and N) are equivalent to Structures 1 and 2 at 44PG65. The lower two are spatially equivalent to the farmer’s house and bake house depicted in the Crescenzi Agricułturaa. Two of the specific garden plots feature versions of right triangles, which in plot "C" become a star form, and in "D" - become a consonance of four right triangles to become a square. Although the garden is idealized, a manor at Bangor (just to the left of the "The Crofts hill") in Ulster of 1625, is entered in between two garden plots (or former house foundations) at right angles to the manor’s long facade. These symmetrically flank the entrance. Ruins of a Z-Plan fortified perimeter frame the unit (Camblin 1951:Plate 6; Hodges 1993).

The Lawson’s garden plot is barely different from the one featured in the 18th-century William Paca Garden in Annapolis (Leone 1988). The latter is asymmetrical in its relationship to the mansion since town life spatially constrained Paca (Leone 1984 as cited by Trigger 1989:xii, Figure 49). This again, as we discussed above, is why the country was considered the more freely expressed civilized mode of human expression in the Renaissance mind (Rasmussen 1951:68). Both of these gardens are expressions of Renaissance ideals, with Lawson’s 17th-century model being more symmetrical than Paca’s 18th-century performance. Plot A is probably a horse corral, suggesting that
these animals were still an integral part of the relatively formal enclosed home lot and garden in much the same manner that a car might be parked in front of a modern house. Architectural historian, Mark Girouard (1983:18–19), notes that Elizabethan and early Stuart taste employed "size and symmetry, the two qualities most certain to produce an impressive effect," to denote social status symbols as the watered down spirit of the Renaissance finally penetrated Britain in the late 16th century. Clearly, by turning the three core buildings into a common east-west orientation, Yeardley appears to have wanted to convey building "mass" to visitors entering the site from the centered fortified gate/caponier (point B) (Hodges 1993:Figure 2; Isaac 1988:54-55; Pedretti 1985:156, 159, Figure 230). The placement of Structure 3, with its probable centered lobby entrance opposite the casemated caponier (fortified entrance) along the A-B line and viewed between Structure 1 and 2, also is a manipulation of the laws of perspective—both optical (ambiance of layout), social (hierarchal), and historical (invasion of Virginia seen as an analogue for the re-created invasion of pagan Britain by civilized Romans), all hallmarks of the Renaissance.

At Wimbledon House, Surrey, built in 1588, and Holland House, in London, built about 1606 to 1607, massed building blocks feature an ordinal building center flanked by and joined with two massive building wings which are added with the symmetry provided by equilateral triangles (right or isosceles). This is simply a tripartite Vitruvian plan derived from various
Roman bacacia forums, temples, and villas, in which the subordinate buildings simply become wings in order to define a centered courtyard and entry way as posited by Renaissance scholars such as Barbaro (1567) and Palladio (Girouard 1983:36–37, Figures 16,17; Kruft 1994:Plates 44, 47) (see Figures a, b). The Wren Building at the College of William and Mary shows this plan, as does the "howfe wherin ye Lo. Bpp Duell" in Londonderry, Northern Ireland of 1622 (Reps 1972:Figure 12). The Governor's Palace in Williamsburg uses the same tripartite courtyard plan as separate buildings (Reps 1972:Figure 117). Of this group Yeardley's Fort and the Phase 1 at Shirley show more emphasis on architectural mass because of common building orientation designed to catch the eye of mariners plying the James River as well as defensive constraints.

**Yeardley's Cattle Pound and Fortifications**

In the fort sections above, so far we have focused primarily on the master plan and the core tripartite plan and its classically derived cultural significance. It was thought best to follow the master plan immediately with the core tripartite plan so that the geometric basis of both discussions would be fresh in the reader's mind. In this section we will look at the cattle pound and fortification in order to complete our discussion of Yeardley's Fort as a complimentary interpretive package.
The Cattle Pound

Leone (1977) suggested that examination of town plans will provide evidence of the cultural subsystems present at a site, some of which may be largely invisible to archaeology. A livestock enclosure, perhaps once originally a kitchen garden in the original para-military town plan within the west side of the fort, appears to be part of such a subsystem, as it is a large open appendage to the master plan beyond the C-D line (Hodges 1993). The current feature, deemed a "cattle pound" by the author, is a term borrowed from contemporary notations by Thomas Raven at Magherafelt and Moneymore, where failed defensive bawns had been turned into cattle enclosures of the same name (Camblin 1951: Plates 12, 13). The original identification of the cattle pound appears in Brain (et al. 1976), where it spills toward the east in excess of its western section, the latter of which we are chiefly concerned with here. The theory was probably a default inference as there is no evidence of any important English features within the 54-foot-wide zone along the west side of the site, which is in marked contrast with the remainder of the site (Barka 1993:330).

What competence is demonstrated in this unit? In our study of the west trapezoidal palisade section, we noted that the north-south hole-set partition demarked a 54- (east to west) by 70+ -foot (north to south)-wide sub-enclosure defined by seven hole-set posts spanning points v-x. Five of the most northerly hole-set units are on approximate 10-foot centers. The
remaining three define a man-sized gate just north of the wall walk (near point "V"), and a cattle-sized gate 12 feet wide just above it that probably operated two 6-foot-wide gate swings (Hodges 1993:Figure 2). There may be a northeast corner to this partition just above point x, although the regular gaps of hole-set post molds are not maintained, and little in the northern portions of this area of the site can be clearly interpreted. A later gate facing south may be an adjustment to the placement of the caponier over more commodious entry features after 1622 (see discussion of cattle gate/sally port above) (Brain et al. 1976). It appears to be well centered with a 21-foot gap to the west and a 20-foot gap to the east spanned by two paired postholes on either side.

There are several, somewhat large post mold-like stains similar to maul piloted stakes down the center of the pound or croft; these may even suggest this zone was a market or location of militia tents, if we are not looking at animal stalls or garden features.

The hole-set partition appears to either postdate the west ditch-set curtain and hole-set palisade or be contemporaneous with them, since it is a literal reflection of the 85-degree angle of the west curtain and wall walk (initial hole-set palisade) as a parallelogram or rhomboid form. Were this site built at any other time than circa 1622–23, a kitchen garden would be a key predictable improvement in such a blank space east of the relatively intensive core tripartite plan within the larger inner courtyard. The familiar
plot of the Macosquin ideal, although never completed as illustrated, gives us some idea of this "negative space/garden" argument (Blades 1986:Figures 2, 3; Garvan 1951:Figure 36; Robinson 1983:61). Adding somewhat to our sense of ambiguity, Joanne Bowen (pers. comm., 1995) has suggested that seasonally some annual kitchen gardens could become winter quarters for livestock. This is presumably in order to conveniently gather manure concentrations and to feed cattle more easily by hay cut earlier. We know at Jamestown in 1610 West and Gates had "a house set up to lodge our cattle in winter and hay to be appointed in his [Gods?] due time to be made: [as hay comes in season to be cut?]" (Brown 1890:492). Housing cattle in winter is a Dutch practice, although some elite Tudor households had cow houses (Fussel 1966: Plate facing page 38, 136). Governor Sir Thomas West delighted in the increase of cattle and observed, "Milke being a greate norishment and refreshing to our people, serving also (in occasion) as well for Physicke [health cures] as for Food ["whitemeats", cheese etc.]" (Tyler 1946:213). By 1611, with the removal of the capital of Virginia to Henricus, the chief purpose of James Town was the protection of "breeders" who were enclosed by blockhouses and an island (Brown 1890:491–493, Hatch 1957:13). Court testimony indicates "Cow keepers" were present at Jamestown in 1625, while other court cases refer to "cattle in the pen" in 1626, suggesting that cattle were indeed "penned at the time" in contrast to Deetz's (1993:40) assessment (MacI1lwaine 1979:55, 79).
Given our perplexity at identifying what was going on at 44PG65, some sort of an elaborated behavioral explanation is called for here beyond a potentially fragile interpretation at the level of an educated hunch (Barka 1993). Why enclose cattle at Yeardley' Fort (1622–32) and perhaps not his original town center (1619-1621)? After the massacre, Nathaniel Butler, the former governor of Bermuda Isle and a harsh critic of the Virginia Company, noted on post-massacre inspection, "I found ye Antient Plantations of Henrico, & Charles Citty wholly quitted and left to ye spoil of ye Indians who not only burned ye houses said to be the best of all others, but fell Vppon ye Poultry, Hoggges, Cowes, Goates, and Horses whereof they killed great number to ye grief as well as ruine of ye olde Inhabitants" (Kingsbury 1906:384). As we have seen, Butler never saw Henricus or Charles City, but these statements are probably accurate nonetheless (see above). Indians began killing cattle elsewhere (Kingsbury 1906:67, 118, 138, 476, 524). In fact, there are so many complaints of Native Americans killing cattle in both the First and Second Anglo-Powhatan Wars that a full citation of this activity would run us off this page (Barber 1990:170–172, 180; Kingsbury 1933:557; 613–614). In Gates' instructions of 1609, we can infer that cattle were penned to keep them out of corn fields and herded by armed guards while in more open pasture, a system developed by Dale and Gates perhaps from a Dutch model (Hamor 1957[1615]:32–33; Kingsbury 1933:18; Rolfe 1951[1616]:35).
What went on at Flowerdew, a site not abandoned in 1622? In a court inquiry regarding previous activity at Flowerdew in 1622, testimony relating to the plantation cattle was heard on March 7, 1623, at the Flowerdew borough fort (44PG65) that notes of these beasts, "Thefe 4 Cowes & the bull that were att Flourdieu hundreth where l[ieutentant] Gibbs lived and had the ufe [use] of them [,] whereof 2 of them dyed & one of them was [shot] by the Indians & the bull was drown'd fWiminge out to Berkeley Hundred & eaten there" (McIlwaine 1979:11). While much of this testimony is probably a "cock and bull" story in its own right, the most important aspect is that Indians might well have killed one of the cows; it is likely that the rest were eaten by starving colonists at Flowerdew and Berkeley Hundred. Samuel Sharp, who was probably at Flowerdew in March 1622, complained of much sickness and many deaths exacerbated by famine (Kingsbury 1935:233). With this in mind Lieutenant Gibbs was probably lucky, for by 1623, he would have been risking capital punishment for this activity as stealing "Domestical or tame" livestock worth over 12 pence, was a serious crime since these beasts were important breeding stock and were not to be eaten except by command of Yeardley (Kingsbury 1935:283–284; see also Barbour 1986 I:263, Flaherty 1969:17–18).

Summing up so far, we can assume that milk, whey, butter, and other dairy products were worth more to the colonists than a kitchen garden during the Second Anglo-Powhatan War since no meat could be taken and that the
wall walk prevented animals from interfering with militia activities along the south and west perimeter. Also from the court testimony involving Lieutenant Gibbs and Gate's instructions, it is more than probable that during the day cattle were normally driven out of the cattle pound by an armed guard and returned at night. We should pause here to ask, how many plantations could afford to have an armed militia guard protecting their cattle? This daily freeing of the cattle pound occasionally provided parade and drilling grounds for the militia after they compiled the manure as good "soldier farmers."

In the muster of 1624–5, Yeardley has 50 cattle, 40 swine, 8 goats, and 3 kids at James City. At "Piersey's Hundred" (Flowerdew), Piersey has 25 cattle and 19 swine in 1624–5. At Flowerdew, Piersey's herd was also a "corporate" herd, as it included 8 cattle which were "Mr. Samuell Argall's," the former governor's (1617–21) breeding stock almost certainly originally kept by Yeardley for his much admired friend (Powell 1977:76–79) (Jester and Hiden 1956:22, 27; MacIlwaine 1979:55, Morgan 1975:122). While it is not known how many of Yeardley's cattle at Jamestown were once from Flowerdew, it is likely that he had the largest private herd in Virginia, while Piersey's is better than most.

In describing Captain Newse's post-Massacre Plantation at Elizabeth City in 1622, John Smith (Arber 1910 2:596) noted, "The 9[th] of September [1622], we had alarum, and two men at their labor slaine; the Captain
[Nuse], though extremely sicke, sallied forth, but the Saluages lay hid in the Corne fields all night, where they destroyed all they could, and killed two men more. Much mischiefe they did to Master Edwards Hills cattle...." In this particular instance it is likely that the Indians were eating Edward Hill's cattle (or their livers raw in order not to make a fire) while camping out and destroying both corn and Englishmen, in a remarkably efficient guerilla attack system, which was nonetheless incapable of eliminating the entire community.

So it is rather obvious that the "feed fights"—usually only seen in the English's stealing Indian corn during "harsh visits" as a system developed by John Smith—were really a reciprocal warfare exchange between the English and Native Americans during the periods 1608–14, and 1622–32. Each group clearly took turns punching the other precisely in the stomach, quite literally (Fausz 1977, 1990; Shea 1985:29, 40)! Roman soldier Vegetius suggested during siege warfare which resulted in hunger, "all livestock, any sort of fruit and wine,...should be collected into strong forts" (Milner 1993:66). We can infer a borough fort had a magnified duty in this respect.

Although we know a trans-peninsula palisade similar to those in many of Dale's settlements was installed at Flowerdew by at least 1626, the poor settlement at Flowerdew, wealthy compared to most, could not afford to enclose the entire Flowerdew Hundred plantation within a serious Native American-proof defensive system due to practical constraints even if it
wanted to (MacIlwaine 1926:120). Thus, especially between 1622 and 1626, Yeardley's cattle pound at 44PG65 probably served a key service to the community herd prior to the erection of that unit. Moreover, if settlers were not also dispersed across planting fields, and possibly along the palisade, Native American warriors would, if possible, ruin the entire subsistence economy of the plantation by cutting down or firing their corn fields when the corn was tall enough to hide in (July +) and beginning to dry and ripen for harvest (August to October) (Kingsbury 1933:614). This of course helps explain the somewhat foggy Bermuda model of 1611–16 noted by Rolfe (1951), and the lamentations of Richard Frethorne at reoccupied Martin's Hundred (Kingsbury 1935:41–42, 58-62; see also 37–39; Hodges 1995).

Even in un-threatened circumstances there are a number of precedents for keeping cattle near the house, especially at night. In the medieval and perhaps late medieval system, "crofts" or "enclosed animal paddocks" were placed behind peasant houses or presumably within portions or "tofts," which were enclosed yards or gardens (Beresford and Hurst 1991:49, 136, 138–139; Rowley and Wood 1982:67). Such divisions may explain the partitions within Yeardley's Fort and the Nansemond Fort (Hodges 1992:Figures 2, 5). One tenant at Moneymore in 1616 was asked to enclose the "backe & crofte now laid to the said howse" with a quickset hedge, a good husbandry system typical of the midlands (Robinson 1983:62; Trow-Smith 1951:116). In the west English longhouse, small groups of cattle were kept at the end of the
house in a byre (Beresford and Hurst 1971). A farmhouse in 1681 illustrated in Worlidge's, *Systema Agriculturae*, *The Mystery of Husbandry Discovered* depicts a cattle pen annex appended to the main house courtyard in a similar vein to the relationship of cattle pound to the inner court with the core plan in Yeardley's Fort (Crisp 1924 I:Figure 169). This illustration seems to underscore an explosion of the west English longhouse plan by ejecting cattle into an annex convenient to the house. In unthreatened circumstances in later 17th-century Virginia, calves were penned to keep nursing cows near the dairy (Chinard 1934:122–126).

In contemporary Ulster, Ireland, cattle were driven into prepared courtyards or "bawns" at night, probably during the initial frontier period by some timid English who had not given over to open pasture (Noel Hume 1991:237). The traditional Irish had regularized their herd protection system. Let us look briefly at Hill's (1978:82) description of the traditional Irish bawn:

"It was customary among the ancient Irish to construct their bawns or cattle enclosures near their residences in times of peace, and adjoining their encampments in times of war. These enclosures were always formed on a certain well recognized plan, of trenches and banks strengthened by stakes, or most frequently by growing hedges, to guard against the attacks of wolves and other ravenous animals, as well as the assaults of hostile tribes... The term Boaghun was invariably used in former times throughout the north and west of Scotland to designate the cattle-enclosure connected with each hamlet or village" [author's emphasis].
While Renaissance courtyards might reserve space for horses and other livestock, the most important aspect of Hill's quote is the fact that the bawn was made to "adjoin" encampments during times of war, suggesting an appendage to a pre-existent unit or a planned integrated unit with such a partition "built in." (See Figure 40.) This is a very good match with the archaeological record at 44PG65. Also from Hill's research we can infer that it is obvious that bawns built during times of serious threat were constructed in a more substantial manner than regular cattle enclosures. This was done for exactly the same reasons; "a place for cattell" was included in military encampments and for exactly the same reasons as warfare attenuated subsistence integration into minor or major fortifications alike (Machiavelli 1560–62:Figure 7). This we suspect was the very case at Flowerdew in Yeardley's fort in a zone deemed a "cattle pound."

A good example of a similar, more substantial defensive system is the Anglo-Norman grange, a type of unpretentious defended farmstead which seems to
simply increase the size of the outer ditch (which was often moated) and the
strength of the surmounting stakes comprising the single paled or compiled
palisade, to secure itself (Ryan et al. 1993:182). (See Figure 41.) The grange
enclosure is simply a smaller version of the Norman bailey noted in Chapter
1 due to praxeological constraints. Toy (1984:53) illustrates three Norman
motte- (turf-piled hill with fortress on it) and-bailey castles with built-in
partitions. One of these examples at Haughley, Suffolk, matches the general
form of the surviving "spatial code" at Flowerdew disturbingly well, probably
because the functional needs present were roughly the same (Hodges
1993:Figure 2). In other words, there is an international quality to this type
of defense of a meat-and-dairy subsistence system, we suspect, that is of
great vintage, and the number of options generally favored some sort of
partition or concentric plan to directly include animals in fortifications.

\[\text{Reconstruction} \] \hspace{1cm} \text{Newtown Jerpoint}

\[\text{Figure 41} \] \hspace{1cm} Reconstruction of the Anglo-Norman defensible grange at Newton Jerpoint, Ireland ca. 1300 a.d (From Ryan et al. 1991).
FORTS OF THE CHIEFTAINS:

A STUDY OF VERNACULAR, CLASSICAL, AND RENAISSANCE
INFLUENCE ON DEFENSIBLE TOWN AND VILLA PLANS
IN 17th-CENTURY VIRGINIA

A Thesis
Presented to
The Faculty of the Department of Anthropology
The College of William and Mary in Virginia

In Partial Fulfillment
Of the Requirements for the Degree of
Master of Arts

by
Charles Thomas Hodges
2003
Yeardley's Fortifications

In the aftermath of the Massacre of 1622, Sir Francis Wyatt's father recommended to his troubled son, "the singular pen of Vegetius," not just for tactics but probably to design field works (Fausz and Kukla 1977:123–124). Roman soldier Vegetius, who penned The Epitoma Rei Militaris or Epitome of Military Science in the early Christian period of the late Roman Empire and whose works had been available in English since the 15th century, recommended wooden stockades (Roman "valli") mounted on ramparts (Roman "agger") built with turves behind a "fosse" or ditch (Jones 1987:221–222; Kingsbury 1933:220, Milner 1996:xii-ziv, 77; Rowse 1973:398-339, 455–459). Renaissance fieldwork planners adapted the Roman earthwork fort model to artillery proof works, which will be explained in greater detail below. The Roman stockade or "valli" is thought to form the original basis of inspiration for the cliche stockaded Anglo-American fort dating from the 17th century to the 19th century, although a poorly understood stockading tradition in Europe survived wherever large quantities of wood were available and temporary defensive needs coincided (Robinson 1977).

Maurice of Nassau, the great Dutch Protestant political and military leader of West, Gates, Dale, and Yeardley, saw the Roman example as a way of building Renaissance forts more cheaply as rapidly constructed field works which typically embraced the very Roman fortified encampments noted by Garvan (1951) and Reps (1972). Accordingly, masonry revetments to
earthworks typical of the Renaissance Italian citadel forts could be built of only "close beaten earth" or twigs and turves, with or without revetments of wood or wooden palisades as these resources were available. It seems without such innovative field works there would not have been a Protestant Holland at all (Duffy 1979:58–105; Fithian 1991; Ive 1589; Parker 1986: 12–13).

It would probably be an understatement to say that this Roman-derived Dutch system of fort building was "drilled" into Yeardley's young mind as part of his "personal discipline" between the ages of 14 and 22 on the battlefields and garrisons of Flanders and Holland. Thus, rather than being particularistic to this study, Dutch-influenced fortifications provide us an opportunity to study a second range of data pertaining to humanitas—personal Elizabethan Renaissance interpretations of classical fortifications by hard-bitten war veterans. Yeardley was not consciously trying to build a commemorative Roman fort. Rather, he, like most soldiers, was adapting Roman ideas in modern "catch as catch can" Renaissance ways, given his own and the Virginia Company's profound and increasing impoverishment.

**Preservation Characteristics of the Fort**

The fortifications are in poor but recognizable condition, possibly because the interior of the fort was turved prior to its construction following the Roman camp model, which lowered the habitation zones. The fort was partially excavated largely before much was known about site formation
processes or archaeological site curation when funding was inadequate. As we noted above, two to three feet of erosion occurred on the site before it was plowed another foot deep; this, combined with seasonal river flooding and daily tidal water table flooding, meant that between 1971 and 1978 portions of the fort were destroyed by excavation exposure and are only known to us from drawings and photographs made between 1971 and 1974.

So here we are making some general statement about all ditch-set fortifications and even hole-set fortifications at Yeardley's Fort, at least in terms of preservation. There seems to be quite a bit of confusion about what evidence there is about the palisades that has unfortunately hurt the identification of the fortification (Brain et al. 1976:132; Barka 1992; Deetz 1993:32–33). To be sure, many of the fortification trenches are nearly plowed out or shallow at 0.1 to 0.7 feet. So, in some ways, mostly all we have of the fortifications are the shallow archaeological footprint of its basic design preserved as builder trenches and postholes sensitive to them.

Thanks to earthworm action and other natural processes of post mold sinking including contemporary dead weight, very clear traces of massive ditch-set post molds ranging between 0.6 feet to 0.9 inches have sunk below the builders' trenches in some areas for as long as 15 feet, allowing positive identification of how the walls were made. (See Figure 42.) Similar phenomena have occurred at 18th-century Fort Necessity (Harrington 1977:Figure 22) and the redoubt at 44PG64 (Hodges 1993:Figure 4B). Since
Native American post molds average 0.25 to 0.3 feet in diameter; these are easily separated from the English features because of their smaller size and consistent roundness. The latter can however can be confused with English wattle repairs intended to bolster the stockades. The larger English ditch-set post molds are typically rounded into a blunt cone—surely from ax felling; oval, squared, and a few elliptical or slightly triangular forms are notable. Some elongated shapes are perhaps due to wrenching and wall collapses. Some smaller appearing molds may be only the tips of once-larger post molds with V-shaped ax cuts, or they may be maul-driven and wattled repairs, "filler posts," and post tamping scars (Harrington 1977: Figure 22, 119; Hodges 1992b:11; 1993:Figure 4B; Kock 1978:162). A fair number of the largest English ditch-set molds were apparently butt sawed, perhaps from cannibalizing some buildings in 1622 or simply to process larger young trees,
also perhaps to accept horizontal runners called "lintels" or "ribands" (Hinds and Fitzgerald 1996:72). The absence of less clear patterning of molds on the west side of the gate is surely due to constant rebuilding, in which case many molds have been partially obscured by later intrusions. Other reasons for absent post molds are related to a lag in ditch construction verses post infilling, when the ditches partially silted in a small amount. The typical fate of a neglected fort is a cattle enclosure; and, as the fortifications rotted, "hedges" of smaller posts would be jammed in starting in 1632 in order to enclose cattle. Less evidence of repair is evident where the earthworks were present, suggesting cypress, cedar, and locust may have been used since these areas were more difficult to repair.

The following discussion of the bastard caponier, ravelin, and other portions of this fort has been greatly enhanced by the sharing of rare archival materials between the College of William and Mary and Flowerdew Hundred Foundation, including archival materials unavailable to the author in 1993. What is important is that, when all the drawings are re-assembled, a remarkably well-preserved fort emerges, especially through its recognizable design features. These form a complimentary package because fort design is not only rational but well recorded in contemporary drawings and field manuals, making past mental templates readily interpretable in the present through distinctive military grammar (Hodges 1993). In short, this is an "Enclosed Settlement" or "Enclosed Compound" on steroids.
As often as is reasonable (and sometimes repeatedly), the author will try to explain technical military terms in plain English in parentheses.

The Slaughter or Murdering House: Bastard Caponier

This is a type of projecting bastion-like work that is "bastardized" (modified) according to English soldier Barret (1598:126) because it is not at an angle or corner within the fortification envelope but along its "curtain" or wall (Barret 1598:126). The bastard bastion is analogous to a ground-level "flat bastion" in more modern parlance (Hinds and Fitzgerald 1996:66; Robinson 1977:197). The work described below technically is not a full bastion (one that has two flanks [sides] and two faces [front angles]), but would be more similar to a demi-bastion (two flanks but only one face) that is a type of casemate. Barret (1598:Tract 4) calls a caponier a casfaamatta (casemate) or in English "a flaughter-houfe [slaughter house]," as the unit was intended to flanker the entire nearby east ditch and west stockade wall at or below its ground level. Another English version of the term is "murthering houses" (Pepper and Adams 1986:18–19). English military camps and siege forts are replete with such exactly similar units which could be of equal use to musketry or artillery depending on the design (Silke 1970).

Figure 43 shows the archaeological remains found here in relation to reference points (A-B) on the master grid. Above it are examples of how this can be interpreted (A-E). Of these the best example relating to the caponier
Figure 43: Yeardley's Fort: detail of the archaeological features at the fortified entrance. A-F, various interpretive options of which A, B, C are best.
Figure 44
Yeardley’s Fort. The exterior view of the bastard caponier interpreted as a block house ca. 1619-22 or 1622 only.
Figure 45
Interior view of the bastard caponier ca. 16122; also shows options on crossties. This drawing would suggest the site always had ramparts (?)
is noted in A above. This simple fortification phase is inferred to be present by 1622–23 or earlier.

The caponier represents a 28- by 14-foot stockaded expansion of the fort's gate area in order to flank the entire southern wall of the fort prior to the addition of the southwest flanker. It provides a 24-foot-wide gap that initially had a large double gate (cf. Carson et al. 1981). Simply stated, the services that it performs are:

1. providing an elevated wall walk platform to the west side of the gate allowing flank fire to the west;

2. providing a way of getting down from the earthen ramparts to the east while simultaneously allowing flank fire to the east;

3. providing fire to approaching enemies coming from the south via the two elevated units in 1 and 2 above, as well as through gun ports installed in the gate; and

4. permitting the use of ground-level artillery in the fort gate area.

Figure 46 shows a birds'-eye view of the caponier and its evolution in concert with a ravelin. Also shown is the interior of the caponier with the gate and exterior palisades removed (a simple drawing which unfortunately does not include clear artillery embrasures).

Several radiating caponiers (French spelling) of "caponnati" (Italian spelling) were the integral components of the Italian Renaissance citadel to flanker across the ditch from rows of enclosed gun ports (Pepper and Adams
Figure 46
a. Feature group association with the front entrance,
b. Caponier as seen from above,
c. Ravelin showing geometric structure.
1986:Figure 9). Barnabe Rich (1587:40) suggests that in the fortified camp, "one bastion [should be] levell within company of your shott [musketeers]."

In 1589, Paul Ive (1973) recommended in a complimentary manner to Barret that the:

"Gate of the Fort must be placed in the middle of the Curtain, that from the Bulwarkes on both sides of it, it may be equally defended, and must be set lowe, that the defenders may go out and in the couved [covered] waies, to defend the argin [bank], or sallie out as little seen as may be...[if you chose to build a casemate instead, it] must be placed opposite to the exterior angle of the Bulwarke...and be made full of holes to sse Harquebuze and Musket out at, And the walls must be so thinne..."[that if flattened by artillery no one can hide in its ruins] (author's inserts).

The wall thinness recommended by Ive for his casemate is clearly preserved by the archaeological evidence at Flowerdew. Note the doublewide exterior stockade revetments to the immediate east (3 feet), while, when this builders' trench joins with the east elbow of the casemate projection as it enters the casemate (caponier), it immediately tapers down to a single paled stockade trench about 2 feet wide or slightly less (see Figures 45 and 46). So the stockade here is the same width as the east inner parade curtain or "counterfort" and west stockade in keeping with Ive's recommendations for thinness to facilitate gun ports and not provide shelter for attackers if reduced by artillery (Robinson 1977:198). This does not seem to be a coincidence.
Gregory (pers. comm., 1974) located one or more calthrops in the immediate gate exterior. Also called "crow's feet," the treacherous four-pronged spiked item is made in such a manner that one prong always sticks up regardless of the position it is placed in (Stone 1961:158, Figure 205). These were sprinkled around to impede pedestrian movement. However, both Da Gama (1649:104) and Wagner (1979:228) show similar pronged nails attached to the tops of palisade posts specifically within stockaded fortification entrances or nailed to planks on heavily fortified bridges like barbed wire. The only place that the author is aware of where calthrops have also been found in Virginia is Jamestown (Cotter and Hudson 1957:69–70). Both the Jamestown example and most illustrated versions are more robust than the one in the Flowerdew Foundation collections, suggesting the itinerant Jamestown blacksmith made it from four iron spikes (large nails).

Precedents for this work are noted here. This work is similar to the main gates at Magherafelt and the Draper's bawn at Moneymore (Blades 1986:264, Camblin 1951:Plate 12; Hodges 1993). The plan of Magherafelt and the Flowerdew work are reminiscent of the south gate to the Roman fort of Theilenhofen (Johnson 1983:93). Similar gates form an entry into the Renaissance fort and would be typically supported with flaking gun ports, as was probably the case in Sienna Italy in 1535 (Pepper and Adams...
A fully stockaded gun-ported projecting main gate is shown at Placentia New France in 1670 (Hannon 1969:118).

**Ravelin or "Commander"**

According to English military engineer Paul Ive (1589:35), ravelins were a good way of rapidly defending a town, so they are in some ways part and parcel to town defense design. The Flowerdew ravelin is a cheap vernacular rendition of the massive ravelins that sprouted around towns in early modern Europe. The work described below is technically a ravelin because only it's "V-shaped" south-facing portions project beyond the main fortification walls. In further detail it is technically a ravelin with two flanks (facing northwest and southeast) indicating its rear or "gorge" area was enclosed all around (Robinson 1977:204). The adjoining flanks, therefore, reflect Ive's (1589:35) recommendations that it should "shut in both the sides or flanks of the raveline vnto the wall with a strong palizado to affure [assure] it from furprice [surprise]." The work is superficially similar to a "redan," a V-shaped work with no back as it projects beyond the fortification walls. However, the French word redan did not penetrate English fortification terminology until the 18th century (Hinds and Fitzgerald 1996:31; Robinson 1977:204).

The Flowerdew ravelin has two "salient" faces (projecting beyond the curtain—south) 12 feet long, which are cut off by a "pan coup" 6 feet wide at the tip of the salient to allow for gate passage and to strengthen the "capital"
(where the south faces come together) of the work. Its closed rear or gorge line is 14 feet long.

At Flowerdew, the "V-shaped" hole-set ravelin foundation was installed as a complimentary improvement to the caponier described above and it seems the caponier was built to deliberately accommodate such improvement between 1622 and 1623. We know, however, that the ravelin was installed later because it nearly completely blocks the original main gate. Figure 46c shows both the ravelin and its structural integrity as it clearly links up with the stockades and walk to the west and the rampart to the east. It also sports a smaller entrance gate which is 4.1 feet wide made of 1-foot-thick squared posts (one reabsorbed from the original gate).

One gatepost has an attached exterior post. Wagner (1979:228) suggests that a wheel-mounted cheveaux de frise (a wheel-mounted beam with sharpened radiating branches) swung off the extra post notable in front of the gate on the west side, which has a post mold 1.0 feet wide. A smaller post within the gate area may define where a gate stop, or closing reinforcing bar, was anchored (Da Gama 1649; Koch 1978:162).

Barret (1598:127) recommended that at camp and fort gates, "The way which commeth from without shoule not come direct vpon the gate, to the end it be not easily dicouered in the field; but of sufficient wideneffe, for the paffages of carts, waynes, and artillery, and of moderate highnes." So while
the bastard caponier modestly met these requirements, we must presume here that the main fort gate to Yeardley work was shifted elsewhere, as few things larger than 4.2 feet wide could pass. The best candidate for the new main gate is probably at points EF2 and WF2 on the master grid along the north wall in between the two large bastions where a projecting gate would be a hindrance. Another small port may have existed just above point MK on the master grid.

Figure 47 shows an isometric illustration of the completed unit, a story-and-a-half blockhouse. We invoke the blockhouse model for the ravelin here for two reasons. (1) we know that at Henrico, Charles Cittie, and James Fort, that in addition to "trench and pallisadoe" perimeters, there were "diuerse blockhouses made of great Tymber built upon passages and for scouring the Pallizadoes" [author's underlining]. Clearly the blockhouses are built over (hence "uppon") the entrances. At Henrico, Hamor noted, "as ornaments belonging to this Towne, upon the Verge of this River, five fair Block-houses, or Commanders" were constructed (as cited in Reps 1972:40). The term "commanders" comes from contemporary military slang making an analogy between blockhouse height and the "command" of the ground achieved by elevation. (2) Similar angular coral block blockhouses (often quite tall) were also very popular in the contemporary Bermuda Island colony and these obviously also have doors (Arber 1910 II:623–4).
Figure 47
The new ravelin was probably installed in spring 1623. As an improvement, it specifically allowed militia to move directly along a new continuous path from the east ramparts to the west wall walk. This allowed Yeardley to raise some of his lighter artillery (robinet, falconet, or falcon) to the upper deck of the ravelin above his musketry, who could still use the ground-level caponier. Figure 48 shows the clear utility of such a combination, as do the post molds comprising both architectural units. In turn, some earthwork infilling within the exterior caponier in 1623 may have helped to strengthen and protect the foundations of the ravelin. Additionally, the ravelin can now flank both the south wall walk and south rampart walk and, indeed the southern interior of the fort, from a position of great strength.

Ravelins are frequently combined with flanking towers and Yeardley seems to have compressed the units into a single entity (see Figure 49).
In addition to allowing passage from the ramparts to the wall walk (both elevated to 7 to 8 feet tall for this purpose), the ravelin turned the fort entrance into a sort of "Grand Central Station." People could move into the fort from the outside through the port associated with the pan coupe. Very large cannon could be moved into the ground floor of the ravelin. There were probably two paired stairs on ground sills that allowed people on the interior of the fort to get up to the top deck of the ravelin rapidly or pass under the upper deck of the ravelin to get to the caponier. In the former case, the same paired stairs allowed soldiers to move instead from the central locus of the ravelin outward directly to the rampart walk (east) or the wall walk (west) from interior fort ground levels.

Before we leave discussion of the ravelin, it should be noted that, with two faces and two flanks, this is as close as we have come to finding a full Italian-styled Renaissance bastion in a Virginia Company period.
fortification. The archaeological information is precious to us, for, while many stone-reveted bastions and ravelins survive in Europe, not a single timber-framed unit has survived the ravages of time. For instance, we can note the striking similarity between the east-west angle to angle framing of Yeardley's ravelin and the French fort of 1699 called Fort Maurepas by looking at the nail lines of the bastions on the latter (which considerably strengthens our interpretation). (See Figure 50, where the nail lines are arrowed as is the double-paled palisade.) However, only through archaeology, can we see that also running north-south in the Flowerdew ravelin there is a second frame line that locks the faces and flanks together at the gorge (rear)—considerably increasing the strength of frame. The east side of this in the Flowerdew work would be created by a lintel mounted over the bastard caponier's newly elevated parade curtain which abutted the bottom of the upper timber deck of the ravelin. Hence, the earthen rampart walk on the east side was lengthened and infilled with soil or sods to protect the foundations of the ravelin on its "water side" where large artillery might hit it. There may indeed be a French connection in this work, as it may have been a sort of political calling card for newly arrived French military engineer Nickolas Martiau who visited Flowerdew for three weeks in spring 1623 (as we noted above).
Figure 50
Fort Maurepas French, Mississippi 1699. Note the "arrowed" double-paled stockade associated with the main fort. Also arrowed are the nail lines within the bastion (Robinson 1977:Fig. 8).
In the reconstruction the ravelin the author has extensively used Shurtleff's (1939:9–16, 13, 59), *The Log Cabin Myth*, which has a good study of blockhouses. We used the simplest form of cladding "halved cornering" of hewn logs to reconstruct the Yeardley ravelin, which may have, in reality, simply butted every other post from angle to angle, one over the other, since Virginia blockhouses were fairly shabby. The heavy hewn timbers would "bear out a musket shott" or would stand up for a time against light artillery (which attackers at Flowerdew would have to place on land carriages in order to get in a goodly number of shots into the same target).

**The "Half Bulwark" (a Demi-bastion)**

Like the ravelin, bulwarks were part of town design in Europe when masonry revetments were either too costly in money or time. Bulwarks are a northern European term derived from "bole work;" that is, the use of whole tree trunks or "boles" in the construction of a "work" or fort (OED 1978 1:1172–1173). Bulwarks were in fact the very first defenses thrown up around towns when artillery that could level any masonry town wall or castle improved in the late 15th and early 16th centuries (Hinds and Fitzgerald 1996:12). The bulwarks revetted earthen banks that could absorb the shock of cannon balls. In early informal usage, bulwarks might refer to entire walls rather than just fort angle defenses like bastions.

In Yeardley's fort, the bulwark is at the southeast corner of the fort and is clearly integral to the earthworks and rampart system with a salient
angle pointing east (see Figure 51) (the entire southeast corner of fort). The shape and form of this unit are reminiscent of 1/3 or a hexagon and may have
been formed by creating an inscribed circle. North to south, the feature measures an approximate 24-foot-long expansion of the ramparts if an internal flank facing north is included, although the demi-bastion proper is technically only 20 feet long as a discreet expansion along this line. The former figure is complimentary to the width of the caponier or slaughterhouse and/or flat bastion, suggesting a favored planning dimension which rivals many small houses in length. The east-facing "face" of the unit is 12 feet wide, with a north-east facing flank 10 feet long and a south-east facing flank 7 to 8 feet long. The flanks of the demi-bastion provide an expansion of 9 feet wide beyond the usual 8-foot width of the ramparts, for a total expansion of 17 feet toward the east (maximum east builders trench to maximum west builders trench). This would allow plenty of room for a "rampart gun" or light artillery piece to fire east or north. Given the presence of a demi-culvern cannon ball, found in situ between the demi-bastion's stockade revetments (north of the ramp and east of counterfort), even larger pieces were apparently mounted here (cf. Brain et al. 1976:141–142). In 1610, Strachey (Wright 1969:79) noted in each of Gate's James Fort bulwarks, "a piece of ordnance or two well mounted."

At Flowerdew we are dealing with a specific smaller type of bulwark called by Paul Ive (1589:33) a "halfe bulwark" (an earthwork demi-bastion in the contemporary English vernacular). The work is technically a half bastion or demi-bastion since it has only two flanks (sides facing north and south)
and only one face (facing east) (Robinson 1977:198). If one uses a straight ruler to define it, there are two very small additional facets, one where it attaches to the south curtain (2 to 3 feet wide) and one of similar size in between the face and south flank. The demi-bastion with only one face but two flanks is obviously a compromise of the Italian-derived high-style Renaissance bastion. The ideal Renaissance bastion has two flanks and two faces, hence its arrow shape where the faces converge. Thus, the southwest demi-bastion is giving us a very specific message as to its purpose. That is, it is intended to primarily flank the east wall of the fort while offering only some protection to the east and south-east provided by the other facets of the flanks.

Any doubts that this unit was a demi-bastion are resolved by the complimentary angle of the ramp which provides access to the unit via a bifurcation in the counterfort and is one of many bastion access variations illustrated by Wagner (1979:197a). The vernacular Flowerdew bulwark feature is shaped somewhat like a bay window seen from above. This is a very simple design. It is repeated more weakly at the north facade of the Yeardley/Sharpe Redoubt with its clipped northeast and northwest corners as it faces the James River (Hodges 1993:Figure 4A). The more polygonal semi-circular shape at the Yeardley Fort recalls references to George Percey's "half moon" bulwark at James Fort, or John Symthe's (not to be confused with John Smith) "half rounds" (semi-circular bastions), which were apparently
barely adjusted to create a demi-bastion at Yeardley's Fort (Quinn 1967:22; Hale 1964b:xcvii).

Some colonists would refer to this demi-bastion generically as a "blockhouse" because of its use of entire tree trunks to revet it (Kingsbury 1935:259–262). The outer line of these revetments of course was extended to become a parapet. Note how the construction trench is not doubled (two parallel trench scars) in the vicinity of the bulwark since presumably entire tree trunks needed no additional improvements.

The straight linear facets in the demi-bastion facilitated bracing by heavy horizontal lintels and ribands to support the large upright timbers which held the outer works of "greate tymber" together (see Figure 53). Swellings in the outer stockade revetments where the northeast flank joins the face and at the terminus of the A-D line, where the southeast flank rejoins the south stockade revetment, indicate that larger timbers were chosen to absorb turns in the exterior stockade line. Not ironically therefore, these places where the bastion flanks and faces meet are called the "shoulder angle" (Robinson 1977:204). This is probably telling us that the exterior ribands and lintels were mortised, buttered (into incised grooves), or dovetailed; hence, the need for particularly large whole tree-trunk-sized posts here, as they must be wider than the majority of the line of stockade posts they support in either direction.
The remains of a delta configuration of timber pile impressions are notable inside the demi-bastion. These comprise the best example of timber piles the site has preserved, as there is no confusion with a former hypothetical hole-set palisade here (the resultant shape being ridiculous). These timber piles consist of two postholes closely set together just inside the terminus of the ramp and three or four forming a line across the north to south space inside the demi-bastion. These piles form a complimentary 60-degree angle emanating at the west ramp entry and are arranged in such a manner that they support the flanks at mid-section where the construction is weakest and converge to embrace the ramp entry within the gorge. A gorge is a term with various meanings but generally refers to the back center side or rear of the unit (Robinson 1977:203). Together, these timber piles were braced with sleepers and angle braces to hold the exterior stockade walls together, becoming Vitruvius' "teeth" (cf. Ive 1968:22). The deltoid form of the piles inside the demi-bastion might argue that there was an episode when this demi-bastion mount was entirely timber for a period. However, once the function of the piles is understood, we can presently see these units most clearly as providing precisely reverse strength to the main revetment faces and flanks and simple structural accommodation to the ramp.

A transversal line above the northeast facing flank which spans the stockade revetments at precisely the point where the terreplein joins the stockade revetments is probably telling us of massive vertical timber piles
and crossties which counter-braced both systems (bulwark and terreplein). In general, this line admirably establishes the contemporaneous nature of both Structure 2 and the building episode of the demi-bastion and stockade revetments as a single planning event, honoring the space of all. Also, it is very likely that this progression across the stockade revetments suggests that the rampart especially south of this line and associated with the demi-bastion was raised more than the predicted 5 feet of the normal height of the ramparts. Thus, this line, in addition to providing counter strength to both units, was probably used to simultaneously create an internal flank angle or "traverse" within the main rampart line. The traverse allowed musketry and rampart guns south of this line to specifically flank the line of artillery associated with the grand battery on the terreplein to its north. If the artillery battery was overrun during an assault through the cannon embrasures, the traverse prevented them from enfilading (firing right down the line of soldiers) within the bulwark.

Overall, we have what appears to be what we can call a battlefield vernacular design straight from the "low countries." Its shape and form are not "bad," nor certainly are they "good;" rather, they reflect three things adequately at best: (1.) Deliberate bluntness so that cannon cannot shoot off its face, as the narrow tip of an arrow-shaped bastion is a favorite target of cannon (Ive 1589:16; Machiavelli 1560-1562:Folio 24:7). The bluntness is an Italian Renaissance influence converted to simpler field works by Spanish
and Dutch battlefield experience. What this half bulwark clearly lacked in
elegance it made up for in sheer design strength. (2.) Design sensitivity to
the caponier or slaughterhouse and ravelin which already flank the entire
south wall prior to the addition of the south-west flanker precluding a need
for a southern flank to the half bulwark. And (3.), a simple initial bastion
design that readily permits conversion to a full bulwark (blunt arrow-shaped
design) should the level of the threat deteriorate further. For instance, if the
English had warning of a Spanish fleet, they could add a second face and
shift the southeast flank. In this case the addition would be south.
Comparison with Stanley South's (1983) full-blunted bastion at San Felipe
illustrates nicely what the end result would look like in addition to what we
have seen in the master plan discussion above.

The Timber Piles, Counterforts, and Embrasure Cheeks Associated with the East Ramparts

Knowing that fortification was an architectural science in the 16th and
17th centuries, is there an explanation for the irregularity of the hole-set
posts along the east wall that we noted above? And why do they appear to
follow a less regular linear dynamic, termed a "broken line" (serpentine) by
geometry (Sperling and Stuart 1991:116)? We can infer that while some of
them may have been small, temporary militia firing platforms, a goodly
number must be piles or counterforts (Wagner 1979:197a). The reader will
find these piles in Figure 51. The timber piles and counterforts are to help
absorb the weight of the earthwork and cannon and provide a counter brace
against the collapse of the stockade revetments and parapet here (Pepper and Adams (1986:74–75), Da Gama (1649) and Ive (1969:16).

Moreover, some of the hole-set posts along the vicinity of the terreplein are almost certainly intended to strengthen and form internal stockade revetments for cannon embrasure "cheeks" (reinforced sides to the embrasures). It would be prohibitive to intrude a 5-foot-thick earthwork and subsoil without demolishing portions of the entire earthen rampart. Indeed, two intrusive post molds are specifically associated with the north cannon embrasure identified because of concentrations of cannon balls there. In our discussion of the master plan, we noticed how the additive intrusive repairs (post holes labeled "e1 prime" and "e2 prime") in this group of east wall hole-set post molds is at a right angle or "transversal" (a line that intersects two or more lines) to the stockade revetments (Sperling and Stuart 1991:125). While in apparent functional contrast, more in keeping with a parallel wall walk, the west-side hole-set additions not associated with the southwest flanker are added as intrusive repairs or doubled posts along a complimentary linear format, forming a parallel line with the ditch-set stockade.

These pile systems are derived from the Roman system of building town walls, which are described by Vitruvius (Morgan 1926:190-191). Vitruvius recommends:
“to meet the mass of earth, there should be saw shaped [diagonals creating V and diamonds shapes] constructions attached to the wall, the single teeth [right-angle braces] extending from the wall for a distance equivalent to what is to be the height of the substructure, and the teeth being constructed with the same thickness of the wall. Then at the outer most angles take a distance inwards, from the inside of the angle, equal to the height of the substructure, and mark it off on each side; from the marks build up a diagonal structure and from the middle of it a second, joined to the angle of the wall. With this arrangement, the teeth and diagonal structures will not allow the filling to thrust with all its force against the wall, but will check and distribute the pressure” [author’s inserts].

Although Vitruvius’ description is confusing, the hole-set works we are concerned with as archaeological finds apparently define the "single" teeth behind the wall and demi-bastion to brace them (see Figure 52b). These recommendations—that the wall braces and props should be as wide as the wall is high—are echoed by Paul Ives (1589:19), who doesn't bother explaining the classical origin of his fortifications for town walls. Thus, if the actual usable rampart at 44PG65 is 5 feet wide, as documented by the archaeological site plan's horizontal evidence, it was probably 5 feet high based on Vitruvius’ and Ives recommendations (although the full width of the entrenchments for the ditch-set stockade revetments are 8 feet wide).
In all probability the Flowerdew bracing system is a simplified departure from Ive and Vitruvius if the hole set units are the piles for rows of single teeth only as braced counterfort buttresses behind the parapet (outer stockade revetment). In reality, archaeologically we cannot recover evidence of cross teeth because they were destroyed. What we can say with caution is that Yeardley and Rossingham probably used crossties in between the stockade revetments to pin them together (see additional discussion below). These crossties would be attached to our vertical piles and would be built at the same time as the stockade revetments (including a ditch-set palisade to the exterior).

Therefore, the intrusive nature of the hole-set units may be of negligible archaeological importance unless new embrasures are being added, as appears to be the case with points e1' and e2', and the posts were used to
help secure cannon embrasure cheeks (the cheeks are the sides of the embrasure, openings in the rampart for cannon barrels). This of course fits nicely with the historic record, which states that more cannon were added through time to Yeardley and Piersey's fort and that the parapet would have been standing in 1622 but not infilled with earthworks until 1623 (Kingsbury 1906 2:363, MacIlwaine 1926:120). This notion is further underscored by the material evidence of the cannon ball midden, which indicates variant cannon ball sizes in the same identifiable embrasure concentrations as well as in more general distribution (Hodges 1992b).

Catena or the Chain Associated with the East Rampart

Leone (1977) suggests that town plans might reveal evidence of the invisible aspects of cultural subsystems that are not preserved by archaeology. In addition to timber piles noted by Da Gama and Ive, Pepper and Adams (1986:74–75) suggest that the timber piles were also counter braced by internal revetments called the "the chain or catena," which provided diagonal structural stability to the earthwork (see Figure 53). These are presumably identical to what Vitruvius calls "diagonal structures" which, when seen in plan, look like teeth (hence "Vitruvian teeth"), showing once again the Renaissance debt to Roman engineering of earthen- or rubble-filled town walls ((Morgan 1926:190–191). As we noted above, such systems are completely invisible within the archaeological remains.
The importance of the chain or catena skirting the hole-set piles or "teeth" in the Romano/Renaissance system may be difficult to visualize, even when illustrated. At Flowerdew, this would be a series of diagonals of wooden "faggots," with earth and turves in between that spanned the hole-set timber piles between each of the two paired stockade revetments. This nail-less gravity chain provided lateral strength and "give" to ground settling while helping to hold the earthwork together. English and Dutch builders seem to have preferred a "criss-cross" pattern (one line of faggots parallel to the rampart one at right angles to it and so on, which is what the author has illustrated based on Ive's tracts.

If the reader has ever seem a snake fence, then you know the principle of the diagonal catena (compressed in some snake fences). Although some illustrations show caneta as "criss-cross" versions stacked at right angles rather than as diagonals (Da Gama 1649; Johnson 1983:60–62).

If we are correctly following the sequence of the adaptation of a paramilitary hole-set wall to a catena, then a military earthwork associated with stockade revetments here, then riven planks cannibalized from the former hole-set works may have composed the catena at Flowerdew rather than faggots. Likewise, these units may have helped strengthen the "batter," the sloping angle to the outer turf wall.
Figure 53

(Top) Earthwork construction cutaway. (A) foundations, (B) heavy timber uprights and piles, (C) catena, (D) earth-and-twigs infill, (E) wall fascines, (F) turf lining pegged, (G) rammed clay- and-mud deck, (H) parapet and embrasures formed with gabions. (Bottom) Horizontal and vertical catena (both Pepper and Adams 1986: Figs. 47, 48).
Although seemingly particularistic, the importance of the basic design concept of the catena "chain" to 17th-century Chesapeake society possibly cannot be underestimated because the familiar Chesapeake snake fence uses the same nail-less gravity-based diagonal principle for vertical and lateral strength. Twelve miles of earthworks and stockaded ditch banks were created under Dale 1611 to 1614 (Arber 1910 1:154, 2:443–444, Hatch 1957:51, 62–3, 65; Kingsbury 1935:259; Tyler 1907:305). With rain and general weathering, there were possibly 12 miles of catenas exposed. It is likely that some clever settlers learned to compress the wide lines into a nail-less wall not unlike a carefully planned "barricado" (barricade). From these classical tools for wall building, immigrant planters and citizen soldiers probably gradually or even rapidly invented the "Virginia snake fence," which they employed without earthworks based on a compressed diagonal catena (Hodges 1992b:48, 51). Such snake fence units are also a way of seasoning wood to air it without its warping and is similar to the methods of wood stacking in a lumber yard (normally criss cross at right angles).

Stockade Revetments, Crossties, and Ramparts Associated with the Earthworks

The stockade revetments only on the east side of the fortified entrance or casemated caponier consist of two parallel lines of posts 0.6 to 0.9 feet in diameter and fairly closely set together where they are definable. Based on Wagner (1979), the parade curtain (inner stockade revetment) may have been wattled in a military style (military wattling requires posts set closer
together). Record photographs indicate that occasionally two smaller posts 0.6 feet in diameter acted similar to a larger single puncheon, as is also indicated by the maximum northwest terminus of the counterfort (inner stockade revetment). The stockade revetments are set—maximum edge of builders’ trench to builders’ trench—an average distance of 8 feet apart. However, the usable space defined by the revetment trenches for the ramparts averages 5 feet apart except at the demi-bastion or "half bulwark". The reason for this regularity is simple for, by keeping to standard pre-planned dimensions, the carpenters and militia were able to rapidly churn out standardized wooden rampart revetment components that would greatly speed the production of the architectural form.

The basic plan and specific dimensions of this rampart and stockade revetment are identical in dimension and probable form—so far as can be determined—to that recorded at St. Augustine of circa 1604 (Chantelain 1941:54). This is probably because the builders of both works were reading various translations of the same field manuals. Perhaps more importantly, they were probably both educated in the same school of fort building, the 80 Years’ War (1566–1648), perhaps precluding a need for manuals at all (Duffy 1979:58-105). Additionally, captured or abandoned fortifications were carefully inspected by each opposing side (cf. Ramm et al. 1964). In combination with international armies and fluidly moving mercenaries, all of these things contributed to a huge international school of field engineering
often vernacular in their systematic compromises of the high style of fort building. This latter idealized school was, more often than not, beyond the capability of the average field captains who could not afford to linger on ideals such as the massive scale recommended in fort engineering manuals.

At Flowerdew, each stockade revetment wall was pinned together by periodic crossties in the very same manner as the ship's mole (sea wall or dock extension) or "bulwark" at Carrickfergus (Camblin 1951:Frontispiece; see also Rowse 1973: Cover illustration). It is suspected therefore that the hole-set piles noted above anchored these crossties. Figure 56 shows in profile what this would have looked like.

Vitruvius (Morgan 1926:22) recommended charred, rot-resistant olive wood for crossties in ramparts which would be tied into the horizontal runners or "lintels." Yeardley may have used cedar or cypress in a system
which may have had a Turkish or eastern European timber fort origin. This is really probably through Roman influence of the longer-lasting Eastern Roman Empire associated with Byzantium and Constantinople which affected the Turkish works (Arber 1910:868; Duffy 1979:Figure 72).

In a variant manner indicative of different wood resources but with classical Roman ideals intact, Confederate forces at Atlanta in 1864 were still using this cross-tie system to prevent the two parallel earthwork revetment walls from bursting apart under the weight of the earthworks (Banard 1977:Fig 40). In both cases, Yeardley’s Fort and the Atlanta work, each cross tie was mortised to massive horizontal runners or lintels on each side as is indicated by the Carrickfergus’ ship’s mole (noted above). Vitruvius (Martin 1545:85a) suggests crossties in water dykes might be butt jointed into massive runners to hold up earthen banks. In any case, hence the fact that fort building normally required expensive carpenters (Broadbeck 1942). Thus, this fort at Flowerdew cost Yeardley and/or the Virginia Company the equivalent value of building a huge mansion complex.

The type of rampart system indicated by the paired stockade revetments joined in the fashion of a hurdle is often called a "box rampart," a system well known to the Celts, German, Romans, and Normans (Milner 1993:23, 115). The box rampart was created in concert with Vitruvius’ "crossties" which we noted above (Johnson 1983:Figure 36, 62). Vegetius (Milner 1993:78) recommended at more stationary military camps that, "The
rampart is then raised between lines of revetments or barriers of logs and branches interposed [Renaissance catana, or crossties] to stop the earth from falling away. Above it a system of battlements [embattled or crenulated parapets] and turrets [flankers and bastions] is constructed like a wall."

An early incarnation of Tilbury Fort, along the Thames River above "Lee Necke" battery, once had a variation of the box rampart based on this essentially classical principle (O'Neal 1960:Plate 22). Thus, when Ive (1589:38) recommends a "palizado placed at the outer edge of the parapet raysed vpon the sayd courtine or bulwarke of sparres or such like," he is almost certainly talking about the basics of a box rampart similar to the masonry system at Tilbury with an integral outer parapet such has been recorded at Flowerdew as early as 1972 (see Figure 55) Flowerdew Hundred
Foundation Archives). Virtually every contemporary Renaissance fort shown in plan shows a double wall to create a rampart; should we be surprised that a double revetment would also be necessary? Figure 56 shows what is really a boxed rampart walk with a double or treble paled parapet.

Based on their more modern continental experience, Yeardley and Sharpe may have had the militia set rows of "cannon basket" gabions (wicker baskets filled with earth) immediately behind the ditch-set stockades when the braces were installed, but before the horizontal planked walk was finished, especially near cannon embrasures (Hodges 1992b, 1993). Thus the wall was probably strengthened in several ways. In order to fire proof the base of the exterior wall, either turves were added or the exterior stockade was slaked with daub. Daub, some fire reddened, was found in ditch-set palisade trenches. A more entirely timber system would tend to rot less
quickly due to air circulation and, by the same token, could be more easily fired.

**Terrepleins**

We have already introduced terrepleins and cannon mounts in the historic context by using orthography to understand what was being done at Flowerdew between 1622 and 1623. Terrepleins are yet another Roman or classical system, originally designed to help prevent mining and house siege engines (Hodges 1993; Milner 1993:115). This zone contains the very area where most of the large cannon were mounted based on archaeological documentation. Comparative inspection of Vauban's (1969:59, Plate VII) fort profile is important because he shows a comprehensive rampart and terreplein system in profile. This comparison indicates that the stockade revetment locations at Flowerdew correspond exactly to the specific prescribed locations of the dotted structural lines shown in Vauban's illustration, as do the integral terreplein trenches (see Figure 57). By the same token, Vauban's massive earthwork profile would offer little or no protection against stealthy and nimble Native Americans, hence a shift back to earlier Renaissance models employing the box rampart base plan selected for the Flowerdew interpretation of contemporaneous threats. Such a profile as at Flowerdew is therefore more in keeping with Paul Ive's (1589:93c), "Bulwarkes [earthworks reveted with entire small trees], with Palizadoes upon their Parapets." According to Ive, in English fortification such a system
was primarily employed in zones especially vulnerable to assault. While assault was infrequently a serious threat to the well-fortified and watchful English after 1607, one Native American with a firebrand or with a leather bag containing fire coals packed in moss could destroy an entire settlement.

**The Parapets**

Ive's notion of "Palizadoes vpon their Parapets" noted directly above brings us to a brief discussion of the parapets which protected militia from bodily injury while on top of the rampart walk. At Flowerdew the parapet area is associated with the outer stockade revetments. One good example of a similar system is notable on a 17th-century German work associated with box ramparts, which is similar to the interpretive profile of Pope's Fort (Miller 1986). It shows a wattled stockade revetment that is also integral to
the parapet as has been tentatively interpreted at 44PG65 (Carson et al. 1981; Hodges 1993) (Van Creveld 1989:118–119) (see Figure 58). Note the visible horizontal lintels and upper ribands (thick planks) on the inside of the parapet (Hinds and Fitzgerald 1996:72). The top of the parapet posts here also ran well above the height of the gun ports, helping to protect against assault. The inner stockade revetment, surely present, is completely buried in earth to help stabilize the system.

After comparison with the German system and Ive's system of parapets, it may be inferred that at 44PG65 the outer stockade revetment trenches were integral to the raised parapet. The parapet wall was employed to protect small cannon and musketeers manning the rampart walk. This
portion of the site was probably excavated with a spade or large trenching mattock, as indicated by the paired bifurcations along the bastion and terminal northeast wall exposed and dramatized by deep plow shearing. The doubling of the trenches, which are typically twice the width of the inner stockade revetment or counterfort, caponier, and west stockade, almost certainly indicates either extensive repairs to the outer envelope or an intentional double wall on the exterior side to "bear out" musket balls along the parapet and considerably strengthen the entire unit. The profile of the 1699 French Fort Maurepas clearly shows that the main fort walls were of a doubled stockade set into a builders' trench (Robinson 1977:Figure 8). Paired post molds were found in the north terminus of the parapet ditch at Flowerdew on the east side associated with the earthworks.

There is a real chance that, given the double outer revetment trenches noted above, the double vertical wall as indicated by bifurcated outer revetment trenches was quite possibly filled in between with a series of staggered horizontal posts pinned with tree nails into all three walls (inner vertical, center horizontal, outer vertical) to create a very strong lamination which may have been made of cypress. In addition to tree nails, 17th-century versions of "fish plates" may have held the laminations together (Brackenbury 1888:Plate VII, Figures 13, 16, 18). Stanley South (1983) has found some zones of paired palisades indicating strengthening at San Felipe only along a sample bastion. In contrast, at Flowerdew the consistent nature
of the double trenches seems to encourage the notion of a more comprehensive repair or just plain strengthening from the beginning. The latter notion may have been appreciated by Yeardley, a man who had seen many Chesapeake fortifications fall into ruin through composting of green wooden members in association with earthworks, general erosion, and wood rot; and surely he saw many a parapet top lose its turf cladding or earthen batter to rain and storms, thus leaving meager strength to the parapet.

In addition to protecting musketeers, the parapet protected artillery mounted on the top of the rampart walk as opposed to those fired through embrasures which pierced the earthworks from the terreplein ("mounts" or cavaliers" (Hale 1964:Xcvii). Typically "rampart guns" were the smaller cannon and would include the archaeologically recovered robinet and falconette or potentially wheel-mounted murderors documented in the Muster of 1624–5. All three of these types were sufficiently small that they could be wheeled anywhere along the flat rampart "walk" (Jester and Hiden 1956:22; Wagner 1979:144). Thus, there was quite possibly no great need for a firing step, as this would impede use of rampart guns. Accordingly, in compensation for a firing step, the parapet was extensively perforated with periodic gun porting or "loop holes." The parade curtain or counterfort (inner of the two paired stockade revetment walls) may have been run up to shoulder height to allow militia to also fire inside the fort should things deteriorate to that point during a foreign assault. One incarnation of the fort
at Blackwater of 1597 shows a similar English rampart walk system with
defensive parapets on both sides to allow fire in all directions, and no firing
step to aid the use of rampart guns (Rowse 1973:Figure 3 above).

If shelled by artillery, the militia or "small shot" (musketeers) were
expected to crouch behind the counterfort (inner stockade revetment)
although this improvement may have had a ramp of earth behind it or "talus"
to help counter-brace the whole unit. It is unlikely that foreign troops would
shell the fort during an assault without risking killing their own men; hence
the rampart walk was generally useful.

The West Stockade Parapets

Along the western stockaded perimeter, where the wall walk was also
present, the area of the exterior stockade above the actual footpath
constituted a technical parapet. Here, the tops of posts or higher elevations
of posts, were cut in triangular or V-shaped notches with or without wattle
embellishments periodically in order to provide gun ports. This also
prevented sentries on routine watch duty along the wall walk from being easy
targets as they made their "rounders."

The Relationship between the West Stockade and Its Wall Walk

This area consists of an outer ditch-set stockade which has a hole-set
scaffolding system behind it west of the ravelin (cf. Brain et al. 1976). We
have no clear evidence that there were earthworks west of the bastard
caponier and ravelin since fortification ditches were not found here. Turves
may have been used in the Roman and Dutch style to build up areas in front of the stockade. The interior hole-set posts can be interpreted as simply holding up planks that held in rammed clay or turve banks behind the exterior stockade wall. Let's take a closer look at this area to see if we can determine what Yeardley and Rossingham did.

Figure 61 shows the majority of the south curtain of the fort beginning with the west half of the bastard caponier and ravelin but east of the southwest flanker. Here, all post molds larger than 0.4 feet wide have been blackened, as have been all angular (man-made) post molds. White areas within the blackened molds show smaller posts in reverse. Many of the largest molds clearly were butt sawed based on their shallow depth. Hard lines represent structural sensitivity between ditch-set and hole-set posts—many of which are squared—while dotted lines indicate areas where the inferred pattern has been obscured by plow shearing. What is happening here? It seems that the majority of post molds that have survived did so because they had dead weight on them during the ca. 1619–32 period so they, like house posts, sank a little bit, many sinking below the builders’ trench and preserving their true size if they were butt sawed.
Figure 59
Detail of cross tie system and possible strut system of the south curtain west of fortified gate at Yeardley's Fort.
Structural analysis of this area indicates not only clear traces of large stockade posts, but traces of architectural cross-strengthening between the wall walk (hole-set interior posts) and the exterior ditch-set stockade. The most obvious pattern is large or huge post molds within the stockade that correspond with opposite hole-set units which are part of the wall walk. It is inferred that joists attached by scabbed or notched joints or mortises were present here in order to create a raised platform for musketeers or "shott" to shoot through the stockade through loopholes in the latter. The structural evidence suggests a raised wooden platform (a "catwalk" or "boardwalk") rather than a turf or clay bank. Having said this, the need for counterforts would still be present, whether or not an earthen bank or wooden platform was used.

A second, weaker pattern suggests diagonal struts between the crossties. Once these were observed, the center line ("CL") in the drawing was demarked to see if there was an empirical pattern. When struts join the stockade, frequently a reasonably large post mold (most were blunt cones indicating ax felling) was pushed into the ground. When this does occur, it is almost always at the centerline.

A third pattern suggests no right-angle crossties between the wall walk and stockade, but rather diagonal reinforcements more in keeping with a greatly simplified version of Vitruvius' recommendations. These are especially evident near the bastard caponiers' right-angle turn toward the
west stockade curtain. The lines inscribed here may be somewhat arbitrary, but overall these would relieve structural tension between the strong caponier and the relatively weak wall and stockade. Notice how the wall walk is doubled in this area to relieve additional structural tensions created by the elevated 1623 ravelin. There is a strong hermetic quality to the ravelin, wall walk, and caponier here, again showing planned anticipation of future improvements.

Sensitivity to the planning of an anticipated southwest flanker is also evident in this drawing. Note how narrow the wall walk becomes as it gets near the southwest flanker. This section of the wall walk is just an elevated "rounders" path—no one is really planning to shoot muskets from here.

There are good examples of repairs in this area also. These are demarked in the drawing with "R" symbols. In one area (center line left) two stockade post molds were installed on either side of a cross-tie anchor also in the stockade, indicating that two or more horizontal planks were scabbed in and nailed to them and the interior opposite wall walk post. Weight on the whole nailed unit pulled the paired stockade posts down. Elsewhere (top row upper left) new postholes were added to the interior of the fort, almost certainly to up-brace a sagging planked section of the cat walk rather than an earthen embankment. Figure 60 shows three wall walks from early times to medieval and to the early 17th century.
Wall walks. (Top left) Iron- or Bronze-Age walled wall and walk (Hoggs 1981). (Top right) medieval wall walk (Kenyon 1990). (Bottom) wall walk at Monea Castle ca. 1622 Ireland (Ryan et al. 1991).
What precedents are there for timber wall walks. Kenyon (1990:212) defines a medieval wall walk as "a sentry path immediately behind the battlements of a castle or town wall." In fact, the medieval "wall walk" dates back to classic times, where it is analogous to a rampart walk. In other words, this type of defensive improvement is a matter-of-fact part of town design. Unfortunately for us, after the Norman Conquest, most wooden wall walks were replaced by rot-and fireproof earth and masonry works. Medieval wall walks would have been familiar to many or most of the immigrant population at Flowerdew through masonry castle and town walls which still dot the English landscape. Moreover, Ryan's (et al. 1993:191, 202, 216) illustrations of Ulster bawns and defensible tower house courtyards indicates that a Kenyon's Norman hole-set-supported timber wall walk system had survived at sites like Monea Castle, and Derryhivenny Castle well into late 16th- and early 17th-century Ireland as a living wooden building tradition. Similar activity is likely to be the case for portions of Europe, where timber was readily available and temporary wooden fortifications were still needed. Carson (et al. 1981:Figure 5) and colleagues have provided an illustration of such an apparent wall walk system in use at Casco Bay Fort in Maine in 1705. Russian works use the same system and, indeed, the ditch-set outer wall and hole-set wall walk combination is something of a military cliché (Upton et al 1986:82). In terms of periodic massive posts supporting palisade lines, Duffy (1979:Figure 36 [redoubt with exterior palisade barrier]) shows
just this sort of system with periodic massive posts with at least two interior runners bolstering the smaller palisade posts along the same line.

Kenyon's research on hole-set-founded timber wall walks indicates that they both braced and elevated such walks while they anchored the vertical palisades in a derrick-like or "hurdle"-like fashion similar to half a wooden bridge. Thus, the relative shallowness of the western sides of the ditch-set stockades indicate that this is probably due to the fact that they are borrowing some of their vertical strength from the parallel hole-set anchors -of and internal to the wall walk.

The Southwest Flanker

At the southwest corner of the fort is an expansion defining a series of efforts to better flank this portion of the fort. Figure 61 depicts not a normal archaeological plan, but rather a compilation of all the drawing made in this area as one mental template package. In this drawing, north is the top of the page, west is left. The drawing includes reference points pertaining to the master grid.

We can make several inferences from this drawing. First of all, we can see at least two or three incarnations of flanking efforts through time. During the first phase there was just a turn in the stockade line since this area was flanked by the missing northwest bastion and the bastard caponier by at least 1622. Probably during this initial period, very simple efforts were made to defend this corner. This consisted of a 12- (north to south) by 3-foot
Figure 61
Yeardley's Fort. The southeast flanker and its evolution.
(east to west) fully stockaded unit whose exterior wall was identical to the original fort wall and corner. A very narrow trench 0.6 to 0.8 feet wide defined the interior wall. Although this trench could be a groundsill, a single post mold within, combined with post molds at its terminus, together with its slightly curvilinear nature, suggest a weak ditch-set stockade. The terminal north posts intrude on the earlier wall walk posthole here. At the southern terminus at least one post mold suggests this improvement was anticipated when the wall walk post was installed. Two equally narrow trenches link up with the exterior stockade at right angles where, at the south, one post intrudes into the original stockade. These right-angle improvements define simple gun-ported traverses. Their purpose was to prevent attackers who had reached either side of the wall walk from entering the other. Simultaneously, they prevent anyone from enfilading the corner of the fort here. Since it is unclear how access to this area was obtained, we can presume a ladder was present.

During a second stage of building, a deltoid flanker was installed which was 7 feet wide east to west by 20 feet long north to south. It is defined by five post molds, only three of which retain the original postholes (the one defined by master grid point Z is about to break up). We know it was added later, since one scaffolding post (a sixth post), and posthole associated with it, intrudes upon the original stockade line. This was probably a story-and-a-half framed feature which now could create a cross-
fire to the east in concert with the caponier. Framing pairs are shown as dotted lines in the drawing. Clipping on the southern post demarked Z may suggest that the hewn cladding was horizontal rather than vertical. Perhaps the first stockaded chamber phase had now become a staircase providing access to the upper deck. Because of the presence of hole-set founded works, the flanker may have been constructed of nailed (or tree nailed), mortised, or halved cornering of thick-riven planks (cf. Noel Hume 1982; Shurtleff 1939: Figure pg. 11:1–2). It is likely that there were two levels to this work, with the ground level containing housing for militia guards and an upper parapeted deck roofed over or not. Given its essentially deltoid form, this unit may have also doubled as a watch tower, as the essentially triangular form is similar to the derrick watchtower at Bermuda Isle (Arber 1910 II:624). Note how this deltoid flanker form is repeated in the hole-set timber piles inside the ditch-set demi-bastion, both of which in the latter face east.

Despite its crudeness, a similar vernacular deltoid flanker, which cleverly eliminates a fourth wall, was built in masonry at the ca. 1692 Fort William Henry in Maine, as recorded by Romer (Bradley 1981:9, Figure 9). Note the double walls including the counterfort, which performs the same function as the double stockade revetment and wall walk at Flowerdew. This plan is like some Roman fort corner towers such as one at Kunzing in Raetia, suggesting that reductive function does determine form (Bradley 1981; Johnson 1983:Figure 30).
The final stage of the southwest flanker is an effort to make this shabby flanker look more like the bulwark to give a superficial sense of symmetry to the fort's southern corners. Consequently, a new 14.8-foot north flank was added which expanded the flanker another 12 feet and angled into the stockade and wall walk system via a new posthole. Here, the post mold is 1.45 foot thick, indicating a portion of a tree trunk, which closely matches the massive size of the post mold at Z. Opposite where this flank angle crosses the stockade, a trench had to be dug to bolster this area with a silled counterfort angle brace set into a builders' trench. It is doubtful that the entire unit now was at the same height as a watchtower, so the new north flank may have been lower, creating a stronger overall frame.

It looks like part of the original ditch-set stockade was robbed, especially in the north area of the drawing to accommodate later improvements. The southern sections appear to be retained to help brace a ladder or the staircase we noted above.

The West Curtain Wall Musketeer or Reentrant or Re-entering Angle and Its Hypothetical Opposite East Rampart Redan

When observing the north terminus of the west ditch-set palisade wall, a turn 6.0 feet long toward the east is notable. Nearby, the last post hole moving north (deemed "z prime" or z') appears to turn east in order to seemingly correct and maintain this parallel relationship which would be lost in the arbitrary z-t line (see archaeological "master plan"). Of particular
interest also, the hole-set posts ending with z' stop their typical 10-foot center sequence before they reach the intrusion of a modern duck blind (dotted square). Nonetheless, just below the turn in the ditch-set palisade, a dark post hole or mold is found at an approximate 20 feet from z'. Thus, it is somewhat unclear that the north terminal hole-set original wall here is really discontinuous. Since we now know that Structure 3 is part of the same master plan as the southern hole-set wall, it doesn't make sense that a paramilitary palisade or stockade here would suddenly stop without closing the line any more than it makes sense that the ditch-set stockade would have a corner here.

Therefore, this elbow-shaped work may be a musketeer or minimally a "re-entering or re-entrant angle" entrenchment perhaps associated with a flanked entry feature such as that at Ralph Lanes' fortified encampment at Puerto Rico (See Hulton 1984:Plate 3, 173). A re-entering angle is one that points inward toward the interior of a fortification or, stated in a different way, pointing in the opposite direction of a "salient" (outward) angle (Robinson 1977:204). A musketeer is simply an internal flank or traverse in the line created by a reentering angle (David Hazard, pers. comm. 1991). Thus, the common denominator in either military interpretation (musketeer or re-entering angle is that both interpretations feature an effort to flank the west stockade line with defensive fire to the north and an attempt to prevent anyone from enfilading the wall walk at points south. The military
functional interpretation noted above is supported by a discreet military
midden deposited specifically in this area which is otherwise largely barren of
artifacts other than nails and lead shot (cf. Barka 1993:330). No less than 10
musket parts and 5 sword trappings (scabbard/frog parts mostly for an
officer's rapier or sword rapier) are concentrated in this area (Flowerdew
Hundred Foundation Archives). Unfortunately, except by the 10- by 10-foot
excavation unit, the author does not presently know exactly which features
these came from. We know that Scot Speedy (pers. comm. 1992) has
indicated that hardly anything was found in the hole-set palisades besides
pipe stems, so we can assume this means the artifacts came from either the
plow zone or the ditch-set palisades. In either case, this would suggest this
debris indicates a primary military midden deposit analogous to the cannon
ball deposit associated with the terreplein and cannon embrasures.

The location of a musketeer similar to that at the Harbor View Fort is
also supported by recourse to the larger site picture. The musketeer (or
retrenchment area) corresponds with a very small redan (a military work
with two faces forming a "V-shape" open at the back) or fire control station (a
ground-level observation/firing point) along the opposite east outer stockade
revetment and parapet (Robinson 1977:204). Fort Raleigh has no less than
three similar redans, of which the smallest or the northeast is the most
similar to the meager footprint in the Yeardley Fort (Harrington 1984:8). If a
legitimate identification at all, the east Flowerdew redan is so small that its
main purpose was to allow militia to see and shoot anyone hiding at the base of the parapet (outer stockade revetment).

**The Fort Ditch and Ramparts as a Package: Toward A Sense of Scale to Yeardley's Vernacular Fort**

Compared to more massive Roman and Renaissance systems, the scale of the Flowerdew earthworks works was just large enough to permit movement on the ramparts and protect soldiers and cannon. This is based seemingly on similar scaling down of more ambitious works that are familiar from the Isle of Wight (militia) orders. These latter orders recommended "close-beaten" earth mixed with manure eight feet wide (Broyndon 1967:131). Such building material may have been employed at Flowerdew because the light alluvial soil present meant that if manure was not added as a binder, clay soils would have had to have been transported from river cliff zones elsewhere at Flowerdew near 44PG64, or from the deepest sections of the fort ditch.

The scale of the earthworks at Flowerdew is also similar to entrenched military encampments. Clayton (1591:40) noted, "if you looke not to manie enemies to assayle you, then it shall be sufficient to make the Trenches of your Leagar [fortified camp], but eight foot or nine foote deep and seven foote broade, and such times all men shall helpe the best they can." At about five to seven feet wide, we can assume that the fortification ditch at 44PG65 was at least seven feet wide before the hurricane of 1667. The relative
shallowness of the ditch, at about three feet below plow zone, was the Dutch model of entrenchment since it was probably a wet ditch (if modern sea level rise of 3 feet+ has not confused us here) (Duffy 1979:91–93, Andrew Edwards, pers. comm. 1995; William and Mary Archives). We do know that one of the hole-set timber piles (perhaps from the para-military palisade) associated with the northern section of the rampart was set so deep that it was preserved by continuous water inundation. This post was set more shallowly than the fort ditch, thus it appears to have been a wet ditch—analogous to a moat (but more modern).

It should be noted here that the majority of the fort ditch was not fully understood or exposed and drawn between 1971 and 1978. Most of it was under the high-tide level and the limits of excavation on the master grid near where the ditch was found do not clearly show the limits of drawing and cleaning here. The ditch contained burned flint and, near its top, blackish concentrations, reflecting either cow manure slaking debris (relating to the fireproofing of wood or as a binding agent for close beaten earth) or eroded sods which slumped into the depression when the fort fell into total neglect (1632+).

Ive (1598:34) notes for small forts such as "flankered redoubts" built of earth, that to "raife a parapet five or fome fiue or fixe [5 or 6] foote broade," was sufficient. These are dimensions which match the Flowerdew find, spanning somewhere between a Clayton's camp and (ditch) and Ive's small
fort (parapet and associated rampart) and the militia ramparts of the Isle of Wight orders.

**The Articulation of the Fort and Atrophic Town**

Architectural historians have shown increasing interest in how movement occurs in and among architectural forms. Our objective here is to very briefly introduce the concept of spatial movement within the site.

1. **The Main Street or Cross Passage Line (A-B):** This avenue of movement was probably the key zone of articulation, not only for the interior community, but for visitors. The avenue, beginning with the bastard caponati/postern leading to the entrance of Structure 3, is our concern here. In order to make this path, two "lobby entrances" were installed. The caponier/postern allowed soldiers to edit entry from two raised parapets, which form a "V" within the unit. Entry might have required a "watch word" verbally negotiated between the "Challengers and Challenged," in order to "passe the ports" (Flaherty 1969:32). People who did not come and go out the main gate were severely punished at Jamestown (Flaherty 1969:33, 48). Light ordnance such as the murderors, robinets, or falconettes (all documented at the site) could be wheeled forward to the port or back, as a secondary-entrance editorial component. At Jamestown Gates noted less mobile cannon but similar tactics, for "at every gate [there was] a demi-culvern" (Purchas 1926:66). At Structure 3, a second lobby entrance is broadly inferred from a basic building type (Robinson 1983:50–52).

After 1622, these avenue articulations were hypothetically barricaded using methods that were still documented in the 19th century. Two types of street barricades are employed, baffle barricades and a quick-set hedge. The baffles are walls extending from the northwest corner post of Structure 1 east to a hole-set which is in line with the north facade and two post molds which
extend west from the south wall facade of Structure 2 (Brackenbury 1888: Figures 15, 16). While the post hole associated with Structure 1 might be considered a wind brace to prop up the house, as the prevailing wind runs southeast here, the holes associated with Structure 2 (deemed b2) and projecting west negate this argument. Only by blocking the street A-B do these units occur and their alternating complimentary rhythm appears clear. Here the reader is reminded we are dealing with a fort intended to be defended against Native American and Spanish soldiers.

2. The blindes or quick-set hedge avenue: The quick-set hedge is made of bundles or post molds 0.15 feet to 0.3 feet (double fascines) set into a shallow trench 129 feet long and 1.8 feet to 4.7 feet in width to subdivide the settlement between structure 3 and Structures 1 and 2 (Barka 1993:330; Vauban 1968:Plate III). One tenant at Moneymore had "a double or treble quicksett, and wth a good hege or pole" associated with ditches (Robinson 1983:61). This street barricade deliberately terminates at the cattle pound (almost certainly because it postdates it) and runs toward the terreplein in a east-west orientation. It is denoted by points BL1 and BL2 on the master grid. Thus, cannon from the terreplein could rake either side of this internal partition. In the plan, the hedges are angled toward the north-northwest in order to give the cannon control of the entire unit. This also provided a sort of two-lane highway between Structures 2 and 1 that was negotiated by a sharp turn at the terreplein. Thus movement toward Structure 3 tended to underscore the real power of the plantation commander. Moreover, cannon removed from the terreplein could rake down the street facing south along the A-B line by trimming the hedge for an embrasure to face toward B from the north side of the hedge opposite A. This is inferred from the precedent at Jamestown where there was a cannon not only at every gate, but "so in the marketplace" and thus just opposite the "principle gate" or "point B" at Flowerdew (Purchas 1926:66).
Such bundles or light wood as the quick-set hedge would stop an arrow or a musket ball and allowed a last stand in protecting the high-status tenement at the heart of the community. Da Gama (1649) suggests a footprint of a turf wall would be identical to a ditch-set hedge due to frequent use of vertical faggots to hold the "V"-shaped sods together. Military tracts recommend "blindes," which are similar works to the quick-set hedge although they are held up by wattles. These were employed to prevent the enemy from seeing what is going on the opposite side (Norton 1973:132–1333).

As Barka (1975) has suggested, the quick-set hedge does demarche a boundary between the high-status tenement and the quarter and storage units which may have served to separate functional and social purposes within the cramped settlement. Interestingly, this seems to define the boundary between the exploded west English longhouse and the seat of the plantation commander (Hodges 1987, 1993). Barka's suggestion may indeed be the case or was a secondary function to creating a series of lines of defense. The point is that the avenue served a practical purpose and there was no need to conspire to overawe visitors; rather, there were few other tactically necessary places to put the cannon or interior defensive screens in the cramped settlement.

In the Norman model the town looked to the feudal castle stronghold occupied by the nobility to defend them by admission into the castles. Thus,
we should avoid a Marxist perspective on reading "social exclusiveness" and elitism into this practical plan. Barka's argument still has purchase in that movement toward Structure 3 could be subject to careful monitoring.

Another late medieval or specifically military aspect of this plan is how the quick-set hedge precludes surveillance of the lower settlement. Sergeant Fortesque was in charge of this area so that a person who was part of the command system lived on the south side of the quick-set hedge (see discussion below). According to Strachey, in 1611 sergeants were also in charge of "opening the ports" for the discovery of ambush or foul play, so he was in charge of the bastard caponier and probably everything south of the hedge pertaining to monitored articulation (Flaherty 1969:75).

3. The southern avenue extends along the avenue spanned by and just north of t-v-u (archaeological master plan). Two probable gates allowed entry into the cattle pound. The smaller gate for human entry is arbitrarily scribed within the right-angle symbol at point v (cf. Hodges 1993). This avenue, which acts as a surrogate street, could be easily defended by light mobile cannon (murderer, robinets, or falconettes) from the southeast demi-bastion. Until the cattle pound received a separate gate, cattle could be driven down this avenue without interfering with Structure 1 or the well, which had its own protective enclosure. After the whole peninsula was railed in, the somewhat uncertain "cattle gate 2" may have been embellished as a sally port that could be "seconded" (defended by) the southwest flanker (Noel Hume, pers. comm, 1993). A "sallie" [sally] port allowed the militia to sally forth—that is, charge out—from a point of relative safety to counter attack the enemy on foot (Barett 1598:glossary in appendix).

4. The wall walk/rampart walk for "Rounders": This is a more or less continuous walk around the earthen ramparts on the west side and the rampart wall on the east side. Vitruvius (Morgan 1926:22)
recommends that, "the thickness of the wall...be such that armed men meeting at the top of it may pass by one another without interference." At 5 feet wide, the rampart here barely met the minimal classical ideal. Such was not the case for the typically 3-foot-wide west wall walk typically called "lines for shot" which was more or less a one-way road for all intents and purposes. On the west side "small shot" (musketeers) could only move in single file. Movement between the flanker and demi-bastion with a projecting caponier in between suggests that this work was attempting to humbly follow the design principles of a quadrangular Renaissance fort. "Rounders" is the military vernacular for soldiers on watch duty who continuously walked around this exterior wall potentially 24 hours a day in order to prevent a surprise attack (Flaherty 1969:55–56). During the Anglo-Dutch military regime, drilling on marching and handling weapons, as well as accommodating to armor wearing, typically occurred when men were on watch duty. In this clever system, through constant rotation of watches, the plantation could function while comprehensive training gradually accumulated among the hapless "ordinary beginners" (Shea 1985:16).

Therefore, we can say that there were at least 3 to 4 passages forming a grid pattern that negotiated the site as it has survived. The colonists could say that 44PG65 had three streets when reporting back to London. We know they were just very basic passages. However, these meet the minimal requirements of Renaissance planning ideals for both gridded streets and cannon-supported streets. The main street A-B and the probable common east-west orientation of the "new classical" master plan all compliment and underscore that the core master plan was built on specific ideals well documented in Garvan (1951) and Reps (1972).

SUMMARY OF YEARDLEY'S FORT AND TOWN CENTER AT FLOWERDEW

Three small-scale variant models seem to come together here—the Romano-Norman, Renaissance, and exploded West English longhouse.
Similar to the Romano-Norman model, Structure 3 like the principia is placed in a dominant position over the two subordinate structures within a courtyard. By analogy with Magherafelt or Flint, Structure 3 takes the position of a bawn or castle. Structures 1 and 2 take the position of houses along a bi-linear street with the cross passage equivalent of the road. Renaissance influence is seen through this road leading directly to a bastion, and indeed a grid of movement both along wall and rampart walks and various ground-level paths offers a spare sensitivity to the Renaissance quadrangular fort model. The right triangular base plan (A-C-D) indicates anticipation of indefinite expansion of the fort and town as growth could be permitted. But Native American warfare forced the settlement to disperse tenants in a long linear plan away from the fort to protect crops of corn and tobacco. Despite this, there is a possibility the settlement had originally 5 main structures, with Structure 3 forming the core unit centered within the group of four.

The overall portions of the southern half of the settlement capture the essence of the spatial code of a west English longhouse (see Figure 62). Beresford and Hurst (1991:137) note that the medieval longhouse model, comprising a typical living room and an inner room for sleeping and dairying, often had a third room likely to have been made for farm storage. In 1993, the author turned this into a spatial code which by analogy grouped this unit as byre/hall/service storage grouping appropriate to all units below the hedge
partition (H1-H2). If this association has any purchase at all, it is one seemingly which has been exploded into separate components as an enlarged or "exploded" spatial/architectural model or, if the reader prefers, spatial/conceptual model. So the central street takes on, by analogy, the aspects of a cross passage.

Interestingly, Cary Carson (1969) has suggested that the cross passage in the West English house became the central hall of the 18th-century Palladian-influenced Virginia house. A second connection with the 18th century has been indicated by the similarity of this spatial tripartite code with Shirley plantation, built during the first quarter of the 18th century. The main difference between the layout of Shirley and Yeardley's Fort is that at Flowerdew the subordinate buildings are staggered (two hypotенuses) within the right triangle, while at Shirley they are parallel to a single hypotenuse.
By analogue amplification of Carson's cross passage/central hall evolution, we can with caution suggest that the macro-cross passage (street) at both Flowerdew and Shirley lead to the entrance to the main house (Structure 3, Shirley Mansion) in a similar fashion that would make a cross passage in a west English house shift to a central hall in an 18th-century dwelling. If Yeardley's fort is also a responsible identification as an atrophic town, then we can suggest that there is a linkage between small-scale variant planning models dating from the early 17th century which have much older connections with the 18th-century elite tripartite plan than we may have realized.

The architectural statement marked by praxeological constraints makes a very simple series of statements about real settlement needs:

1. You need a place to house the military and religious leaders of the settlement which is architecturally superior to the other units. Superficial window dressing is clay roofing tiles and possibly a lobby entrance hall and chamber-type house set up as a chapel and commander's house (Seat Plantation Commander and Chapel).

2. You need a quarter to house non-officer male militia and male and female servants who help provision the settlement (Hall).

3. You need a safe place for catchment of agricultural products including corn, seed corn, and tobacco in cask (Service and Storage).

4. You need a place of safety for cattle during Indian threats, until especially the whole peninsula can be railed in (Byre). After that, an appended enclosure is still useful to drive cattle into the cattle pound simply because it is the least labor-intensive way of gathering concentrated manure and obtaining milk for dairy
products, which are at a premium during warfare as a protein and fat source.

An examination of the military architecture indicates that this unit was consciously planned from the beginning to accept artillery based on the model of an irregular flankered redoubt. The settlement strives to imitate a quadrangular Renaissance fort only in shorthand by the addition of one demi-bastion (demi-bulwark), one wooden flanker, which is a type of demi-bastion (with one face and two flanks), and one flat bastion. At one stage the latter was built in the shape of a classic arrow-shaped bastion. While there is an absurdly small grid within the fort envelope provided by four articulations, several are greatly compromised. The design of the ramparts are, despite the presence of modern earthwork modifications, nonetheless based essentially on a box rampart model at least 2,000 years old on the east side and about 800 years old on the west side and replete with a timber wall walk behind a wooden stockade. Governor Wyatt's father recommended regarding, "Amminge Defensives and Offensives"...[which] In both I must refer you to the exact Pen of Vegetius [Flavius Vegetius, Roman soldier and engineer]" because of his experience in the Low Countries where the Roman style of field work was in vogue (Fausz and Kukla 1977:123). More modern original Dutch influence (not necessarily Roman) is observed in the use of wet ditches and right angles in one bastion, the flat bastion (slaughterhouse), and obtuse flank angles half-bulwark (Ramm et al. 1962:101–102). Particularly at the fortified entrance, evidence of repair and modification is extensive (ravelin,
slaughtahouse, bastard/full bastion), suggesting the fort was rebuilt repeatedly as the tangled historic context suggests it had to be.

The classical influence on the fortification provided in construction details also extended into the fort and atrophic town plan, suggesting that the details of physical "infrastructure" are complimentary to the classical planning ideals of the architectural statement of the "superstructure." This motif even extended into imitation of Roman battlefield tactics that anticipate the Industrial Revolution. An association with corn and tobacco production took on an odd form of commerce bent toward warfare and patronage support to bind the commercial/Machiavellian unit together. Examination of historic records indicates that this fort/town center—like the Elizabethan soldier and Flowerdew Hundred Plantation itself—as to modern eyes, "a strange mixture of private contract and public servant." The agglomeration began as a patriotic liberal Virginia Company and Charles City Corporation Anglo-Dutch fort (1622–24) and ended its life as a conservative stronghold controlled by the English Crown and Charles City Corporation (1624–32) as the last vestiges of the Anglo-Dutch military regime were broken up and reassembled as English royal patriots to more than a Machiavellian commercial venture.
CHAPTER 3
COMPARATIVE EVIDENCE AND SUMMARY

Here we will look briefly at sites we hypothesize will share some common traits with the Flowerdew small-scale variant town planning and fortification data. By spatial necessity we cannot embellish on these comparative examples through any serious application of mid-range theory. However, previous site reports or publications will greatly enhance what can be said responsibly. Moreover, the basic themes at Flowerdew such as Vitruvian town plans, Renaissance architectural sensibilities, the chain of being, and vernacular versions of Renaissance fortification traditions need not be repeated in such great detail, as they have already been introduced. Consequently, it is hoped that Chapter 3 will borrow strength from Chapter 2 and vice versa.

At this point the present discourse requires a "road map" for relatively easy appraisal of site structure similarities and differences. Consequently, the reader should refer extensively to the "Key Analogues Chart" provided here which provides both Late Medieval and Renaissance influences (Kruft 1984; Reinhart et al. 1984; Rowley and Wood 1982:14). (See Figure 63) In this chart we will develop the notion of simple hierarchal and subordinate
site structure by showing the relationships between contemporary or modern names—often variant—in digestible and complimentary functional groupings.
### TABLE 4
KEY ANALOGUES CHART (SOCIAL, SPATIAL AND FUNCTIONAL) FOR SMALL-SCALE VARIANT TOWN \ PLANTATION PLANS

**Social/Spatial Ordinal Plans:**

**Hierarchal Building:** Manor, Key Abode, Church, Court, Government, etc.

**Subordinate Buildings, Enclosures:**

- **Human Help:** Servants, Labor, Militia, Court of Guard, Quarter, etc.
- **Crops/Goods:** Stored inanimate objects, tobacco in cask, bushels of corn, agricultural tools, arms, etc.
- **Animals:** Enclosures, Cattle Pounds, Crofts, Penfolds, Dairy-related Outbuildings, Smoke Houses and Meat Processing Outbuildings

**Architectural Site Structure Analogues:**

**Late Medieval** (from Rowley and Wood 1982:Figure13):
1. **Cot:** (abode and shed outbuilding).
2. **Long-house:** (rectangular House with inner room, living space, cross passage, attached byre for animals).
3. **Farm:** (domicile, with barn close to house but in an "L-shaped" angular relationship to it, a shed outbuilding). (space prevents Hall House inclusion).

**Renaissance** (here we use only two symbolic models):
1. **Vitruvian Man:** (symbolized by Cataneo’s Church of 1567 from Kruft, 1984, where the human body models sites).
2. **Vitruvian and Palladian 18th-Century Plantation Complex:**
   - **Shirley** (already compared to Flowerdew and Magherafelt, and also Monticello via Humanitas (non-correlative references to classical antiquity):
     - **A** Centered, hierarchal Mansion.
     - **B** Bi-linear Subordinate buildings.
     - **Ba** Subordinate buildings with long facades common to Mansion.
     - **Bb** Subordinate buildings with long facades at right angles to mansion, forming a courtyard.
Regarding the Key Analogues Chart, something else should be said briefly. The inclusion of cots, west English longhouses, and farm models from Rowley and Wood (1982:44) and Bereford and Hurst (1971) in the chart allows us to get a sense of how our data suite may or may not show debts to Late Medieval antecedents from an evolutionary perspective. (See Figure 64.) The appeal in using the ca. 1740 Shirley complex as a comparative model as above is simple—it is a Palladian Mansion complex organized on clear Vitruvian principles also (as we saw in Chapter 2). Moreover, it has subordinate buildings, which are both parallel to the mansion and at right angles to it, showing common ground with our data suite. Shirley has one "foot" in the 17th century and one in the 18th century. The 18th-century Shirley Mansion complex was chosen to symbolize the link between Ulster bawns such as Magherafelt, which contain two rows of homesteader's houses and plantation complexes with two rows of subordinate ancillary buildings. (See Figure 65.) Shirley also speaks for Monticello, both of which are creative non-corremative references to classical antiquity in inspiration which Simpson (1959:v) calls "humanitas" as an action-driven way of life and study rather than a passive doctrine.

By modeling the present restricted data suite, we hope to be able to get a better sense of the real origin—as seen in vernacular shifts and origins of
Figure 63
The key analogues chart from Kruft 1984; Rowley and Wood 1982; Reinhart et al. 1984.
Figure 64
Late medieval house types for peasants or poor (Rowley and Wood 1982:Fig. 17).

Figure 65
The Shirley mansion complex ca. 1740 (Reinhart et al. 1984).
Jamestown and its early fort, built in 1607 and maintained in some manner to at least 1616, are and were the most well known of Virginia's many historic sites because of their association with the earliest permanent English settlement in continental North America and the Capital of Virginia from 1607 to 1611 and 1617 to 1699 (Hatch 1957). The published literature about this site is enormous. Having introduced the site in Chapter 1 as Virginia's most familiar town-founding model, here our focus must be limited (Reps 1972:31–39,43–56). Accordingly, we are looking at Jamestown here primarily between 1607 and 1614 when its small-scale variant town planning activities were most elemental and therefore tolerably comparable in most basic model form to Flowerdew, Wolstenholme Town, Jordans Journey, the Nansemond Fort, and Clifts.

**Comparing Site Structure of James Fort with Yeardley's Fort**

Although James Fort is currently being delineated through archaeological excavations (Kelso 1995, 1996, 1997), the 1610 interpretation of the fort's well-documented incarnation noted by Forman in 1938 serves as the primary basis for a comparison of site structure of James Fort to other 17th-century Chesapeake settlements in this thesis, especially with concerning comparisons with Yeardley's Fort at Flowerdew. (See Figure 67.) It is hoped that the following discussion can be employed as a predictive model to be tested by the ongoing archaeology program at the site although
Civil War Confederate earthworks may have destroyed the heart of James Fort.

Forman (1938:39) based his reconstruction of James Fort primarily on the description of the settlement in 1610 prepared by William Strachey, secretary of the colony to Sir Thomas Gates and Sir Thomas West (Purchas 1926 19:44–45; 55–58). Gates was compelled to rebuild the majority of the ruined fort he saw on his arrival to Virginia. The context of this rebuilding is very important. Gates observed upon his arrival that there were "empty houses" in James Fort, and the surviving men lived in their "Blockhouse" (a separate outwork) (Purchas 1926 19:44-45). The Virginia Council noted that, "Only the blockhouse somewhat regarded [that is not allowed to go to ruin] was the safety of the remainder that lived" (Brown 1890:405). Did the
colonists like James Fort? In a nutshell one of Yeardley first jobs at Jamestown in 1610 was to place an armed guard on what remained of the fort to prevent the settlers from burning it to the ground when Gates decided to pull out—due to lack of food.

Thus, by 1610, James Fort was not only in ruins but it was also abandoned twice (once by the colonists and once by Gates). The settlement was so weakly populated it could not hold the fort's large perimeter, which became a source of firewood in a relatively safe open capania. This probably affected Yeardley's down scaling of the Flowerdew Fort size in the 1622–23 period. Abandonment of James Fort reflected perhaps the most poorly acknowledged yet well recorded Native American victory in American history. In addition to possibly burning a portion of the fort before 1609, by 1610 Pasbahegh and the Powhatan warriors had "taken" the fort, not by direct assault but by starving out the settlers and sniping at anyone who stirred out (Arber 1910 I:103; Kingsbury 1933:18). The failure to acknowledge this accomplishment can only be attributed to the ethnocentric absurdities of the national origin myth associated with James Fort. Only one recent scholar, namely Frederick Fausz (1990), even comes close to appreciating this Native American victory; this is because he was preoccupied with convincing Anglo-centric regional scholars that the legendary "starving time" coincided with, and was in large part the result of, the First Anglo-Powhatan War which was only attenuated by a severe drought (1609–14). The native peoples waged
this war by disrupting European subsistence activities and employing intensive guerilla tactics rather than by mounting a European-style frontal assault such as they had tried unsuccessfully in 1607 before James Fort was completed (Arber 1910 I:ii-v, II:406–407; Hatch n.d.).

Gates' largely rebuilt fort of 1610 was the third incarnation of James Fort so far as we can determine (Arber 1910 I:ii-v, 103; 406–407; Purchas 1926 19:65–68). Forman used several key documentary references to determine the basic structure of the Jamestown settlement. He inferred that the church was oriented east to west, parallel to the south wall of the fort, where the main gate was located, because the church was described as having "two Bels [bells] at the West end" (Wright 1964:79–81). Strachey's description also implies that the church served as a meeting place in which seating was arranged by social rank. Thus, in our model the church is the only logical choice for an ordinal/hierarchical structure in the settlement. It was also possible to determine that the "Court of Guard" (a military quarter or garrison house for the Governor's officers and his personal body guard) and a storehouse were situated below the church, simply because these two structures were not part of the three rows of houses as described by Strachey, the new secretary of the Colony. Additionally, it is unlikely that the storehouse would not have been convenient to the main "River Gate" and the "Market place." The latter is specifically described as being located in the "Middest" place (Purchas 1926 19:56). The very shape of open ground in the
center of the triangular fort therefore determined Forman's model of site structure.

Two additional concentric, triangular architectural arrangements surrounding this are presented by the triangular rows of cabins (occupied by settlers and soldiers) and the triangular curtains of the fort. It is difficult to say how much the tripartite structure of James Fort is the result of simple praxeological constraints imposed by its triangular defensive perimeter and how much is the result of a conscious attempt to implement town planning ideals. There are plenty of military forts and triangular forts that have a purely utilitarian interior community, with many having all their houses and stores butted against or near the walls for protection. Forman's (1938) reconstruction was closely scrutinized by the National Park Service through Hatch's (n.d.) hard work, which, with only minor modifications, was used as the basis for the "Sketch Plan" (Drawing No. NHP-Oal 10, VO2) and prepared for public interpretation. This model of James Fort is familiar to most of us through two paintings by Sidney King (Reps 1972:Figure 26, 30). (See Figure 67.)

So, given the common ground between Hatch and Foreman, we can say for now the core structure of each settlement Yeardley's Fort and James Fort consisted of three main buildings, even though James Fort differed importantly from Yeardley's Fort in that it also contained three rows of
houses or cabins. The three core structures in each settlement can be directly compared, however, since in each settlement they are positioned in an ordinal arrangement within a triangular plan based on the "Romano/Renaissance Model" with "English military camp small-scale variants" (see Table 1).

Figure 67
Sidney King’s painting of James Fort 1607 (Reps 1972:Fig. 26).
It should be noted again here that Yeardley served as captain of Gates' body guard in 1610, and it is very likely that Yeardley absorbed the "James Fort model" while in residence at Jamestown or on frequent visits. He probably was exposed also to tripartite plans in the small forts of Holland in which the general's (or commanding officer's) residence assumed the hierarchical position represented by the church at Jamestown. Therefore, of the two forts, the work at Flowerdew with its hierarchical headquarters building (Structure 3) is actually the parent model for James Fort as far as the soldiers saw it. Were there hierarchical churches in the garrison forts in the "Low Countries?" Of course not! More likely there were ministers attached to the headquarters buildings. So we can strengthen Forman's model with the archaeological evidence from Flowerdew. The fact is, Yeardley's Fort (44PG65), with its rectangular\trapezoidal perimeter, also employs a core tripartite plan with ideo-technic trappings that at James Fort was intended to express a clear statement of classical humanitas (creative and therefore non-corremative references to classical antiquity) through the execution of a Vitruvian triangle. It also loosely follows the Roman principia model of Garvan (1951). This was presumably to underscore a new Roman-based English civility in the otherwise savage New World, which of course has ideo-technic trappings (Fausz 1977).

One means of identifying the praxeological adjustments made by Yeardley in executing a Vitruvian settlement plan at Flowerdew is to
compare analogous features of James Fort and Yeardley's Fort, namely the presence of three core buildings and the functional and spatial relationships among these structures. Through this exercise we hope both to underscore our previous identifications through the function of the buildings within the smaller fort, built by Yeardley, and recognize patterning in the hierarchical arrangement of the buildings relevant for understanding broader trends in cultural behavior at Flowerdew and James Fort. See Figure 68.

Figure 68
James Fort in 1610; Yeardley's fort 1622–23.
The tripartite plans of James Fort and Yeardley's Fort at Flowerdew comprise a dominant hierarchical building and subordinate buildings to the west and east. At James Fort the dominant hierarchical building is the church, while at Flowerdew it is the Structure 3 Tenement, which served as the commander's house and chapel. Only after Sir Thomas Gates arrived in 1610 did a church replace a temporary chapel at Jamestown, and it is hypothesized that the minister, Grivell Pooley, was similarly compelled to use a room in Structure 3 as a chapel before a separate church building could be erected in Charles City Corporation, if this was ever done (Purchas 1926 19:55). A late Tudor military tract noted that it is,

"Neccarie yt is that every company have one honest and christen minister to communicate in times convenient, also to use daylie prayer with the same, oft prechinge, teachinge an dinstructinge them the lawe and feare of God, with which soldiers, as holy scripture mencioneth in many places, God ys pleased. Yf soldiers be sicke or hurte, or otherwise in extremite, they will them to fighte agaynste the fleshe,..." (as cited in Hale 1983:275).

Structure 3, however, also would have contained the seat of the plantation commander, Captain Sharp, since praxeological constraints at Flowerdew would have required housing both church and state functions within the same building, with private sleeping quarters provided upstairs based loosely on the Roman principia model (Garvan 1951). The authority of both the plantation commanders who could hold local courts and the minister at Flowerdew would have been enhanced by combining the functions of state and church within a single building.
The authority of church and state was also wedded architecturally at James Fort, since the church at Jamestown housed the first Virginia Assembly in 1619. Seating for administrative functions apparently followed the order used during church services, with those of superior rank seated closest to the chancel and pulpit (Kingsbury 1933:154). Strachey (Wright 1964:80–81) observed ranked seating in the Jamestown church as early as 1611, and seating arrangements based on social status and secular office were still being used in Anglican churches well into the 18th century. Upton (1986:97–98) views this behavior as a reflection of the culture's ethos in microcosm and this certainly does not hurt our modeled use of the chain of being (which ranked social order) as part of this explanation. So far then, in terms of overall function these two hierarchal buildings are nearly identical, with clear secular downscaling at Flowerdew compared to James Fort.

The west subordinate building at James Fort is the Court of Guard (main quarters for the Governor's military body guard), while at Flowerdew it is the west Structure 1 Garrison house and Quarter for the "men at castle." Can we provide any texture to this site structure association? Foreman (1938) did not indicate why he believed that the Court de Guarde at James Fort was located to the west of the storehouse, but he may have been thinking that this placement symbolized the military's position at the "right hand" of god, or the Church. In the mental template of the time, placement to the right of the church would have conferred more honor than would have
been bestowed on the storehouse, which housed no human occupants—the left side being "ill favored" perhaps only when the right side was taken seriously as a symbolic gesture. The architectural language of the church building instead confers respect on the Court of Guarde, with the west bell tower favoring entry from or passage to the soldiers' barracks; it also reflects traditional English arrangements (Upton 1986).

Earlier models for the symbolic expression of this relationship between the Church and military support this interpretation of the structure of James Fort. During feudal times, knightly orders defended the church, functioning as what was referred to as the "sword arm" (i.e., right arm) or "armes blanche" of Christ and the state (Gies 1984:8, 79–80; Hale 1964b:xcci). This relationship is also symbolized in Renaissance paintings which employ tripartite arrangements. For instance, in the altarpiece executed by Giorgione for the Castelfranco in Venice, the Church is symbolized by the image of the Madonna and Christ Child positioned at the Vitruvian head of the elements in the painting. God's servants are depicted in subordinate positions to the Madonna: A friar or priest is positioned to the left, and a knight in armor and holding the banner of the state is positioned to the right as the sword arm of the state and of course as a symbol of temporal power in general (Goffen 1989:Figure 129, 175; Pedretti 1985:156, 160).
At Flowerdew, the placement of Structure 1, which housed Sergeant Fortesque, to the west of Structure 3 could have symbolized the articulation of the ideo-technic power base of the settlement. The plan of the settlement conferred honor on Sergeant Fortesque who, in many ways, was the actual force which "retained" the Church and State at Flowerdew. Assuming the burdens of both the "farmer soldier" and the Chesapeake "Tobacco Bawn," he both trained the militia and served as overseer of the plantation (Hodges 1995; Shea 1985).

The plan of St. Mary's City, founded in 1634 as the seat of the Maryland colony, may have expressed symbolic relationships similar to those seen in the plans of James Fort and Yeardley's Fort. In brief, St. Mary's City consisted of a flanked quadrilinear palisade which was to contain "a convenient house" for the governor and a "church or chapel adjacent" (Reps 1972:56), an arrangement in which religious and secular power were accorded equal authority by their placement on a single plane, again following the cheaper Roman principia model or praetorium model (See Figure 69). For practical reasons, construction of the settlement may have been initiated by building a guardhouse and store. Thus, we might predict that during the earliest settlement period, the buildings at St. Mary's City might have been arranged in a simple Vitruvian triangle with the Governor's house and an adjacent integral chapel in the dominant position and a guardhouse (really a garrison house in modern parlance) and store in the
subordinate positions. So it seem more than likely that we have a direct match in our analog model between the garrison house at Flowerdew and the Court of Guard building at James Fort, both in terms of its physical placement west and in terms of its cultural ambiance and symbolism.

The east subordinate building at both James Fort and Flowerdew is a storehouse. The positions of the storehouses at James Fort and at Flowerdew, as independently modeled by Barka (1975:4) and Carson (et al. 1981) are identical. It should be noted again that during the 17th century the terms magazine, warehouse, and storehouse were virtually synonymous (Noel Hume 1975:186; OED 1978 6:22). In early Virginia, for example, the term magazine was used in
referring to the "Magazine Ship," the Susan, a floating Virginia Company store run by Abraham Piersey having little if any involvement with military stores (Jester and Hiden 1956:263). In Strachey's Martial Law of 1611, the military regime employed the word store, not magazine, when referring to the provisions of the "Provant Master" (master of provisions) (Flaherty 1969:15). Today, the French word for store is still magazine, although in modern English usage the meaning of magazine is typically reserved for military use referring to stored munitions.

In the 17th century, storehouses, warehouses, and magazines would have been used to hold food provisions, trade goods, and work tools, with weapons and munitions found as well in the military magazines and possibly retained in officer barracks at times for security because mutiny was a frequent problem. The structures would have been well built to prevent infestation by rodents and pilfering. It is likely that the "blockhouses" or "three forts" identified by Kelso (1996:20–21; Figure20) at Jamestown are in fact the "three large Store-houses joined together in length" that were built along the river front by 1611–12 when the fort's store house catchment system outgrew its capability and convenience (Arber 1910 II:511). The buildings may be tightly clustered so that each would be convenient to the river dock, although clustering of buildings was also probably encouraged during the First Anglo-Powhatan War. These Jamestown structures are superficially similar to the practical waterfront warehouses recorded at St.
Augustine ca. 1593 which are more fire resistant by not being joined (Chantelain 1926:Figure 4).

Our comparison of James Fort and Flowerdew can also be expanded to include the whole of each settlement. At Jamestown, a main street ran from the main gate to the church, presumably in between the court of guard building and the storehouse. The bastard caponier at Flowerdew is analogous to the main gate at James Fort, and the passage leading between Structures 1 and 2 to the chapel and plantation commander's tenement defines the main street (along the A-B line). Rather than being placed in row houses within James Fort following the Roman\Renaissance model, the servants and tenants at Flowerdew, as we noted in Chapter 2, were housed in quarters stretched out in a line across the Flowerdew and Weyanoke peninsulas. Flowerdew varies strongly from the plan of Jamestown and follows Dale's "Bermuda Model" of linear para-military farming because of its particular function as a tobacco- and corn-producing plantation and the context in which it needed to defend its crops. Flowerdew is a vernacular shift away from James Fort due to its maximal frontier adjustment to Virginia. Jamestown grew into New Town following the Romano\Medieval model between 1614 and 1621+ and following a much stronger urbanization model than Flowerdew, as it has a much better deep channel next to it and benefited from being a political capital and seat of government (Reps 1972).
James Fort as a Fortification 1607 to 1614

In this section of our review of Jamestown we are trying to see if we can find direct parallel between Jamestown and Flowerdew in design features in the fortifications. We hypothesize that James Fort follows a piecemeal development model like Yeardley's fort at Flowerdew. We think some aspects of fort architectural components will benefit from other comparisons because of the close personal background of Yeardley (junior officer) and Sir Thomas Gates (senior officer). Moreover, in 1616, James Fort was commanded by Samuel Sharpe, the plantation commander of Flowerdew under both Yeardley and Piersey.

Fortified triangular military camps are one of the three shapes (together with rectangles and semi-circles) recommended by Roman soldier Vegetitus based on the requirements of the ground (Milner 1993:23). Initially George Kendall erects "boughs of trees cast together in the forme of a half moon" as part of clearing a campagna for the fort (Arber 1910 1:91). So it is possible that the fort design itself is a form of military humanitas (non-corremative references to classical antiquity) for, between the triangular fort and Kenadall's half-moon barricade, we have two out of three form references of a Roman camp shapes. At James Fort, however, there is some suggestion that the landscape required some compromises which resulted in the triangular form option (Purchas 1926 19:65).
The ideal Renaissance fortification is a circular snowflake-like polygon with streets radiating from a central hub (Argan 1969; Reps 1972). With this image in mind, the triangular fort can be understood as a simplified form of the ideal fort: that is, the circular polygon reduced to a single "triangular slice of the Vitruvian pie." Consequently, within the triangular fort, Vitruvian/Renaissance town-planning motifs are expressed in shorthand along a single main street (Argan 1969:35–36). Fithian (1991:11) has suggested that triangular forts such as Pope's Fort in St. Mary's City and James Fort had praxeological appeal in frontier settings. Labor was saved since the triangular fort required one less wall than a rectangular one, while the triangular configuration automatically provides a good flank angle to the bastions or bulwarks since each curtain cuts toward another at a sharp angle away from the salients (the outward projection of the bulwarks).

Triangular forts appear to have fallen out of favor by the third quarter of the 17th century because of the inherent weakness created at the narrow construction of the main perimeter corners at that neck and where it meets the gorge (rear) of the bulwarks (or demi-bastions or full bastions). These narrow constrictions were easily shot away by attacking artillery (Hogg 1981:111–112). The triangular fort also declined in popularity relative to quadrilinlear or pentagonal forms because of the low ratio of usable interior space to the length of the curtain. Because of the economy of labor and materials inherent in triangular fortifications, however, they continued in
limited use into the modern era and were employed, for example, by the United States military in Vietnam during the 1960s and 1970s (Babitts, personal communication 1992)

With all of the current popularity of the Dutch connection at Jamestown, it was ironically Maister Wingfield, "a soldier who had seen service in Ireland" (who was in charge of the council), who first designed and implemented the famous triangular fort possibly based on a winter camp familiar to him in Ulster (Arber 1910 1:91). There are two contemporaneous depictions of the triangular fort at Jamestown, each associated with different renditions of the ca. 1608–09 Zuniga map (see Figure 70). One depiction,
Figure 70

(a) Zuniga 1 after Brown 1890:184-185, ca. 1608;
(b) Zuniga 2 after Kelso 1995:Fig. 16, ca. 1608;
(b1) (Inset) shows how James Fort intends to move to full bastion.
(c) Black Water I, a fully flanked rampart shows ease of conversion to a triangular fort; compare with Zuniga 1 bottom.
(d) St Augustine, Florida 1593 (after Reps 1972:Fig. 28). Here, the blunt bastion faces are able to resist cannon better.
(e) Yeardley’s Fort ca. 1623. Note the Z-configuration and how an internal flank or traverse (bottom left) allows fort to cover artillery battery below, compare with Zuniga 1 bottom left, Blackwater 1 bottom left,
which we will refer to as the "Zuniga 1 Fort," was published by Brown (1890 I:184–185, inset); the other, referred to here as the "Zuniga 2 Fort," was brought to the attention of Chesapeake scholars more recently by Colonial National Historical Park historian James Haskett (Kelso 1995:Figure 16). Both depictions are crude sketches but, as often is the case, are nonetheless informative in some reasonable way given the absolute rarity of any overall design information besides confusing verbal references.

The Zuniga 1 Fort depiction shows a recognizable series of military grammatical statements which hold our interest here. It has a full, fairly blunted bulwark at the north corner which immediately recalls the blunted half bulwark at Flowerdew. Returning to Zuniga 1, at the southeast and southwest corners are two smaller rondels (rounded bulwarks) or half-bulwarks which might be called "half rounds" (semi-circular bastions) or, misleadingly, half-moons (not to be confused with triangular demi-lunes) (Hale 1983:xcvii)). The rondels do not clearly flank the south or river wall of the fort unless they are higher than the two squared south-facing works which we think were caponiers, sally ports (protected entrance and exit areas), or demi-bastions which do face the river.

Attached to the rondels at the Zuniga 1 Fort are traces of more modern demi-bastions (bastions with two flanks but only one face). These were possibly functionally combined with sally ports and they recall the shape of
Harwood's watchtower in basic structural form because they were probably using ribands (nailed horizontal runners) to secure the straight walls of their squarish mass (Noel Hume 1991). These demi-bastions do seem to augment the flanking of the south wall on the river side of the fort by forming a crossfire between them (Forman 1938:39). The 1601 siege plan for Kinsale appears to show similar military grammar by pairing two rondels at the same corner of the quadrilinear fortification (Hodges 1993:Figure 3:A3). This depiction also shows a Maltese or imperial cross within the fort and a flag field which is not touching the flag edge.

In basic form, the Zuniga 1 Fort approaches an initial design movement toward a very early, simple Renaissance form which recalls the basic plan of the 1325 Castello di Sarzanello, in Pisa, before Renaissance embellishments comprising a huge ravelin were added (Toy 1984:163–165) (see Figure 71). However, Zuniga 1 is probably directly referencing the ideal Tudor plan of 16th-century English Sandgate Castle, in England (O'Neil 1964:Plate 13) (see Figure 72). As suggested by Brannon (1997), the Zuniga 1 Fort is even more strikingly similar to Culmore in contemporary Ulster. In the Zuniga 1 Fort, the weakness inherent in triangular forts (narrow necks just before the bulwarks) was addressed by thickening the south bastion pairs by attaching demi-bastions to the rondels, thereby thickening the neck. Discounting demi-bastions or sally ports, it is the earthworks and timber stockades which make it a more modern Renaissance fort than the otherwise
nearly identical Late Medieval masonry work in Pisa. As we noted in Chapter 2, the rondels or circular bulwarks ("bole works") at James Fort owe their form to early earth and timber fortifications that were thrown up around medieval masonry town walls to keep early siege cannon at bay (Hale 1964b:xcvii; Hinds and Fitzgerald 1996:1, 61).

Figure 71
Triangular forts. (Top) Fort Dorothea 1654, West Africa flanked redoubt (Lawrence 1964), (Bottom) Castello di Sazanella Triangular castle ca. 1325 outwork ravelin 15th to 16th century (Toy 1984).
A depiction from 1597 of the original incarnation of Blackwater Fort shows a flanked line with two rondels defending the landward rear and two opposing squarish demi-bastions defending Yellow Ford (Rowse 1971:Figure 3A). (See Figure 72.) The essentially linear configuration of the work is an inheritance from flanked siege lines thrown up by Spanish, English, and Dutch troops in the Low Countries. It requires little mental effort to see that, with the addition of two rear converging walls, the 1597 Blackwater Fort plan could be transformed into a triangular fort, and indeed this appears to be what happened. Reps (1972:11) and Miller (1986) have each suggested that the later triangular 1601 incarnation of the Blackwater Fort in Armagh,
Northern Ireland, might represent a prototype for James Fort. (See Figure 74.) A comparison of two depictions of the Blackwater Fort at different

Figure 73
The English flanked rampart at Blackwater (Blackwater 1) which defends a ford against the Irish (Rowse 1971:Fig. 3a).

Figure 74
The Blackwater Fort ca. 1601 (Reps 1972).
stages of its development shows various rationalizations of demi-bastions into posterns or sally ports. By 1601, the Blackwater Fort had been extensively reshaped into a full triangular form with bent curtains which precluded Renaissance-style cross fire between bastions (Reps 1972:Figure 10). It now had one inland, fully arrow-shaped bastion and two less vernacular demi-bastions which flanked the ford poorly but which provided flank fire over all inland portions of the curtain. What apparently was a demi-bastion in 1597 facing Yellow Ford had probably been rationalized into a sally port on the lower right side similar to the rationalized rondel or bulwark facing southeast in the Zuniga 2 depiction of James Fort (Kelso 1995:Figure 16).

Similar to the Zuniga 1 Fort, the Zuniga 2 Fort has a blunted, full bulwark at the north corner similar to the Zuniga 1 Fort. It also has paired angular demi-bastions flanking all lower walls. In contrast to the Zuniga 1 Fort, no imperial cross is depicted within the fort and the field of the flag touches its edge. The demi-bastion at the southeast corner of the Zuniga 2 Fort is slightly more rounded than the other, perhaps because it has been modified from a previous "half round" as depicted on the Zuniga 1 Fort. The demi-bastion is pierced, and the resulting crude form perhaps functioned like a redan pan coupe (normally a V-shaped work with a flat head along a curtain wall) (Hinds and Fitzgerald 1996:31, 72, 73). As such, the pierced demi-bastion is similar to the fortified entrance at Yeardley's fort at one phase of its evolution within the bastard caponier. The pierced work may
represent a secondary fortified entrance into the settlement. Alternatively, the Zuniga 2 Fort drawing may be depicting a collapsed wall, as is indicated in a depiction of St. Augustine in its 1593 incarnation (Reps 1972:Figure 28).

The basic form of the eccentric demi-bastions in the Zuniga 2 Fort is similar to the shape of those in the eccentric Flowerdew half bulwark—both looking like bay windows seen from above. Differing from high-style demi-bastions shown in contemporary military textbooks, the demi-bastions on the river side of James Fort have only one face and two contracting walls. This form is similar to Late Medieval mural wall flat bastions or "bastards" and recalls a slightly more D-shaped work shown in the right corner of a depiction of an English masonry bastide built by 1557 at Calais in English-occupied France whose shape is probably Italian in origin (Reps 1972:Figure 8).

In sum, the Zuniga 1 and Zuniga 2 drawings may be portraying changes to the perimeter of James Fort between 1607 and 1609 as a result of deliberate modification or resulting from repairs. The Zuniga 2 depiction may represent the incomplete transformation of a triangular flankered redoubt, which originally had only one demi-bastion flanking each of three curtain walls in a familiar cartwheel style, toward the ideal of three full bulwarks. (See Figure 75.) A good example of a stockaded triangular fort built as a triangular flankered redoubt is Fort Dorothea of 1684, in Akwida,
(a) Triangular fort in the high style with full Italianate bastions (after Da Gama 1649).

(a1) (Inset) Plan showing how full bastion may be formed of two paired demi-bastions.

(b) A flankered redoubt with only one high-style demi-bastion flanking each single wall.

(c) Zuniga 2 shown as a vernacular flankered redoubt in the process of switching to paired demi-bastions ca. 1608.

(c1) (Inset) A full vernacular bulwark formed by two vernacular “half rounds” or half bulwarks.

(d) Zuniga 2 shown as a vernacular flankered redoubt ca. 1607 where each half bulwark or demi bastion flanks only one wall.

(e) A triangular fort with bifurcated bastion faces formed from paired demi bastions (plan showing how full bastion may be formed of two paired demi bastions (after Da Gama 1649).

(f) Zuniga 2 shown with concentric barrier and palisades to the exterior near the edge of scarp.
West Africa (Lawrence 1963:283–285). Returning to Zuniga 2, only one bulwark, the furthest inland, has been completed; and, using the Bermuda Island Devonshire Redoubt for comparison, it may be a watchtower on the "land side" were it would not interfere with "water-side" defenses (Arber 1910 2:624–625). In Zuniga 2 the flanking units along the south wall (the second two once perhaps once single demi-bastions) have been retained to double the flanking capability of the units as they move from single demi-bastions to paired demi-bastions, allowing for a cross fire along each curtain wall. The otherwise odd-looking paired demi-bastions in fact were frequently used in works, such as the late Tudor Fort Belvoir at Broughty Craig (Hale 1983:Figure 65).

Clearly when building a field work, it was important to establish some type of flank defense before adding embellishments such as full angled bastions or bulwarks (Duffy 1979:Figure 51; Hale 1983:Figure 65; Ive 1587:38). So James Fort was probably built piecemeal just like Yeardley's work and the Blackwater Fort. Either the upper rounded bulwark in the Zuniga 2 Fort did not need repair, or it alone had absorbed two paired demi-bastions by infilling its center to create a single, rounded bulwark retaining the piles of each previous work. This process would explain the deliberately blunted bulwark forms whose curved flank corners may be intended to be integral and decidedly crude orillons (rounded bastion flanks). Bifurcated bastion heads made of two opposing demi-bastions could easily be converted
into a full bastion as we noted in our hypothetical evolution of Yeardley's Fort.

The fort at Flowerdew is also superficially similar to the 1597 Blackwater Fort in the spirit of the flanked elbow of the southeast demi-bastion as it links with the terreplein zone. When considered together with the bastard caponier, the flanked elbow of the southeast demi-bastion comprises a fully flanked Z-Plan work expressed as a flanked line with an elbow on its north terminal allowing flank fire in all directions. At Flowerdew, the flank angle facing north (via a traverse) toward the terreplein would have allowed the Charles City militia to protect the artillery battery from an elevated position. Ramm (et al. 1964:Figure 18, top left) show how a "Z-Plan" internal flank, which probably was once freestanding, was built into one wall of a Spanish redoubt. Other Spanish versions of this seemingly odd military grammar, which created H-shaped fortifications with paired terminal bastions or demi-bastions, include Planta de San Juan de Ulua, built in New Spain in 1590, and Castillo de Amangos, built in Chile during the 17th century (Guarda 1990:68–69; Quijano 1984:Figure 8, 10, 30). So there is an international flavor to these eccentric English works which we also saw at the early incarnation of Blackwater.
While on the subject of English triangular forts, the reader might also be interested in two English triangular forts depicted by Dutch artists at the battle of Zutphen (see Figure 76).

Kelso's (1996:Frontispiece) recent excavations at Jamestown have uncovered evidence of ditch-set stockades of some triangular pales but mostly rounded forms many ax faceted as was the case at Flowerdew (Hodges 1993:Figure4B). The archaeological evidence conforms well to Peterson's (1964:16) and Sidney Kings' (Reps 1972:Figure26) models that the stockade would be composed of circular ditch-set pales reinforced periodically on the interior by heavy posts (counterforts) resting against an interior riband. The pales evidenced by the archaeological remains recall Hobbes' 1677 description of a site, "with a quick-set hedge enclosed around, And pales of heart of oak the hedge without Set close together and stuck deep i' th' ground" (OED 1978 7:390). In their construction of the ditch-set stockade, the early settlers were perhaps following Vitruvius's instructions to cut the lower parts of "clear" wood (the lower, knot-free part of the tree, below the branches). In order to make the ribands, such wood could easily be split into four pieces of heart wood. Further manipulation of the split lengths, such as trimming the rot-prone sapwood, might have resulted in these pieces being referred to as "planks" when employed as barrier palisades (Morgan 1926:60).
The battle at Zutphen in the Low Countries 1586. Note two English triangular forts on the Island (New York Public Library Prints Division).
During medieval times in Europe, stockades were most often constructed of wide half-round or rectangular slabs of heartwood (Kenyon 1990:33). Given the mature forest environment of the Chesapeake, the use of round or triangular pales likely represented the most efficient way for early English settlers to process local cypress and hardwoods into a wall of contiguous elements (Hodges 1993:201). In addition to Jamestown, the use of triangular pales has been documented archaeologically at Chisciacck Watch, Harbor View, Cliffs, and Flowerdew's Yeardley/Sharp Redoubt (Hodges 1993:197, 201, Figure 4B; Kelso et al. 1990; Neiman 1978; 1980). Archaeological evidence indicates that the wall of Yeardley's Fort at Flowerdew was composed at least in part of round wood, which would had enabled even speedier construction and offered some protection from fire as the sap wood rotted and absorbed moisture.

**Profiling the Town/Fort Walls**

The author has illustrated in profile what the original James Fort curtain wall looked like between 1607 and 1610. The drawing is of a section of the fort in between the bulwarks where no substantial earthworks were probably present. (See Figure 77.) Note how, as in the case of the Flowerdew model, the loopholes are elevated specifically so that attackers could not use them to fire into the fort except at high and therefore essentially useless angles. This interpretation is a departure from preliminary A.P.V.A. reconstructions where the "art of war" eludes us since the loopholes would be
equally useful to attacker
and defender based on the
testimony of Spanish spy De
Molina (Kelso 1996:Front
Cover). In the present thesis
picture, the author has
shown earth-filled barrels
secured by heavy stakes and
planks for this elevation.
Other options for this
interpretation could be
rammed clay secured by wattles or staked boards, cargo boxes filled with
earth, wooden benches, etc.

What did the profile of "Low Countries" veteran Sir Thomas Gate's
Fort look like between 1610 and 1613? Thanks to the observations of
incarcerated Spanish spy De Molina, who apparently knew something about
forts or he would have been sent to Virginia, we can reconstruct a responsible
later profile as a basic model (Tyler (1946:218–224). De Molina was kept
prisoner at James Fort in 1613, from there he noted:

"With eight hundred men or one thousand soldiers he [his majesty the King
of Spain] could reduce this place with great ease, or even with five hundred,
because there is no expectation of aid from England for resistance and the
forts they have are of boards so weak that a kick would break them down,
and once arrived at the ramparts those without would have the advantage
over those within because its beams and loopholes are common to both parts—a fortification without skill and made by unskilled men. [Tyler 1946:221].

“...and the forts they have [contain a barrier palisade outside of the ramparts, with] boards so weak that a kick would break them down [since they are rotted to ground level or where made of green wood in 1610], and [having passed the barrier palisade and therefore] once arrived at the [new barrier of the typical 72 degree sloping] ramparts [inside the palisade] those [attackers] would have the advantage over those within [defenders] because its beams [supporting the loop holes] and loopholes [piercings for gunports] are common to to both parts [since they are near the top of the slope of the parapet—the exterior wall of the rampart and therefore usable by both attackers and defenders as gun ports faced on this new elevated plane—both out and in]. However they have placed their hope on one [Charles Cittie] of two [substantial] settlements [Charles Cittie and Henrico], one [Henrico] which they have founded twenty leagues up the river bend on a rugged peninsula with a narrow entrance by land and they are persuaded that they can defend themselves [here] against the whole world. I have not seen it but I know it is similar to the others [namely Fort Algernourne, Fort Charles, and James Fort] [Tyler 1946:221] [author's inserts].

“At the mouth of this river from the south, [the river is] nine fathoms in depth. At the entrance is a fort [Fort Algernourne], or so to speak more exactly, a weak [this is a play on fort=strong] structure of boards ten hands high with twenty-five soldiers and four iron pieces [cannon]. Half a league off is another smaller [fort, Fort Charles] of boards ten hands high with fifteen soldiers without artillery. There is another smaller [fort, Fort Henry] then either [of the above] half a league inland from here for a defense against Indians [probably meaning it lacked earthworks except at the bastions or flankers and just had stockades]. This has fifteen more soldiers.” [Tyler 1946:223-224] [author's inserts].

So De Molina has described the profile of not just James Fort but Fort Algernoune (at Point Comfort), Fort Henry (mouth of Hampton River), and Fort Charles (inland and along the Hampton River at Kencoughyan (Elizabeth City or modern Hampton). De Molina never saw Charles Cittie Fort (City Point Hopewell, which Yeardley helped build and where he got his cannon in 1622) or Henrico, but apparently his unhappy English cell mates have told him they were built the same shabby way.
It is at the ramparts that De Molina tells there were loopholes "common to both sides," especially after erosion. How were these ramparts made? In one 1623 contemporary quote recalling and generalizing about all the earlier forts (perhaps penned by Yeardley) it was noted that, "In most places and particularie about Henrico & Charles Citie the Sodds are very good to fortifie wtshall especialle if they be cutt in the sedgie ground wch is so full of Rootes that it bind the earth close and keepes it from falling to pieces (Kingsbury 1935 4:259–262). While working on a National Park service archaeology contract, the author was able to determine that sods at Jamestown also hold together well. Here we are probably seeing again the influence of Vegetitus' Roman-fortified camp made up of sodds or "turves," once again which the Dutch made their trademark (see Chapter 2).

Completing our full knowledge of the fort we have Strachey's 1610 description of the fort's timber components which were built of, "Planks and strong Posts [for the external barrier palisade], four foot deep in the ground, of yong Oakes, Walnuts, &c." (Purchas 1926:19:57). This 4-foot depth helps us understand how much erosion had occurred at Flowerdew prior to modern plowing, although there the posts were ditch-set. Returning to Jamestown, the beams De Molina noted on top of the rampart associated with the loopholes were probably nailed to the remaining stockade posts left over from the 1607 to 1610 fort to make protective "head boards" or blocked lintels. The loop holes were made by either successive cutting of the tops of every so many
stockade posts (one or two cuts) or were automatic due to the tapering of each stockade post from bottom (wide) to top (narrow), leaving a wedge-shaped gap between posts. In sum, this is a conservative military fort-building style fresh from the battlefields of the "low Countries."

The exterior palisade that De Molina recommended kicking through should be briefly described. Palisade barriers outside of fort ramparts—a sort of early barbed wire looking like robust picket fences—may be found in many fortifications built in the 80 Years’ War (Duffy 1979:97, 98, 99; Hodges 1993:Figure 4D). They continued to be popular in the 30 Years’ War (1618–48) (Wagner 1979:193e, 225d,e; 226c). They can be placed abutting the rampart, near the rampart, in the ditch or scarp", or, more typically, beyond the counterscarp (outer side of fort ditch) where they usually prefaced a glacis (a mound of dirt outside of the counter scarpe and the palisade). (See Figure 78.) If it is not on Park Service property, we have probably lost the original fort ditch—as, according to Duffy (1979), Dutch ditches tended to be broad and shallow and have not been found on the A.P.V.A. side. A palisade barrier is far outside of the St. Augustine of 1593, where it appears to define a broad campagna or "covered way" defining the anti-personal killing zone of the fort (Reps 1972:Figure 28). (See also Figure 76e.)

By using the combined information noted above, the author has created a conjectural view of Gates' version of James Fort about summer
1610. (See Figure 79.) Its present weakness is how far away the barrier stockade was. In this picture the curved dotted line (below the soldiers' straight musket fire line) shows what such a rampart might look like with neglect by 1613; this was to be recorded by De Molina at only 10 hands high or 45 inches tall. This is because the Virginia climate quickly composted the sodds, and thunderstorms and frost heaving wore them down, burying the base of the riven planks and hastening their rot and detachment from ribands, thereby allowing them to be easily kicked through. Duffy (1979:91–93) has noted that Dutch works, while cheap in building materials (timber revetments and sod earthworks, or twig fastenings and sodds alone), tended to be impermanent (unless reveted with masonry) since they are ultimately based on temporary
Roman camp defenses. In Virginia, forts were built by soldiers whose only experience in fort building was equally impermanent "field works."

Figure 79
Profile of James Fort ca. late 1610 showing modification by Anglo-Dutch troops and Sir Thomas Gates. The original stockade is still used as a parapet, but "sodds" of "sedge grass" make up the full rampart and rampart walk; outside of ramparts at 1 to 200 feet away is a barrier palisade made of riven planks anchored by hole-set posts. Curving dotted line below soldier's fire zone shows erosion by 1613. (Above) the "beams and loopholes common to both sides" described by De Molina, consisting of narrow stockade tops with a lintel or "head board" on top and a riband below (as seen from outside the fort).
Returning to the drawing, note the alternating layers of tapering faggots to strengthen the work with "criss-cross" catenas which we have taken directly from Paul Ive's (1968) contemporary recommendations. Therefore, given this profile, Yeardley seems to be making adjustments for the Virginia climate when he places a pair of timber revetments to secure his ramparts (with a double paled parapet) at Yeardley's 1622–23 fort incarnation at Flowerdew. This appears to be desperate attempts at building at least a semi-permanent fort.

Despite these differences between Gate's and Yeardley's forts, Luccketti and Kelso's fort perimeter at Jamestown share much in common with Yeardley's fort, especially near the bulwark area. At this location their parade curtain, possibly once John Smith's exterior palisade, is about 1 to 1.5 feet wide, as is the parade curtain at Flowerdew (both possibly cut with the same trenching tool). At Flowerdew the exterior double-paled parapet ditch is typically 3.5 to 4.5 feet wide, as is the "dry moat" which therefore is probably really a robbed parapet ditch (Kelso et. al 1998:34). How do we know this? The most southerly (or river-fronting) sections of the dry moat are not concentric to the palisade but continue on into the James River via a second independent loop which has no palisade partner. Accordingly, this means we are looking at the north side of a typically eccentric English trefoil bulwark (a bulwark) that has three projections—two oriented to protect each
flank (defending the fort perimeter) and one in the center projecting toward a salient facing out into the field.

In order to illustrate this hypothesis, a contemporary illustration of the trefoil bastion (deemed a "blockhouse") at the Tudor fort at Guines has been blown up to the same scale as the James Fort "dry-moat" (O'Neil 1964:Plate 18a). (See Figure 80.) Then this "dry moat" has been superimposed over the Guines blockhouse, where it literally drops out right into the old drawing and exactly at the angle of one flanking component of the trefoilate bulwark and portions of its salient center component. (See Figure 81.) Hence, a powerful argument that the dry moat is really a robbed, almost certainly, once double-paled parapet construction ditch just like the one built by Sir Thomas Gates' second in command, George Yeardley. This identification is reinforced by the

Figure 80
The Tudor Guines Fort with three massive trefoil bastions; arrow points to one studied to model James Fort's southeast trefoil bulwark (O'Neil 1964:Plate 18).
Figure 81
Identification of the trefoil bulwarks at James Fort ca. 1610+. Here, the Guines blockhouse has been blown up with the “dry moat” dropping out at the intersection of two lobes. The dry moat is a robbed parapet ditch.
traces of digging facets (here we are talking about discreet internal lines of digging that break a semi-circle into a polygon) which cut into the ground during parapet trench construction and which would have weathered away if the ditch were left open, thereby rounding the edges. Two timber piles (large postholes) seem to help complete a reinforcement of the semi-circle of the (once center) salient as the two semi-circles (flank and center) come together. While their pattern is less clear, they are reminiscent of the deltoid reverse piles in Yeardley's half bulwark.

While the most obvious configuration of the double-wide parapet ditch is to contain two vertical posts, it is also possible that the extra width in the double-pale construction ditch is telling us that this double pale consisted of two components—one outer vertical to form a barrier palisade or "storm posts" (in Dutch military slang) and one at about 72 degrees pointing toward and defining the rampart revetment (Wagner 1979:225e). The English fort at Calais, 1557 also has at least one trefoil bastion, as does the English fort of St. Mawes (1540–43) with a watch tower in the center, while the English town of Hull (1610) is protected by at least two trefoil blockhouses on its east side (Platt 1996:192; Reps 1972:Figure 5, 8). According to Platt (ibid) these trefoil works (think of a clover leaf with three petals) are English experiments with perfection of geometric forms in fort construction beginning in Tudor times (Wagner 1979:225:e).
Summary of James Fort 1607-1614

James Fort and the Jamestown settlement are much more sophisticated than Flowerdew for obvious reasons. Nonetheless, James Fort's core site structure is modeled from what Flowerdew was—that is, a simple military fortification in the Low Countries or Ulster (Wingfield connection). This model was adjusted by switching the fort commander's hierarchal building to a church and assembly area more fitting to the stronger ideotechnic missionary role of Jamestown. Both patterns, religious and temporal, can be found in the Roman principia noted by Garvan (1951). Symbolically therefore, there is a perfect match between the core site structure of Yeardley's core tripartite plan and the core tripartite plan of James Fort with regard to the key ordinal structure and subordinate garrison house and store house (see Key Analogues Chart). Although James Fort had by far more people in it—the Bermuda Hundred Model which had Yeardley move most of his tenants and servants out into corn and tobacco fields—it had not been developed. Consequently the death rate was devastating at James Fort.

In terms of fortification, James Fort also shows influences from classical military camps and through the Yeardley/Gates connection to Flowerdew. James Fort amplifies the Roman connection being built in sods in a triangular form as Vegetitus suggested. Additional linkage appears, especially in the Zuniga 2 Fort, where there seem to be parallels with blunt "half bulwarks" and "half-round" forms as well as caponier-like units facing
the river. Other parallels include the use of narrow parade curtains inside of double-wide parapet ditches, at least where Yeardley had earthworks (east and north side) and where James Fort had them (so far, near trefoil bulwarks only). Gates was a real veteran battlefield commander in contrast to the political captain general, Sir Thomas West, who also arrived in 1610 and technically commanded James Fort and town. Clearly Gates is the man behind the fort so well described by Strachey and De Molina. Yeardley's apparent abandonment of exterior barrier palisades and beefing up the ramparts with double stockade revetments is thought to be an adjustment to the Virginia climate in an attempt to use cypress to make a semi-permanent fort. At least Yeardley's ravelin seems to make a Jacobean departure from the essentially late-Tudor and conservative military style of Gates' 1610 fort with his essentially late Tudor works which would have been familiar to Henry VIII. In terms of stopping foreign boats or resisting land attacks, although simpler, Yeardley's fort had advantages over James Fort whose location was condemned by Robert Tindall, master gunner to Prince Henry. Despite this condemnation James Fort was apparently embellished with full ramparts and trefoil bulwarks by Gates who used fort construction to "entertaine" his soldiers stationed there. So we have made, for the first time, a serious departure from Sidney's King's James Fort thanks to the archaeology of the A.P.V.A. and a strong and readily interpretable documentary record.
WOLSTENHOLME TOWN: SITE C MARTIN'S HUNDRED

Wolstenholme Town, or the nucleated "Site C" complex at Martin's Hundred with its hierarchal bawn sited above a bilinear building arrangement, is without doubt the best example of a peacetime Ulster-like company town we have found so far in Virginia (Noel Hume 1982, 1983, 1991). The great strength of Noel Hume's own interpretations is based on his successful use of the simplest types of Ulster towns as a model for his robust interpretations. Probably because the town street is slightly offset from the bawn and consisted of a company compound and domestic site on one side and a barn on the other, Hume chose to use the slightly offset Macosquin town as his specific Ulster parallel. Beyond Macosquin, there are enough simple bi-linear towns to make use feel fairly secure that he is probably right on target for his basic identifications of Wolstenholme Town (see Figure 82) (Hume 1982:238-240).

Although Hume did not explain well-known scholarly precedents for his use of the Wolstenholme Town\Ulster settlement model, his study of Martin's Hundred was nonetheless a very important
contribution to Virginia archaeology and historic archaeology in general (cf. Garvan 1951:35–36; Reps 1972:12–20). This was done during a period when any published guess was a good one since others could see what Noel Hume found. In the context of the 1970s and 1980s Hume felt it was enough to say, "overall this archaeological site is just like an Ulster town, and the fort is just like James Fort which was enclosed with a plank, post, and rail palisade."

Thus, so far, historic archaeology in Virginia has ultimately done little more than illustrate intellectual notions of parallel town-planning endeavors in Virginia and Ulster first suggested by Garvan (1951).

Because of Noel Hume's hard work and ambitious writing regimen, we will not linger here on a further introduction to Wolstenholme Town except to tune it for the purposes of our own avenue of inquiry. Using Wolstenholme Town as an specific example here, where do we go from a basic identification level? Below, the author hopes to reveal the fact that the vocal nature of the site plan has its own integrity which is not imitating Ulster, but rather using popular notions of spatial organization used by Ulster English, Spanish, and French settlers to define their military, commercial, and social frontier.

**Wolstenholme Town’s Historic Context**

In keeping with our overall research approach, for us the deeper cultural meaning of Wolstenholme Town is best appreciated in its historic context (Beaudry 1988). Therefore, a brief introduction to these aspects
cannot be treated lightly. Settled as early as October 1618, Martin's Hundred was founded during the terminal period of the governorship of Samuel Argall (1617–19). This is a period of greatest change in Virginia toward any resemblance to Ulster influence, as the tobacco boom turned Virginia into a capitalist endeavor largely animated by mercantile concerns on privately held lands. The old military regime of largely Anglo-Dutch veterans were moving into governmental capacities or purely commercial capacities, and the martial law period was almost entirely over. In this time of peace with the Native Americans they focused entirely on defenses against a foreign threat only.

In detail, the strongest regional Ulster influence in Virginia is on the lower peninsula. The Marshall of Virginia (senior exclusively military figure below the governor) was an Ulster veteran named William Newce, a significant shift from the indigenous Anglo-Dutch veteran power cartel (Kingsbury 1906 I:446–447). Newce, who was based in Newport News, probably cooperated with his neighbor Mr. Goodkine, who was apparently heavily involved in the importation of cattle from Ulster (Kingsbury 1933:587). On Nov. 12, 1619, John Boys (Boise) of Martin's Hundred (along with John Jefferson of Flowerdew) had become one of only two "tobacco tasters," an important station related to tobacco price fixing, in the colony (Kingsbury 1933 3:I. Between 1619 and 1622, 3,570 men and women came to Virginia and cattle increased to "neere fifteen hundred" (ibid. 545, 546).
Built south of Jamestown, the very bold new Martin Hundred settlement was somewhat jealously controlled by the big London investors such as Richard Martin and John Wolstenholm. At 80,000 acres, these gentlemen laid claim to one of two huge tracts of land in Virginia and was only rivaled by Smith's Hundred (Hatch 1957). Apparently, less than desirable political deference was paid to the indigenous senior Virginia Company officials on both sites of the Atlantic by Martin's Hundred investors. Some regional abrasion occurred because of this perceived sense of relative independence as a private commercial enterprise (Hatch 1957:105). The sacked of Martin's Hundred by the Powhatan Chiefdom is certainly a reflection of the settlement's weakness, but importantly it also has a lot to do with a deflected attack against Jamestown since the Pamunkys were heading back to their canoes on the York River afterward and need female and child hostages.

Who built Wolstenholme Town (Site C) and when was it constructed? Both the town and fort could have been built or begun by either of the two 1619 Virginia assemblymen for Martin's Hundred, "Mr. John Boys [also spelled Boise], or John Jackson (Kingsbury 1933 3:153–154). The fort could have been laid out by Lieutenant Keane, the senior militia officer at Martin's Hundred prior to the Massacre of 1622. He was killed in 1622 (Hume 1982:65). However, for the sake of brevity the author, following Hume, will also use William Harwood, the 1620+ "Governor" of Martin's Hundred as an
arbitrary term of convenience for the key town and fort planner. This is since documentation hints that "Wolstenholme Town" proper, a more pretentious settlement slightly later than initial greater "Martin's Hundred" activity, is chiefly associated with his personal appearance. Although he may have suffered from being unseasoned, Harwood was frequently absent from the Virginia Council to which he was appointed, apparently in order to focus entirely on Martin's Hundred in general and without doubt Wolstenholme Town in particular (Ibid. 60, 62, 66, 67, 217).

Hume (1991: 208, 237-246, 284) identified Wolstenholme Town as a pre-massacre site based on extensive evidence of wholesale building burning indicated by ash deposits created on March 22, 1622, during the massacre, and via violent physical trauma observed in one burial at the company compound (ibid. 208, 243–4, 245, 284). Although it is possible many of these buildings may have been burned to recover architectural hardware or represent extensive fireplace ash sheet middens present at the site which got incorporated into posthole fill, Hume's arguments still makes sense for additional reasons based on comparative archaeological evidence. For instance, the extensive site structure of Wolstenholme Town (many large buildings spread out) stands in sharp contrast to the intensive nature of post-massacre sites (many large buildings enclosed) at Yeardley's Fort and Jordans Journey. While modern osteologists trained at the University of Tennessee privately comment that they consider Larry Angle's work on
Massacre trauma at Martin's Hundred "eccentric," we will still assume for now that Wolstenholme Town was sacked in 1622, "Massacre victims" or not. In balance and until new information becomes available, this overall information argues that Wolstenholme was indeed a very vulnerable and early peace-time settlement which has a very tight dating range.

**The Classically Inspired Wolstenholme Town Master Plan**

In order to focus right in on possible classical influence on the Wolstenholme Town master plan, let us begin by reviewing Noel Hume's pioneer work on the site's spatial organization via a close focus on the site master plan. We will treat the fort separately further below. Hume's rationale for a specific site master plan is based on inter-site spatial patterning.

The key elements of Noel Hume's town plan include:

1. A hierarchally centered bawn or fort, enclosing Harwood's manor.

2. Bi-linear arrangements of subordinate structures based on a common 83-degree angle, 150 feet apart from an imaginary centerline.

3. An empirical tie-in with the fort based on the southern curtain's 83-degree angle against this inferred grid.

4. Use of natural elements or improvements such as contemporary trees (for reference points) and ravines (for water access) as part of the plan. This includes more houses lost to the James River.
There is no question that Hume had the right idea that there should be some reason to the plan and that one exists. However, on the strength that the three 83-degree angles do not meet on centered point and that the tree—used as a reference point for the east building line—is only hypothetically a 17th-century tree, we will have to tune Hume's plan in order to propel further analysis. By using simple methods introduced to the Jamestown conference in a paper in 1993 employing Yeardley's Fort at Flowerdew and Jordans Journey (which was directly compared to 1621 Magherafelt (another bi-linear Ulster town but with direct access entry) and Shirley plantation, the author has redrawn the site master plan.

The redrawing was done using an arbitrary point in the manor and the corners of buildings to isolate the geometric relationships between hierarchical and subordinate structures. Our motive in the redrawning was simple, all classical and Renaissance architects suggest that geometry is at the basis of good architecture (Morgan 1969; Serlio 1982). This new geometric relationship is experimentally mapped out as would be the case in the classically inspired master plans of 18th-century mansion complexes at Shirley Plantation or the Governor’s Palace in Williamsburg. Whether or not this is Harwood's actual master plan, such an approach allows us to now directly compare 17th- and 18th-century mental template and therefore isolate variability. This is so we can attempt to map out how classical inspiration penetrated into the 17th-century mental template. The results of this study,
which are based on a 1-inch-equals-25-feet copy of Noel Hume's original master plan drawing, are shown in Figure 83.

Figure 83
(Top) Wolstenholme Town layout, (Bottom) (L) Villa Badoer, (R) Villa Zen by Palladio (Thompson 1993:Fig. 88).
**Wolstenholme Town Core Plan and Methodology:**

The key elements of this new plan and their hypothetical planning implications are listed below:

1. **Point A:** Harwood chose an arbitrary point "A" (big A) which is 17.5 feet along the north facade of his as-yet unbuilt manor house within the bawn. This became a vertex for his core tripartite core plan. Point A is not at the center of the approximately 39- by 15-foot dwelling, but rather just to the east of one of two posts that probably defined a cross passage within the poorly defined manor (Carson et. al. 1981:193). Point A is however, at the center of a large equilateral triangle (A-B-C). He apparently formed A as a literal point of origin with a wooden stake and created points B and C by apparently sighting lines which were marked out as the legs of this equilateral triangle. (Note: The small A is the center point of the "fort master plan" and is included here for comparison.)


2. **Point B:** Harwood threw out a cord knotted in rods (16.5 feet) 13 rods (215 feet) long at 50 degrees to create B. It is 12 degrees magnetic west of point AA. Though tilted off this point, this became the basis of the barn location.

3. **Point C:** Harwood repeated this exercise in reverse setting down point C at 50 degrees and 13 rods or 215 feet from A at 12 degrees south of magnetic south which became the southwest corner of the company compound longhouse.

**Addition to Core Plan**

4. **Point D:** In order to sight in the "domestic site," a line 8 rods (7.954 rods) long (131.25 feet) was added below point C. I am not sure how he did this. The angle of points AA-D-AAA is 39 degrees, which is only one degree off the angles A-C-B or A-B-C. So perhaps this was sighted in from the bisector point AA or AAA, or more likely just added below C while squaring this with the plan in some fashion. The hypotenuse of the triangle AA-AAA-D is 210 feet long or 12.72
rods long, so the simple measurement of 8 rods (C-D) has the most appeal here.

5. **Point E**: This is an arbitrary point opposite point D where we suspect the next building would logically be added.

**Additional Arbitrary Points**

6. **Point F**: This point is 8.3 rods (137.5 feet) above point B and squares the triangle A-B-AA.

7. **Point G**: This point is in line with the C-D line and continuing 8.3 rods (137.5 feet) above it. It squares the triangle A-AA-C.

It is possible that points F and G were valid points used to create the bilinear plan by simply creating line G-A-F and turning at right angles. However, given the odd numerical figures—that are *not* clean rod-oriented figures—these points F and G were probably not valid points in Harwood's plan. Nonetheless, they do perform the service of squaring Harwood's manor with the master plan. Archaeologically, the building, due to centuries of plowing, consists of a trapezoid with the greatest damage to the northwest corner. So the entire master plan—so far as we can determine—argues that the missing manor wall posts are especially deficient in the northwest corner.

**Discussion of the New Master Plan**

This new master plan now takes on an emic character which allows us to penetrate right into Harwood's mind and make etic appraisals. Harwood is demonstrating an enormous amount of personal discipline in this plan, for he is treating the town plan as a fairly serious architectural statement based on plane geometry as recommended by Renaissance architect Serlio (1982).
and Roman architect Vitruvius (Morgan 1960). He seems to be using this plan for two basic purposes. One, he wants an orderly town that can grow in a coherent manner, but unlike Yeardley he sees the town as a finite unit; hence, he does not use an equilateral right triangle as the basis of his town plan as Yeardley did. Rather, he is interested in creating a broad avenue between his buildings as indicated by the 100-degree angle between his subordinate buildings.

Second, by the skills Harwood has demonstrated and the knowledge of the tools he has employed, he is trying to underscore his rightful place at the pinnacle of the small scale social hierarchy at Martin's Hundred. Harwood, as an educated man (perhaps related to minor nobility), would probably be expected to perform such simple geometrical plans unaided and this served to underscore his social authority at the site (Noel Hume 1982:64). Based on the master plan, seemingly Harwood had access to a protractor or compass with sighting targets and a cord knotted in rods, or he knew some basic geometric equations that would inadvertently produce the clean angles and figures which we now confront, perhaps by mapping them first on paper in a scale drawing. In such relatively elite skilled planning we can begin to account for class divisions which are omitted in Glassie's (1975) and Deetz's (1977) evolutionary models of mental template changes between the 17th and 18th century (Shackel 1993:3, 11–12).
The overall implications of this master plan are of great interest to us for a number of reasons. First, like most master plans it is now based on the actual architectural remains and their geometric relationships, which were once set down with wooden stakes as was the case at Flowerdew. Second, the master plan appears to be measured in rods, also similar to Flowerdew. The line A-C and A-B are both 13 rods long (215 feet) resulting in the line B-AA-C, which is 20 rods long. The triangle A-B-C which is integral to the above figures therefore appears to be the core of the master plan. It consists of an equilateral triangle 100 degrees wide (with legs A-B to A-C) with a hypotenuse (B-C) creating two converging 40-degree angles (A-B-AA, A-C-AA). The only clean figure which links the domestic site to the master plan, is also in rods—namely 8 rods, is linked by a 39-degree angle. This is only 1 degree off the 40-degree angle noted above and probably suggests the bisector line reference points AA and AAA, or most likely just AA, were valid points to Harwood's plan.

Despite the above information, feet rather than rods, and feet in addition to rods, cannot be ignored as key measuring aspects of Harwood's plan. For instance, while the 20-rod-wide (330 feet) width is a clean figure in rods, it is also clean in feet. Moreover, the length of the plan (including point D-E) is clean in feet at 270 feet and uneven in rods at 16.3 feet rods. It is therefore likely that the relationship of rods to feet are simply two parts of the same whole to 17th-century planners, just as feet and yards are known to
Harwood's use of two 10-rod distances (B-AA, AA-C) at 16.5 per rod creates a clever parody on this relationship, almost as if he wanted us to know he was working in rods. This is because 165 feet is easily calculated as 10 rods just as easily as Yeardley memorized the fact that 100 feet is with very minor error 6 rods (6.06 rods).

Defensive needs seem to be an important part of the core master plan, within the equilateral triangle expressed in A-B-C. Deeply imbedded in Harwood’s equilateral triangle seems to be a desire on his part to flank both the company compound's front door and the barn yard which are clearly two passive elements of his defensive plan. The salient angle (the angle of the center of the face or front of the flanker) of the southwest flanker points directly toward the center of the company compound. This is also true of the barn and its relationship with the northwest flanker—if we restore the fort to its original design (which we will do below). If we don't, the 40-degree angle from A to B is nearly right on the fort's corner. Harwood's plan is not mechanical but internally reflexive, that is, he corrected it as he went. The small A within the fort (the center point of the fort plan) is, in fact, shifted to the northwest in order to correct his salient angle on the town master plan (big A). This aspect of the town plan will be addressed in more detail in the fort section below; here, we are just trying to stick with the big picture with the fort being only a single major component of a larger scheme.
Cultural Significance of the Plan

Armed with the above empirical and geometric planning information, we can now readily isolate glaring mental template variability between 17th- and 18th-century uses of classical inspiration by using simple comparisons with Shirley (see Figure 84). We can also observe essential similarities which bring the two centuries together in a more evolutionary manner.

Clearly, the treatment of the barn and specifically its orientation stands out as the least geometrically hermetic aspect of the 17th-century master plan. As in the case of the Yeardley Fort's example where Yeardley also demonstrated ample mathematical abilities in his plan, it was the warehouse structure associated with objects (munitions, produce, tools, commodities, etc.) and not buildings associated with people that has been compromised in physical orientation. While Yeardley rationally tilted the west warehouse bays off his master plan in order to allow the quarter and warehouse to flank one another with defensive fire, Harwood apparently tilted the barn toward the manor for passive defensive reasons: surveillance, convenience, and perhaps very complex social/world view reasons.

On the surface, we can infer that the barn doors and a "barn yard," the specific work area associated with this barn, was almost certainly deliberately faced toward the nearest corner of Harwood's Fort. Harwood therefore considered it irrational for barn tilting not to be the case since he
KEY ANALOGUES

HIERARCHICAL:
Church, Court, Manor, Abode
HELP, LABOR:
Court of Guard, Quarter
CROPS, GOODS
ANIMALS:
Enclosures, Dairy, Smoke H.

SHIRLEY CA. 1740

WOLSTENHOLME TOWN 1622

Figure 84
A comparison of Shirley and Wolstenholme Town showing Vitruvian influences (Reinhart et al. 1984; Pedretti 1985: Fig. 291).
wanted to "flanker" both the building and its work area. In the meantime at Shirley, and other 18th-century sites aligned in the colder high style, internal geometric order was more important to them than rational spatial use. At Shirley all subordinate buildings could be observed from a central point, but only if the work yards faced out toward the courtyard, which may not be the case. Instead, it is possible that at Shirley all work was done indoors by irrationally (from a 17th-century standpoint) spending money to house work areas within buildings rather than compromise the orderly aspect of the classical plan. Harwood's plan is irrational by any standard, however; for by turning the barn toward the manor, he ensured that he would have a difficult time observing a building sited, for instance, at point E within his own master plan. Alternatively, since new buildings to the northwest would be out of range of musketry, perhaps Harwood didn't care. It is also very likely that Harwood was not planning to build anything below the barn at Point E because of social reasons.

Now we must address social and worldview reasons for turning the barn out of square with the orderly inhabited structures. Since within the Site C complex, buildings with objects are well aligned with private building groups, the barn has to have been seen differently. How are other buildings retaining objects treated at Site C? A shed is well aligned with Harwood's manor by sharing a gable line of the manor with the long facade line of the shed. A storehouse is well aligned with the ridgeline of the company
compound. So simply saying buildings containing objects are informally treated and buildings containing people are rigorously aligned is true only of the greater town plan. This is since within the fort or home lots in private or internally segregated clusters of structures buildings containing objects are well aligned. What has caused the tensions in the town plan? The answer seems to be that "object-related buildings" in greater relation to "people-related building" must bow to some higher order in a public rather than private venue. If Harwood or the occupants of the company compound housed their own servants in separate buildings within their individual building clusters, we can probably anticipate that the quarters would spatially submit to the main domiciles and in turn the building containing objects would be placed in a subordinate position to these quarters. Thus, the higher order that the barn seemingly bows to is almost certainly coming from the Late Medieval and Elizabethan concept of a "chain of being" which we discussed briefly when considering the core tripartite plan at Flowerdew (Tillyard 1956:25–36). Rather than repeat the Flowerdew discussion again, we will review it but plug Harwood's notions right into it.

The Elizabethan mindset conceived of the universal order in three main forms: a vertical chain, which ranks everything as a series of links moving from lower orders (Harwood, Harwood's manor, the company compound, the Barn) to higher orders (people by social class, God, etc.); a series of horizontal corresponding planes (a direct relationship to the
servants at the company compound and the barn the former's produce) in order of dignity; and a cosmic musical dance by degree in motion (a dance here at planting and harvest, and perhaps a rotation around the central manor).

Since Harwood has connected the domestic site with the company compound by a obverse/reverse facade link (the C-D Line), somehow the domestic site is ranked over the barn since it is more orderly placed and linked to a site (the company compound) that is spatially superior to the barn (the company compound is not tilted, the barn is). The C-D line is a good example of an architectural visualization of a corresponding horizontal plane within the chain of being (Tillyard 1956:83). Tipping the barn out of square with the main link (C-D) line is to Harwood literally making the barn "bow" to the chain of being and people residing in the company compound and the domestic site who are linked in a separate chain. Otherwise, it apparently would be an insult to place the domestic site in an inferior position to the barn since it is further away from the highest link in the chain which is Harwood's humble manor within the fort. The fact that the barn is "bowing" to the C-D line shows that it is in motion and orbiting like a planet in a cosmic dance around higher links of the chain (ibid. 103). In other words, the Wolstenholme Town plan makes a wonderful paradigm in microcosm for illustrating the "Chain of Being" as a perfect whole.
The second seemingly disturbing variance with Harwood's plan from the Shirley plan is that the relationship between the buildings in the G-C-D line seems geometrically informal. Is it good symmetrical planning to create a building line with the company compound's longhouse sighted with its north long facade aligned with the domestic site's south facade? There are three possible explanations for this. One is that in light of the chain of being, the domestic site appears to have felt a rude slighting due to its inferior position to the barn and actually turns 180 degrees away from the town square! We see this by the placement of a rear shed facing toward the town square (rectangle). Two other buildings at Martin's Hundred, one at Site H, and one at Harwood's manor within the fort feature such sheds specifically at their rear and parallel to their long facades (Hume 1982:221, 1983). This seems to be potentially independent resistance to the essential world view vulgarity of the town plan and seems to argue that the domestic site was added to the core master plan and not originally part of it. A second explanation is that, since the buildings face in opposite directions on a single line, this could be an example of a plane of correspondence that is "dancing" in a rotational orbit (Tillyard 1956:103).

A third reason for the basic position of the domestic site inside of the C-D line is probably because Harwood's plan was inspired by Vitruvius and Roman villas, and here we must move right into direct comparisons between Wolstenholme Town and the 18th-century Shirley Plantation. Vitruvius, as
the reader may recall, was a Roman architect whose work was reprinted and translated in the 15th century on. At Shirley, the Renaissance architect Palladio was probably the main inspiration for the Carter family mansion, yet the plantation layout also recalls spatial planning based on an analog of a Vitruvian man just like Wolstenholme Town. In other words, Harwood was apparently tapering his plan in a rational manner because he was thinking about the human body as an ideal form, as did the classical architects. The "head" of the settlement was the bawn or fort, the broad shoulders the company compound and Barn, and by inference the tapering of the shoulders to the "waist" was the domestic site and the next addition intended at Point E (Morgan 1960:72–75).

The lingering influence of the "Vitruvian man" and "chain of being" at Shirley is clear enough and intellectually this is just as important as Harwood's settlement in observing this common phenomenon. Regarding the "Vitruvian man," its head of the settlement is the Shirley mansion; its broad shoulders the first two outbuildings which are lateral in relation to the mansion—these being nearly identical to the Flowerdew core tripartite plan. Moving down, the second two outbuildings taper to a torso by turning their facades vertically to produce a broad avenue, as is the case in Harwood's town. And the final two, turned into converging corners, taper inwards yet further almost looking like "pigeon-toed" feet (Morgan 1960).
If the author has provided an inadequate explanation of the "chain of being" to the reader, Shirley plantation is especially helpful. At Shirley we can see the lingering effects of the "chain of being" simply by looking at the function of each building and seeing decreasing order in it in a manner not unlike descending a ladder. The first two lateral outbuildings are the "Hill House" and the other having a barrel-vaulted wine cellar (the upper building was destroyed). The former housed a plantation office and servants' quarter; the latter contained objects only related to the direct maintenance of the plantation social hierarchy as a business and high-status occupation. In the overall building complex, these are cerebral subordinate buildings directly assisting the "head" (Shirley Mansion). Descending the ladder, the second two buildings, a laundry and kitchen, address a second lower order, that of cleanliness and sustenance, both of which are related directly to people's bodies (feeding and grooming) and the kitchen at least becoming a sort of Vitruvian man's "belly." At the bottom of this latent chain-of-being ladder are buildings predictably containing objects only; namely, an icehouse and granary, which are analogs to the "bowing barn" in Harwood's plantation. The goods in the lowest link on the chain would probably be shared by everybody.

Is modern culture so far removed from the chain of being and the Vitruvian man? We can see a similar order in corporate, academic, or military pecking orders and how they effect locational planning. Briefly,
using a modern business skyscraper as an example, there is stored bathroom and office equipment in the basement and the business director is ensconced in a penthouse above all subordinate staff as both a Vitruvian head and chain-of-being office "head" of the organization and its architecture.

Like Vitruvius and Yeardley, Harwood found appeal in the number 10—the number of fingers on a human's hands—and used it in his key spatial divisions which are based on 10 rod divisions. This again is because the number 10 (number of fingers and toes) as considered ideal in Vitruvian planning (Morgan 1960:72–75). The distance between B-AA is 10 rods, which defines the bisector line for the manor in the fort. Add 10 rods (AA-C) and the manor is aligned to Harwood's satisfaction of simple needs for symmetry. Harwood was not using the actual centerline of his manor as a reference point in his symmetrical division; rather, he was thinking about how his cross passage divided his manor into two key spatial areas. Therefore, the key element in the bisector line A-AA-AAA is based on a 17th-century rational reference point, the beginning of the end of his cross passage.

The use of the cross passage as the asymmetrical key reference point in "symmetrical" two-point house divisions in the early 17th-century mental template is repeated at the company compound (cf. Carson 1969; Hume 1982:187, 194–199). The house block is about 56 feet long—and with its cross passage 2+feet wide, it divides the house into two nearly equal parts with one
initial heated room 28 feet wide, leaving a byre 26 feet wide. So important is
the company compound cross passage that it is surrounded by two separate
fences bifurcated to preserve the thoroughfare—one for a "toft" a yard
division more closely associated with the house (as indicated by the storage
house), and a second one for a "croft," a yard more closely associated with
animals (as indicated by the presence of a pond and perhaps a shedded hog-
sty [if the latter is not a seed bed or potter’s work shelf]) (Rowley and Wood
1982). The burial in the croft indicates that originally the separate fences
enclosures were reversed, with a croft associated with the original longhouse
byre and a toft where the burial was originally implanted.

As new immigrants entered the settlement, the longhouse byre (once
the center of dairy activities associated with cattle) was probably omitted in
favor of a second heated room indicated by the addition of a hearth attached
to the west gable. Through time a large 25- by 15-foot storehouse is added
which dwarfs the 12.5- by 11-foot storehouse or shed at the fort (Carson et. al.
1981:193). Obviously, when Martin’s Hundred was "sorely weakened" and in
"much confusion," Harwood began to pack servants into his pre-existent
buildings (Kingsbury 1906 I:587; Hume 1982:65). The importance of
company compound is indicated by the size and amount of ancillary buildings
at the company compound which dwarf those at the fort. Edwards (1994) has
noted that the amount and size of ancillary buildings clustering around a
given domicile is a better status indicator than the size of a house. Here
probably the communal nature of the company compound is confusing us; this is a corporate rather than a private estate (Harwood's Fort). Assembly men Boise and Jackson and their servants may have lived in the company compound.

**Was Harwood Building a Town, Village, Farmstead, or Villa?**

Especially on a frontier site when resources were limited, when someone is trying to do something and fails, the failure itself becomes more important to us than the success provided we can determine what the original goals were. In a frontier settlement, real needs tend to dominate over ideals, so we can zero in on real needs to capture the essence of what is going on at Wolstenholme Town. By using Camblin (1951), Garvan (1951), Reps (1972), and St. George (1990) and their depictions of various New England and Ulster towns for comparison, we can safely assume that Harwood failed to build a town, since in our model he failed to add a structure at point E on the master plan and geometrically this seems to be the terminal progress by March 1622.

Besides the Ulster-like model of the bi-linear town replete with a hierarchical bawn, what objective attributes make us think Harwood was trying to build a town? By implication there is supposed to be a church at Wolstenholme Town, for we know that in 1623 when settlers returned to Martin's Hundred (abandoned between 1622 and 1623), Richard Frethorne
lamented the fact that all that was left was two houses, and, "a pеece of a Church" (Kingsbury 1935 4:41-42). While that church improvement may be in the James River, an alternative explanation may be this was a generous title for the grim reality of the "domestic site" in much the same manner that Wolstenholme Town itself is hardly a "town" at all. The domestic site has a spot-zoned communal graveyard around it, perhaps indicating it was a parsonage with a simple chapel with most services conducted outdoors. Perhaps it was used simultaneously as a "rest house" for "seasoning" recent immigrants, possibly cared for by the minister Robert Paulett. Hence, the presence of an institutional graveyard which may have had a parish significance (Hume 1982:64). While the church identification may be unsatisfying, it is somehow believable. There is only one other grave at Site C and it is at the company compound where it probably predated a more official graveyard built at the domestic site, a site appended to the master plan A-B-C as an addition. The domestic site was one apparently socially entitled to determine its own orientation to the town square (it faces backward as we saw above). So the term "a pеece of a church" may be an indication that only one building cell was completed, perhaps to a glebe or chapel and doubling as a hospital, rather than a description of a literal physically damaged larger "church" structure. Rowley and Wood (1982:67) define a medieval "township" as a "small nucleated settlement, secondary to the parochial village, but sometimes containing a chapel," which is perhaps
the sort of thinking that went into the domestic site. In the new master plan we have deemed the domestic site as "Rest Area" since these things tend to be associated with religious establishments. Realizing that the real function of the domestic site is still somewhat sketchy, we will move on.

Other evidence of a town plan exists. There is a superficial resemblance to town lots in the arrangement of the yard complexes at the company compound and domestic site. At Londerry and Macosquin and other Ulster towns, the main domicile faces toward the street, with individual yard allotments leading toward the rear (Garvan 1951:42, Figure 7; Figure 14). These typically rectangular yards probably led to, or were connected with, their own small kitchen gardens. Following suit, Harwood has apparently instructed his subordinates that their yards must primarily face away from the 20-rod-wide (330 feet) by 270 feet (16.3 rods) town "courtyard" or square (really a rectangle), which they do. In detail the home lots and their yard enclosures are not formalized as town lots; rather, they are like them. Although most yards' main areas face to the rear, they also spill toward the "town rectangle." Notably, this violation of the town rectangle occurs precisely where the company compound and domestic site gables front one another along the C-D line. This is most likely to gain privacy from one another and possibly to resist full surveillance from the Harwood Fort. In sum, they look like urban lots crossed with an odd collection of small Late Medieval farmsteads incorporated somewhat unwittingly within a whole by a
third party. The impression is one of internal individualism, which is exactly
the image one gets of early Virginia by reading court records. The town
occupants are not servile, nor are they peasants. They have their own high
expectations, and this spirit shows. They want their own land after seven
years, and are not afraid to attack social betters in court (Kingsbury 1906–35;
McIlwaine 1979).

The next step for us is to try to see if we can tease apart whether this
is a town deliberately scaled down to a village or to a villa to meet real needs
in the emerging tobacco- and cattle-based economy.

In this discussion, the author does not want to get too caught up in
semantics. However, a few basic definitions are in order (cf. Chapter 1). A
village is a "collection of dwellings forming a center of habitation in a rural
district" which is "larger than a hamlet and smaller than a town." A villa,
while often used as a diminutive of a village, is chiefly thought of as, "country
mansion or residence together with a farm, farm buildings, or other houses
attached, built or occupied by a person of some position or wealth" (OAD 1978
12:204). This definition has something in common with a "vill," which in the
medieval period was a "small nucleated rural community" which was
accordingly probably dominated by a single person or more finite agricultural
interest (Rowley and Wood 1982:67).
Small medieval villages such as one in Borastall Buckinghamshire, consist of a hierarchal moated or defensible manor, and a double line of cottages which include a church along one line. These were part of an agriculturally based feudal system (Rowley and Wood 1982: Plate 17). So there are clear village parallels with Wolstenholme Town. However, since the original definition of a village is somewhat functionally vague and is not always dominated by hierarchal concerns, we will abandon the notion that Harwood was trying to build a village here, in favor of an examination of a more villa-like plantation model which more clearly penetrates Harwood's town model in ways we cannot ignore. This is since, as we have seen, it has very much in common with Shirley Plantation. So in light of this, a better question in a brief examination would be, is Harwood building a farmstead or a villa here?

What attributes make us think that Harwood deliberately built a villa-like manorial complex? Remembering the remarkable documentation of Ulster communities noted above, are there streets in Ulster or New England that are headed up by barns as one of two bi-linear files of buildings emanating from a bawn? The answer at present seems to be an emphatic no! Moreover, the placement of the barn in relation to the manor is a major shift from a medieval "farm" which would typically have the barn in an "L" formation closer to the gable of the main dwelling (Beresford 1971:Figure 17; see also Key Analogues chart). So the placement of the barn in Harwood's
plan is a gradual shift under classical influence to create a symmetrical villa out of a farmstead. Clearly, the main new influence on a generic medieval farmstead is the addition of labor to the manor and barn to form a more symmetrical, classically inspired triangle or core tripartite plan. Harwood is interested in creating a broad courtyard between his main structures. And if we were to summarize this as a model, it certainly recalls the configuration of the core tripartite plan within Yeardley's Fort, which looks on the surface to be simply a manor seated above a West English (or northern European) longhouse spatial configuration (cf. Hodges 1993:190–192, Figure 2, Beresford and Hurst 1971: Figure 19B). Even so, the angle of the subordinate buildings again suggests a farm model adjusted toward a courtyard between these building, more in keeping with a villa model.

In a hierarchal villa or "rural manorial estate" a farm, which is part of the production aspect of the social hierarchy being supported, would anticipate such things evolving directly out of both a farmstead (manor [Harwood's manor and fort] and barn [the Company barn]) and a longhouse model (byre, living zone [analogous to the company compound], cross passage [the gap between Harwood's barn and company compound]), and service storage zone [the Company barn]). In fact, this particular "farm support" notion is embedded in the definition of a villa (we noted above) and not clearly in the definition of a village. The hierarchal nature of the bawn in relation to this labor-intensive farmstead only seems to underscore trends
already noted by Morgan (1975). In the Chesapeake very early on, sharp
divisions in social hierarchy quickly appear which are propelled by the
tobacco boom.

What else can we observe at Site C that may seem different from our
somewhat stereotypical view of small Ulster towns? There is a 300-foot-wide
area between the subordinate buildings. I have included a scale comparison
between the courtyarded settlement at Newman's Neck (alias "Corbin's
Rest") to show how much bigger this settlement is than a more normal
courtyarded homestead whose core structure would be analogous to
Wolstenholme Town if the company compound were the manor (Hodges
1990). (See Figure 85.) Clearly at Site C this relatively huge courtyard area
is intended to be something more than just a street or utilitarian work area.
Because of this large scale, we can probably conclude—not without reason—
that Harwood, who had much more labor than Neuman, was thinking big. In
doing so he appears to have built for us what is really best thought of as a
villa-like courtyard between his subordinate buildings. This was probably
replete with communal kitchen gardens and possibly a corral used as a
commons. While thematically the production of corn and tobacco may have
also been included, additional bigger fields were probably elsewhere. Where
were they?
Figure 85
(Top) Wolstenholme Town, (Bottom) Corbin’s Rest. Although both sites create a courtyard, only Wolstenholme Town references classical antiquity.
During the earliest period, pre-massacre sites at Martin's Hundred probably consisted of Site C (Wolstenholme Town), G, 2, and 11 (the latter group corresponding with 9/64th-bore-diameter pipe stem histograms peaks) (Edwards and Brown 1993:296, 298). Sites G, 2, and 11 may have something to do with early efforts by Boise and Jackson. If indeed contemporaneous with Wolstenholme Town, Harwood probably had the social power to make all nearby "suburb" residences part of Wolstenholme Town's bi-linear street. But, hypothetically rather than lose labor on previously cleared fields and finished dwellings, he does not. In the meantime, Wolstenholme Town is all Harwood really needs to create the central place or administrative center for the 80,000-acre Martin's Hundred corporate tract. This settlement model is coming from the "Bermuda Hundred Model" which, as we noted in the Flowerdew study, is the maximal frontier adjustment to the Chesapeake focusing on smaller administrative seats in exchange for larger numbers of dispersed farmsteads. Harwood's big mistake, compared to the Ancient Planter Yeardley, was not to nucleate his "town center" within defensive walls; hence, it was easily sacked by Native Americans.

Should we really be surprised that this social and economic atmosphere would twist a town ideal into a more productive and cheaper villa plan? Very importantly, as early as 1619 at Wolstenholme Town, we are seeing clear evidence of a deliberate vernacular shift away from Ulster town models in favor of agriculturally focused villa models in order to streamline
real needs in a more efficient manner that will best meet capital demands. While Harwood was probably told to create a hierarchal/bilinear plan by his superiors, this site nonetheless just might be referencing Harwood's own concept of not an ideal town, but an ideal Vitruvian villa; that is, a private or corporate rural estate focused entirely on agricultural production. While this may sound out of tune with our current thinking, some simple comparisons will anchor my reasoning.

Let us suppose for the briefest moment, that none of us had ever heard of the Ulster model and that we did not know that these people were planning towns. Instead, let us look at the archaeological remains considering their face value alone as a planning package. In looking for some sort of precedent for the Wolstenholme Town remains, what sort of architectural plans known to educated men most resemble what Hume has found? The answer would be tripartite villas. Pursuing this villa motif, for instance, how different is the physical layout and definitely not the substance of villa Z-Plan and Martin's Hundred Site C as a basic plan Thompson (1993:140). Harwood was in no position to provide architectural substance, but importantly he had plenty of space for a plan that references classical antiquity in some fashion (Argan 1969). Therefore, although a vulgar application of a villa plan we should not fail to miss its deeper origin.
Harwood's Fort

Noel Hume primarily used the Ulster model, the plan configuration, and documentary records of James Fort to identify the Martin's Hundred fort. Briefly noted, the key attributes which Hume (1982:150–152, 187, 217–219, 273) identified in the fort were:

1. A riven plank palisade about 7 feet high, nailed up with tree nails.

2. An interior firing step about two feet wide and three feet high of rammed clay revetted by short ditch-set pales behind the outer curtain.

3. An 8- by 8-foot watchtower at the southeast corner adjacent to an entrance.

4. A smaller, tapering flanker at the southwest corner, with internal supports.

5. A poorly planned perimeter, and overall a rather unpretentious fort design.

There are a number of aspects about this fort which makes one uncomfortable with the meager material evidence provided via archaeology.

Reasonable points of ambiguity are listed briefly:

1. The fort violates military grammar; its only two flankers are on the third shortest wall. A Z-Plan fort with flankers on opposite walls would cure this with an identical labor investment.

2. The watchtower design is so simple and many 17th-century sites are so informal that it might be an outbuilding deliberately set at an angle to the perimeter so as to face inward (see Neiman 1980:Figure27).

3. A fort defends a place of importance. The poor preservation or substance of the manor might argue that either the manor was never completed or that it is really a well-preserved insubstantial
structure which is inferior to nearby outbuildings that are well defined.

4. The insensitivity of the well to the fort perimeter is disturbing. This is especially so since plan drawings and some photographs make it look like the fire-step is clearly intruded by the well cap, while the well cap is in turn intruded by the hole-set perimeter (Noel Hume 1982:Figures 8-4, 11-2 note 5th post from watchtower on both illustrations).

5. The presence of a cattle pond associated with the well within the fort perimeter might argue that the bawn failed and reverted into a cattle pound as would be typical of most failed Ulster bawns (Camblin 1951: Plate 12 and 13:note Thomas Raven's captions]; Hill 1970:455–589 note many failed bawns). Post-Massacre use would only be feasible with a Site C re-occupation since Native Americans constantly slaughtered and often ate English livestock during war (Kingsbury 1933 3:555, 557).

6. The ditch-set fire-step in its relationship to the hole-set perimeter is very similar to the confusing walls at Site A (cf. Noel Hume 1982:Figure 3-1, 8-4). The most similar are the least likely to be defensive.

7. The evacuation of settlers after the Massacre of 1622 such as Captain Hamor's martial law command over Martin's Hundred to remove to seven or eight strongholds was in order to build fortifications which were expensive and labor intensive and by implication not already present (Kingsbury 1933 3:610; 612).

Independent research by the author can allow is to re-appraise the fort. The first positive step in the re-appraisal came when the author was able to observe flankers that were superficially similar to the Site C fort at the French settlement at Port Royal, and a defensive entrance at the Harbor View fort similar to the watchtower/trackway interpretation (Hannon 1969:18, 113; Hodges 1993:Figure 5, 208). Second, and most importantly, the author realized that the embedded flanks or faces at the redoubt at 44PG64 (Hodges 1993:Figure 4A) (clipped corners) are also on a short wall, although
facing the James River. So at Martin's Hundred we have some believable secondary characteristics of a fort, but they presently do not make sense to us as a package that flanks all the walls in a rational way because of ambiguities. These ambiguities are shown in the depictions of the site by obscuring them (Hume 1982:Figure 11-2 [fort plan deliberately runs off page at northwest corner]; 1991:Cover drawing [manor hides northwest corner]).

Below we will bravely try to systematically remove as many of these ambiguities as we can, as we try to probe into the design of the fort, in its as an artifact of mental template by using soft structural analysis.

What the Fort Master Plan Tells Us

We have already noted that the origin of the entire Site C "town" master plan is keyed into a point of origin at Point A. However, Harwood's Fort master plan uses another reference point (see Figure 86). On this figure the town master plan reference point A is shown as a very large capital A with the actual reference point shown as a small circle with a cross in it. It is 17.5' along the north facade of the manor from the southeast corner. The point of origin of the fort plan is shown as small capital A at the center point of a large circle. The small capital A is 25 feet along the north facade of the manor from the southeast corner. As will become clear by implication, arguably the completion of the fort design appears to have been a separate
Figure 86
(a) Structural analysis of Harwood's Fort, a working plan.
(b) Hypothetical profile of fort.
(c) Dead ground created at corners and internal flank curve. from Brackenberry 1988.
planning episode with each plan having its own but related integrity perhaps because Lieutenant Keane rather than Harwood built the fort.

Since fort design evidence does not make for good prose, but does make for lengthy prose when associated with a single complicated drawing, the author will explain what the drawing portrays and then digest the evidence for the reader in list form while referring to the key and labeled points.

The BASIC KEY and METHODOLOGY of the fort design drawing is:

Darkened posts are known archaeological postholes associated with flankers and/or perimeter corners and are all labeled with arbitrary letters. We need these named points to isolate what key points we are talking about. The other hole-set palisade posts along each curtain (the outer walls of the fort) are not darkened or labeled and are treated as design by products of the named points.

Hypothetical Posts: Point KK, LL, MM, and NN, are shown as dotted circles and are named as hypothetical posts at each north corner. These points were created by superimposing known diagonally opposite flanks over surviving gorge (the rear of a work) or embedded flank postholes (points J, B, G, H) and drawing them in. We need these posts to calculate salient angles and to see if flanks make sense here as part of the fort design.

Dark Arrows are the symbols used to portray SALIENT ANGLES. In fort design a "salient" is the angle at the projecting point of a bastion, ravelin, redan, or other fortification projection (Hinds and Fitzgerald 1996:74). In Harwood's Fort there are only two surviving salients, the southeast and southwest flankers and these are not pointed, although the southwest flanker is tapered. Therefore, using the known flankers, the salient reference points were calculated at one half line E-F and K-L (watchtower) or one half C-D and M-N (southwest flanker). The resulting line was struck back into the fort to see where it hits the inside angle of the curtain corners. The embedded flanks (clipped corners on the north side) do not really project so we must be creative with them by using evidence from the preserved flankers which were super-imposed over the opposite corner embedded flanks. A mark was
made halfway between points B-J and KK-LL and H-G and MM-NN, again back into the fort to see how it hit against the inside angle of the nearest converging curtains. For known flankers the actual centerline and gorge angles are shown. For embedded flanks both the centerline and salient points of origin are shown as tick marks along the angle of convergence of the nearby curtains.

**CL** refers to the CENTERLINE of the angle of convergence of the inside angle of two curtain walls. The centerline was located by bisecting the total angle of the nearby curtains and striking a line from this point of origin with a protractor to the outside of the forts perimeter. **Note:** All of the points of origin for both the centerline and salient angles could not be shown without turning the drawing into a riot of information which interferes with the fort's overall design from a purely graphic standpoint.

**Gorge Lines** are shown as DOT-DOT-DASH-DASH LINES. In polygonal fortifications, the **gorge line**—the line formed on the inside or rear of a flanker—are not normally critically important to the design analysis of forts built in the high style, but are by-products of more important things such as the gorge angle, "the angle formed by the junction of the gorge (inside space between the flanks of a bastion) with one of the flanks" (Hinds and Fitzgerald 1996:68). However, for the analysis of Harwood's vernacular fort, gorge lines (rather than angles) are especially useful because they correspond with the inside angles of the fort's flanking fire where flankers are known archaeologically on the south side. Most importantly, they allow us to compare pan coupe angles in the north corners with gorge angle in the south corners, enabling us to see if the pan coupe lines are really gorge lines.

**Pan Coupe Lines** are also shown as DOT-DOT-DASH-DASH LINES in order to draw a direct parallel with pan coupe lines (north corners of the fort) and gorge lines (south corners of the fort). In military terminology a "pan coupe" or "pancoupe" is defined as "a short side on a fortification formed by cutting off the apex of a salient (Hinds and Fitzgerald 1996:72). As used in relation to the nearby curtain angles, they are used here in virtually the same manner as a "Pan Coupe" (cut off salient) in Robinson's (1977:Figure 115) work where an angle within the forts polygon has been cut off to eliminate dead ground, as was the case in the Yeardley Sharp redoubt or Yeardley's ravelin or commander. As indicated on the drawing, pan coupe lines are the only archaeologically surviving evidence of flanks (albeit embedded) where the palisade corners are "clipped off" on the north side of the fort at
variant angles to the nearby palisades. The embedded flanks at the clipped corners could also be called "embedded faces" to the extent that they define the outward (hence face, rather than flank or side) direction of fire at the fort’s corner. In a square, rectangular, or otherwise polygonal redoubt without flankers, the corners are the closest item to a salient present in the perimeter. So, are the clipped corners a pan coupé or really a gorge line for lost flankers?

The Exterior Polygon is shown as a DOT-DASH LINE. The exterior polygon is the total resulting perimeter of all the fort’s exterior angles which are linked by lines and are an important aspect of a fort’s design. These clearly hit at arbitrary reference points which I have not labeled.

Fort Design Data

The digested fort design data presented below is intended to highlight the non-random characteristics of the fort’s hidden geometry, but draws no major conclusions about what it means. The data compiled here show inferred design characteristics of the fort per curtain and flanker or embedded flank. These are progressively presented in a counter clockwise direction beginning with the line A-B. We do not know that Harwood used this progression; it is just a way of breaking down the data at present. The data on the gorge lines and exterior polygon are then also listed. Last, some note of inherent error factors is observed.

1. South Curtain: Harwood created an equilateral triangle (A-B-C; A-B to A-C = 100 degrees, A-B-C = 40 degrees, A-C-B = 40 degrees) with two 4.1 rod (A-B), and 4.0 rod (A-C) legs. Together these distance and angles created a 6-rod or 100-foot-long hypotenuse (B-C) which determined the south curtain limits. There is a 1.65-foot or 1/10th rod error in the equilateral triangle.

2. Southwest Flanker: Harwood added 5 degrees to the 100-degree angle of the south curtain (line A-D) in order to determine the width of his flanker (A-C-D) which was about 7 feet wide. The
completed flanker which tapers to about 5 feet wide is composed of points C-D-N-H. Since the inside angle of the convergence of the south and west curtain is 98 degrees, producing a 44-degree centerline, Harwood apparently shifted the 49-degree salient angle 5 degrees to the west.

3. **South Wall**: Harwood added a 70-degree angle to the line A-D, in order to create the definition of the south wall (D-E) which was 85-feet long. The triangle A-D-E is not equilateral.

4. **Southwest Watchtower**: Harwood added 7 degrees 30 minutes (half a degree) to the south curtain in order to define a larger framed watchtower or flanker (A-E-F). The completed work consisted of an 8- by 8-foot unit comprising points E-F-K-L. Since the angle of convergence of the south and east curtain is 74 degrees and the centerline of this angle at 37 degrees, the angle of the salient and centerline are identical and perfect as a defensive ideal.

5. **East Curtain**: Harwood threw out a line (A-G) at 120 degrees north of line A-F to create the definition of the east curtain at 130 feet long. The triangle A-F-G is not equilateral.

6. **Northeast Embedded Flank or Gorge Angle (if rear of lost flanker)**:

   In order to remove the possibility of dead ground (areas which cannot be hit from the fort perimeter) at the northeast corner, Harwood allotted an additional 5 degrees to the 120-0degree angle of the east curtain, creating points A-G-H. This created a pan coupe about 7 feet wide (G-H). Notably this produced a different angle from either the east or north walls, allowing militia to cover the nearby exterior area with fire from the interior. Since the inside angle of convergence of the east and north curtains is 84 degrees, producing a 42-degree centerline, the salient angle (one half line G-H and MM-NN) at 25 degrees is 17 degrees off the ideal and shifted toward the south.
7. North Curtain: In order to create the dimensions of the north curtain Harwood threw out a line (A-J) at 50 degrees west of the line A-H. This defined the limits of the north curtain at 73 feet long. The triangle A-H-J is not equilateral.

8. Northwest Embedded Flank or Face (Gorge angle if a flanker has been lost): In order to eliminate dead ground at the northwest perimeter of the fort, Harwood added 5 degrees to the line A-J, creating a pan coupe about 7 feet wide (J-B). Most importantly, this pan coupe line (J-B) is not at the same angle as the north curtain (J-H) or the west curtain (B-C). Since the inside angle of convergence of the west and north curtain is 103 degrees, producing an ideal centerline of 51 degrees and 30 minutes, the salient angle (one half line B-J and LL-KK) at 68 degrees 30 minutes is 17 degrees off the ideal and shifted toward the north.

9. Gorge Lines: If joined together, the gorge lines on the south side of the fort where two flankers survive create an interior angle of 75 degrees. For the embedded flanks or the hypothetical gorge lines of lost flankers on the north side of the fort, the lines join at an angle of 149 degrees or almost exactly twice the south gorge line angles.

10. Exterior Polygon: Reading clockwise, the exterior polygon is created by the confluence of the following angles if the northern flankers are restored: Northwest corner = 100 degrees; Southwest corner = 100 degrees; Southeast corner = 70 degrees; and Northeast corner = 90 degrees. If all these angles are added together, they equal 360 degrees.

11. Error: There is inherent error in this drawing. Some error is probably coming from Harwood, some coming from the author, and some coming from the vagaries of archaeology. Here I highlight my own error factors. The design data were complied from a 1-inch-equals-10-feet drawing. Therefore, each angle inscribed for this ink drawing is about 20–30 minutes thick (1/3rd to 1/2 degree) while my clear protractor is only accurate to 30 minutes. From the fort point "A," it was difficult to get the triangles of the curtains A-D-E, A-F-G, and A-H-J to hit precisely on A without enlarging ink lines already present and slightly rotating the points of origin. Therefore, I have left these lines bleeding together to show the inherent error. Some named postholes do not have a post mold so I was forced to use the center point of the posthole as a reference.
Discussion, Inferences and Conclusions on Harwood's Fort

The analysis of the hidden geometry of the fort indicates a plethora of non-random behavior which demands a rational explanation here. In general this information tends to underscore the fact that a carefully planned fort is present although poorly preserved. This allows us to cautiously tap right into Harwood's mindset and the function of a decidedly vernacular fort plan.

The Fort as an Aspect of the Town Design

A very important aspect of the plan is that the core plan of the fort, denoted by the triangle A-B-C which defines the south curtain wall, repeats the angles of the town master plan A-B-C which determines the location of the Fort, company compound, and Barn. To wit, the triangle A-B-C within the fort plan is a nearly perfect equilateral triangle. It is perfect, but for a 1.65-fppt or 1/10th-rod error, with a 100-degree reference angle joined by two 40-degree angles. The main Site C master plan consists of a 100-degree reference angle which links the barn and company compound via two converging 40-degree angles (line B-C). -The fort line B-C at 6 rods or 100 feet long determines the length of the south curtain; the B-C in the town plan determines the width of the town square at 330 feet wide. So it is tempting to suggest that the town was deliberately measured in at a ratio of 3.3 times that of the fort. It is also tempting to suggest that Harwood was literally trying to spatially harmonize his ideal town plan and fort plan literally and figuratively by using a common mathematical/geometric equation at their
core. The number of compass points radiating around Point A suggest the fort flanks began as an inscribed circle and quadrangle simultaneously based on the union of two large triangles. The former is the basis of the Renaissance fort. According to most scholars, the circle is the perfect architectural and natural form (Reps 1972; Serlio 1982 Folio II:3f).

The fort plan A-B-C triangle with B-A-C at 100 degrees creating the length of the south curtain is the only equilateral triangle in the fort plan. Since it mimics the town plan by inference, surely this is the initial core of the fort plan, as many triangles converge on point A. Interestingly, 100-degree angles are also the angles of the exterior polygon at the southwest and southeast corners which are the only two repeated angles in the exterior polygon. There was probably a method in Harwood's madness since the triangle B-A-C prepared the fort for the two salient angles on either side of the triangle so that Harwood could offer both the company compound and barn some covering fire at their centers. In other words, the salient angle of the southwest flanker seems to target the cross passage of the company compound. The salient angle of the embedded flank at the northwest corner seems to target the "barnyard" of the barn (as many barns have centered long facade entrances as well as gable entrances). At about 150 feet from each salient, both are well within the range of accurate musket fire which is a maximum of 80 yards or 240 feet (Hodges 1993:209–210). The symmetry of these defensive needs reflects back to the exterior polygon where 100-degree
interior angles at the southwest and northwest are repeated there and only there. Harwood perceived no need for symmetry for the east wall in the exterior polygon.

**The Fort From A Functional Standpoint**

Now turning to the fort itself exclusively, clearly both the perimeter of the fort and the measures taken to eliminate dead ground at its corners indicate that, while a simple fort, little was left to chance. In other words, we are seeing an example of 17th-century personal discipline which was invested into what superficially appears to be a rather sloppy defensive perimeter that has fooled nearly everyone at least once. In order to refine the rational appraisal of the fort perimeter from a functional standpoint, one is urged to consult the inset C (after Brackenberry 1888:Plate V, Figure 8). This drawing, taken from a 19th-century fortification manual, shows the dead ground created by a square or rectangular redoubt which would also be appropriate functional needs for the current trapezium polygon under consideration (Brackenberry 1888:Plate V, Figure 8). In inset C only narrow exterior corner angles are left unprotected by firing from adjacent straight walls. Therefore, in light of this, at Harwood's Fort both the flankers on the south wall and the pan coupes in the clipped corners of the north wall all presently seem to be animated by a very specific desire to eliminate very finite areas of dead ground with few other additional frills. Therefore, Harwood's Fort plan seems to capture a second stage in fortification growth
that is but one stage removed from a redoubt (an unflanked polygon, that is, one without flankers). This is a rational and cheap peacetime fort that is admirably suited the historic context of 1619–22.

But are these clipped corners pan coupes to eliminate dead ground or gorge lines to lost flankers once associated with them? The second most striking aspect of fort design is that the degrees allowed to create the dimensions of the known flankers along the south wall are repeated diagonally in the north wall embedded "flanks" with clipped corners. In other words, the distance between E-F (known watchtower gorge line) is 8 feet, and literally diagonally opposite is the line B-J also at 8 feet wide. Both sets of points are at 7-degree angles with a half a degree error factor between the two. So in Harwood's original fort plan (versus our own modern breakdown), he may have just thrown out the line B-A (already present in one leg of the core triangle A-B-C) and lengthened it to become B-A-F, marked out to 8 feet to the east at B and to the west at F to create the line E-A-J, where the opposite sides of two 8-foot-wide watchtowers already are oriented in perfect harmony. Although not literally diagonally opposite, the same pattern holds true for the known southwest flanker which is 7 feet wide and offset 5 degrees from the curtains (gorge line C-D), and its obliquely opposite corner at 5 degrees offset and 7 feet wide (points G-H). We can see in this a clear resemblance with the overall aspects of a Z-Plan fortification (Hodges 1993:200-207;204;207, 211–212). This certainly strengthens the notion that
the pan coupes on the north wall are really gorge lines, but we will have to return to this argument more extensively below.

At Harwood's Fort we can infer that he may have added a Z-Plan of framed elevated watchtowers to a Z-Plan of tapering earth-elevated flankers even though we only have two flankers to go by. We can make this inference based on the strength of the angles of the exterior polygon, the pattern in the gorge line interior angles, and pattern of deliberate error in the salient angles verses their ideal angles. All of these data are reliant on the others.

The exterior polygon also argues that there were originally four flankers at Harwood's Fort. The author has redrawn the "working fort drawing" to clarify the clean angle figures of exterior polygon and to simplify the flanker study in terms of only the key angle elements (see Figure 87) (second plan of fort). If we total all interior angles making up the exterior polygon without using the two inferred flankers, we get a total of 366.5 degrees rather than the perfect ideal of 360 degrees we obtain if we include these flankers. The 360-degree exterior polygon is based on a total of four interior angles: southwest corner = 100 degrees; southeast corner 70 degrees; northeast corner 90 degrees; and northwest corner 100 degrees (illustrated). Therefore, the exterior polygon is almost certainly from a purely mathematical/geometric standpoint based on the use of two converging triangles (not illustrated) since all triangles consist of a total of
Harwood's Fort after structural analysis. Note clean numbers of feet, angles, and rods.
three interior angles adding up to 180 degrees and 2 times 180 is equal to 360. These two triangles converge in a double hypotenuse line which runs diagonally across from the southeast flanker to the northwest flanker and emanates just outside of both flankers. The hidden triangle legs which runs just outside the south curtain and west curtain consists of a triangle with one 120-foot (7.2 rods) leg below the south curtain, and one leg 108 feet long outside the south curtain, both of which are joined by a 100-degree angle. The hypotenuse of this triangle is 174.5 feet (10.5 rods) long and runs very close to fort point A (within 1 foot) with a 38-degree angle in the northwest corner and a 43-degree angle in the southeast corner. The second hidden exterior triangle which circumscribes the north and west curtains of the fort consists of one leg just outside of the north wall that is 78 feet (4.7 rods) long and a second leg that is 155 feet (9.45 rods) long just outside of the east walls. These two legs join at a 90-degree angle with the northwest corner at 62 degrees and the southeast corner at 27 degrees.

On the north corners where we see only pan coupes archaeologically, the points where the exterior polygon angles come together are right next to points B and G which would make the function of the pan coupes almost totally irrational even for removing dead ground. An ideal angle for a pan coupe would be 45 degrees across the centerline of the interior curtain angle, as was the case in the Yeardley/Sharp redoubt. Since this is not the case in Harwood's Fort, the angles are truly shallow, we can infer that these are
either gorge lines to lost flankers or that actual use of a pan coupe was forced on Harwood when Martin's Hundred fell into decline prior to the completion of the fort. An outstanding example of how a failed bawn would look archaeologically like a redoubt with four 45-degree angle pan coupes has been provided by Garvan (1951:Figure 8, Figure 14) not ironically here using Macosquin. Macosquin failed by 1622 resulting in a manorial garden with four open corners where the gorge angles for flankers were supposed to be, while four bawn walls—now garden walls—survive. Since we know that most Ulster bawns have a square perimeter or rectangular perimeter, the 45-degree angle shown is predictable (see Table 5). Given the overall implications of Harwood's Fort so far, we think we are seeing more than a failed bawn like Macosquin, but rather flanker angles of which only the gorge line survives and that have variant functions.

What contribution do the variant salient angles, gorge lines, and pan coup lines and therefore possible variant functions in the flankers make toward coming up with a believable notion that the fort originally had four flankers? If we look at the sharp disparity of the converging gorge line interior angles, we note that the joined interior gorge line is very shallow on the north side at 149 degrees and very steep on the south side at 75 degrees or only 30 minutes more than one half its steepness. This is a rational pattern of some sort relating to the variant function of the south and east flanks.
A second rational empirical pattern compliments this notion of variant flanker function on the south and north walls. While the salient angle of the watchtower is perfect, the southwest corner flanker is only 5 degrees in error. Yet, the error factor in the salient angle at the embedded flanks verses the centerline angle of the curtain corners is identical at 17 degrees. As we juggle this information we realize that Harwood not only had two flankers on the north side here, but he saw them as being more defensive than the flankers along the south wall because the inferred flankers deliberately turn toward one another (relative to the south wall) to create a cross-fire centered right along the north curtain. Conversely, on the south side where the flankers have not been sheared by plowing, the flankers turn sharply away from one another (relative to the north wall) so that the fort occupants could begin flanking an attack with a crossfire well before potential assailants got near the fort’s south wall. So the archaeologically intact south-corner flankers are really more offensive than the north corner flankers which are essentially defensive. So what appears to us as salient error verses centerline ideal is really variant function.
TABLE 5
ULSTER BAWNS FROM PYNNAR’S SURVEY 1618–19
HAVING USEFUL DESCRIPTIVE INFORMATION
Requirements of Undertakers (Hill 1970:82):
(1) 2,000 acres (or more): "a Castle, with a strong Court or Bawn about it;"
also in the house or castle must be 12 muskets and 12 calivers to arm 24 men.
(2) 1,500 acres: "a Stone or brick House, thereupon, with a Strong Court or
Bawne about it;" also in store 9 muskets and nine calivers, to arm 18 men.
(3) 1,000 acres (or less): "a Strong Court or Bawne at Least;" and 6 muskets
and six calivers to arm 12 men.

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<tr>
<td>Ramalton</td>
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<td>Sir J. Vaughan</td>
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<td>Capt. Gore</td>
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<td>Castledoe</td>
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<td>NA</td>
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**Note:** asterisked sites have suspect information and are used with caution.

### BREAKDOWN OF TABLE 4 SAMPLE

1. **Relationship of Bawn Size and Shape** to Plantation Size (total usable sample size: 48 or 100%):  

**Total 1000 acres:** 29 or 60.3% of total  
Total Square Bawns: 25 or 52.08%, Average Square Bawn size: 60.84' X 60.84', Average Square Feet Square Bawn: 3,701.5'; Total Rectangular Bawns: 4 or 8.3%, Average Rectangular Bawn size: 94.5' X 72.75', Average Square Feet Rectangular Bawn: 6,874.8 square feet.  

**Total 1,500 acres:** 6 or 12.46% of total  
Total Square Bawns: 4 or 8.3%, Average Square Bawn Size: 92.5' X 92.5',  
Average Square Feet Square Bawns: 8,556.25 square Feet; Total Rectangular Bawns: 2 or 4.16%, Average Rectangular Bawn Size: 107.5' X 53.5', Average Square Feet Rectangular Bawn: 5,751.25 square feet.  

**Total 2,000 acres or larger:** 13 or 29.06% of total  
Total Square Bawns: 11 or 22.9%, Average Square Bawn Size: 101.8' X 101.8';  
Average Square Feet Sq. Bawns: 10,363.24 square feet, London Co. bawns all square & large; Total Rectangular Bawns: 2 or 4.16%, Average Rectangular Bawn Size: 100' X 80', Average Square Feet Rectangular Bawns: 8,000 square feet.  

2. **Bawn Wall or Curtain Elevation:** Usable sample size is 43 entries or 100%; Elevations: (low elevations may indicate incomplete works), 7' 1 or 2.3%, 8' 1 or 2.3%, 10' or 4.3%, 10' 16 or 37.2%, 13' 4 or 9.3%, 14' 12 or 27.9%, 15' 1 or 2.3%, 16' 6 or 13.9%; Average Bawn wall height: 12.98'.
3. **Bawn Material:** Usable sample size is 44 entries; Total Lime and Stone: 33 or 75%; Stone and Clay 10 or 22.7%; Stone 1 or 2.27%. (Note: other types of walls are present in Ulster, no detailed information is available on them).

4. **Flankers:** **Number of Flankers:** Usable sample size is 47 entries or 100%; Total with two flankers 29 or 61.7% (most probably Z-Plan, some may use the fortified house for the location of the opposite flanker from flankers which are entirely alone along curtain walls; others may have two opposing flankers which are both only along curtains); Total with three flankers 3 or 6.4%; Total with four flankers 15 or 31.9% (this is the best ideal for a quadrangular fort). **Flanker elevation:** There are four entries for elevations two at 12', one at 14', and one at 15', two other entries describe flankers as being "two stories" high. **Flanker diameter:** one entry noted flankers at 12' in "diameter" (presumably circular); one noted flankers at 13' "wide" (presumably squared or angular).

5. "**Average Bawn**" has a square perimeter (83.28%), with walls of Lime and Stone 12.98' high, with three flankers (2.7 flankers). The flankers may be 13.25' tall or two stories high and 12.5' wide (the only weak figures here).

6. **Watch Tower** is called a "centinel house" in one plantation in Ulster. At Culmoore besides good fortifications there were, "two small Ports which are made of Timber and Boards for Soldiers to watch in," (these might be man sized shelters). At Culmoore (not listed in Table 4) the bawn is made of Sodds, with a Pallazado upon it of Boards, ditched about" perhaps not unlike Harwood's Wolstenholme Town Fort. There is a third obscure reference to centinel houses (see Hill 1970:522, 576, 558).
Variant flanker function bleeds right into what we saw as error in all flankers except the watchtower. The watchtower which was apparently especially elevated has a perfect salient angle, the better to flank the south and east walls. The 5-degree "error" to the west in the southeast flanker salient is a good error as it better flanks the west wall in light of the elevated watchtower. Moreover, it has been also been carefully tuned to protect the company compound. The "error" in the partially destroyed northwest flanker salient at 17 degrees north is the better to flank the north wall. Further, it has been carefully tuned to flank the barn and barnyard. The 17-degree salient error to the south in the partially destroyed northeast flanker is to better flank the north wall, for it offers virtually no support to the watchtower (southeast corner) in flanking the east wall. Note how well the exterior polygon defines the zone of wall defense everywhere except at the northeast terminus of the east wall, where Harwood's loss in his own plane geometry puts in a decidedly shabby functional performance. Here, at the risk of losing our perfect exterior polygon, one might be well armed to argue Harwood either never had more than an embedded flank here or modified his flanker form in some unknown way. Yet, if he never had it, the north wall would be weakened, and again this is a very irrational even ludicrous embedded flank angle.
Summary of Harwood's Fort

In sum, unless Lieutenant Keane or Harwood were an imbecile, which does not appear to be the case, Harwood's Fort originally had four flankers. Of these two surviving archaeologically on the south corners of the fort, at the north corners only the gorge line survives. Since the gorge line would be absurd for a pan coupe line—it is far too shallow to make sense from a functional standpoint—we can infer that: (1) the fort certainly had four flankers in its original design and probably in its completion; or (2) Harwood was stuck with using his gorge lines for intended flankers as pan coupes due to the weakening of Martin's Hundred. Since culturally flanking all four walls with a Z-Plan would be the first process in fort building, leading to a completion of the watchtower and northwest flanker, and we know a southwest flanker was completed in excess of this initial diagonal pair, we can make our final summary inference—plowing rather than incompetence has removed the northwest flanker, while little benefit would be added to the fort's defense with the northeast flanker, so it alone may have been omitted.

In order to complete a cultural restoration of the fort as a mental template package, we will attempt to restore the remainder of what we can by using comparative evidence and inferences which emanate from our design model described above. We will treat the fort just as seriously as we would a mansion house and assume it had four flankers, two opposing square and two opposing tapering.
The overall fort design is a mélange of modern and Late Medieval influences that come primarily from 16th-century battlefields and a late castle building tradition still partially standing in England and Europe. It must be stressed that this is an international "school" of fortification of which Ulster was but a restricted English regional exponent. The design of the flankers is predictably coming from castles and fortified manor houses that had a rectangular or square defensive perimeter.

Harwood's use of a trapezium (a quadrangle joining four lines in a similar fashion to a trapezium, but of variant distance) almost certainly shows that he was planning to expand his fort into a six-sided form or hexagon by using the east wall as a future internal division which was to bisect three new walls to the east. Otherwise, there is no intrinsic defensive value in this fort perimeter and Harwood would have been better off with a square or rectangular perimeter. This argument becomes especially clear if we resort to Spanish colonial sources. Boazio, illustrated St. Augustine in 1586 at the time of Sir Francis Drake's raid (see Figure 88) Chantelain (1941:Map 2). This illustration clearly shows a trapezoid-like fort perimeter which has been embellished into a hexagon in order to protect and retain a fortified annex on the inland side of the more robust fortified water side quadrangle. Were it not for a separate drawing of the parent water side trapezoidal fortification to this hexagon which was erroneously dated to 1593(?) by Chantelain (1941:Map 3) and in reality clearly predates the
Figure 88
(Top) Drake's attack on St. Augustine ca. 1586. Note base court above trapezoid fort, showing Harwood's growth intentions. (Bottom) The fort at St. Augustine ca. 1585–93 with original core trapezoid from and similar mental template to Harwood's Fort (Chantelain 1941:Map 5).
hexagon incarnation of 1586, we would not be able to appreciate what Harwood was up to. In retrospect, clearly the otherwise insensitive placement of Harwood's well (intruding the fire step) along the east wall was in order to make water available two both sides of a planned hexagonal fort—which of course was never built. In ending the discussion of why forts tend to be trapezoidal, a page from Ive's 1589 work shows a sextagonal work which the author has dotted lines across to show it breaks into seminal trapezoids (see Figure 89).

Harwood's use of his particular types of flankers in a trapezium was not a good functional defensive idea in the surviving fort, but would have been more useful in the planned hexagon. In the surviving fort, poor flanker choice is because they forced a very steep angle on defenders trying to protect or fire down any particular stretch of the fort's walls. Pointed planks at the top of the parapet such as those shown in previous illustrations would make this steep angle of fire—with muskets resting obliquely across a long stretch of the parapet top—nearly impossible (Hume 1991:Front Cover). For this reason we can assume a straight lintel topped all planks along the actual firing line at the parapet which formed a suitable built in gun rest and permitting fire at any angle. However, in the hexagon fort which Harwood and Lieutenant Keane surely planned, the watchtower at the southeast corner and the inferred tapering flanker at the northeast corner would eventually be in a good position to flank what would become the convergence
of the new northeast and new southeast walls (of a new hexagon) and the old north and south walls (of the original trapezium).

8 The practice

of it bulwarks, ramparts, casemates, parapets, and the rest, so that ground which first commanded the City, was afterward made subject, the City commanding it: but these like labours may be practised where necessity enforceth, but not where first choice may be used for avoiding of superfluous charges, time, trouell, and anoyance.

But to return to the practice of the delination, being bypon the ground to be fortified, take good viesse where it were necessarie the bulwarks which are the chiefest and royallest defences should be placed, (which must be where they may dominate and command over the ancomings to the Fort, he as hard to be approched, and as little subiect to batterie or other offence, as the place will permit.) And where you determine to place a Bulwarke, there let downe a stake, and stretch a lyne betwixt stake and stake, and with a Spade make a little cut alongst the lyne, as is seen in the figure where these let-
ters A, B, C, D, E, F, do represent the stakes, and the lynes the breake-
ing of y growth.

Well understand, that these stakes measured y angles of the meeting of two curtins, or y interior angles of the Bulwarks, may not stand farther distant then 200, pates, or 1000, foot, at true foot every pace, and the reason here-
of is, that the exterior angle of the Bulwarks placed bypon these angles, would stand so farre from the flanches, from whence they should be defended, neither is there anye greater reason to let them so farre stander, for the greatest

Figure 89

A page from Iwe's Practice of Fortification 1589:8 showing why most Virginia forts are trapezoidal since they are starting with half (dotted lines are author's insert).
In terms of military precedents, where do the fort's flankers come from and can we find similar works? For instance, the orientation of Harwood's opposing watchtowers bears direct comparison with the 14th century Dacre Castle replete with opposing 45-degree-angle square towers set at opposite angles to the 90-degree-angle domicile/perimeter block (Thompson 1987:24). (See Figure 90.) Similar square towers set at a 45-degree angle to a square perimeter may be observed in a work by Charnock (original publication date...
unknown) who appears to be illustrating late "gunpowder" castle designs (Herman 1992:Figure 1.3). The French, who never saw Ulster, use a very similar rectangular rather than a square tower to defend their incomplete fort perimeter at the 1613 incarnation of Port Royal, Canada, which they were beginning to fortify on the water side (Hannon 1969:18, 113 (see Figure 90a.) At St. Augustine in the ca. 1586 and earlier incarnation, a clearly completed elevated rectangular flanker is literally in the process of being given new flanks (Chantelain 1941:Map 3, lower right). Presumably all of

Figure 90a
Port Royal French Canada 1605. Note strong French courtyard tradition; left lower bastion similar to Hallowes; right lower similar to Harwood’s Fort (Hannon 1969).
these works probably grow from castle designs since Dacre's is the earliest. The square or rectangular flanker blocks at Dacre, Port Royal, St. Augustine, and Harwood's works are all technically demi-bastions (with two flanks and one face). However, in their common vernacular presentation they are all treated as full bastions (two flanks and two faces) in their orientation since they cover two curtain walls instead of the normal one in normal military applications of demi-bastions (each demi-bastion covering only one wall). In all these works the square or rectangular flankers are relatively bad at defending curtain walls but relatively good at flanking people approaching these walls. In all cases except Dacre's, we can safely assume that there were plans to convert these square or rectangular works into full bastions by using the initial crude flankers as a structural building core for flank amendments. Once we add the inferred flankers to Harwood's Fort we can see that prior to intended amendments, the north fort wall is best protected from a purely defensive standpoint.

Although it might sound odd, Harwood's household servants probably lived inside the ground floor of the two elevated 8- by 8-foot watchtowers which were about the size of a soldier's cabin with cooking and heating provided by braziers. For instance, at the Ulster settlement of Tullana, which retained within a defensive bawn, Pynar noted, "in each corner there is a good Loging slated," but of a total of four corners three contained "three Flankers 15 feet high" (Hill 1970:487). Hence, servants were housed inside of
three flankers with a single small additional quarter at the remaining corner. At the Acarine bawn in Ulster, there were two flankers, "two Stories high, with good Lodgings in them, and at Derrie-woone, out of four flankers, two had "very good Lodgings" in them (Hill 1970:518, 531).

The tapering flankers in Harwood's fort, including one archaeologically preserved in the southwest corner and one inferred in the northeast corner (as opposed to the squared flankers described immediately above), have fewer precedents. They are not unlike bastions (normally having two flanks and two faces) whose flanks have been removed and whose two faces have been clipped off into a pan coup (Hinds and Fitzgerald 1996:72). Like the square flankers noted above, they are also technically demi-bastions with two flanks and one face, and like the square flankers (noted above) they are demi-bastions used in a manner like full bastions to flank not one but two nearby curtains. At St. Augustine in ca. 1593, which also has a trapezoidal perimeter, we see the Spanish mounting a rectangular bastion—along with one high-style full bastion, one high-style demi-bastion, and most importantly here a tapered vernacular demi-bastion just like Harwood (Chatelain 1941:Map 3). Therefore, we can hypothesize this particular vulgarization of the military art must surely come from the battlefields of Europe. In turn, the cut-off nose of the tapering flanker (pan coupe) reminds us of the ravelin with its pan coupe in Yeardley's Fort ("commander", or "artillery tower") (Hinds and Fitzgerald 1996:31).
As we noted above, Harwood’s Fort is ultimately most like a redoubt giving birth to flankers which are mostly oriented toward removing dead ground. The shapes Harwood used could easily be adjusted to become the core revetments of more sophisticated works, as is suggested best by the ca. 1593 St. Augustine work. In other words, inside of the full bastion may be a square or tapering vernacular first stage flanker.

In this section I would like to tune Hume’s initial research on the palisade and firing step so that we can develop a better sense of what it looked like. Noel Hume (1982:150–151, 152, 154, 220–221, 223–224) based his notions on the height of the fort’s walls at 7 feet high on palisades that enclosed 4 acres at Ferryland. He based his plank palisades on Strachey’s primary palisades of "boards" at James Fort. Hume also made the assumption that someone could step up to a firing step that was 2.9 feet high an unlikely proposition. In every case the parallel with Harwood’s Fort is misleading and the interpretations accordingly speculative.

On the strength that a 7-foot palisade of four acres is unlikely to have been especially defensive, it is an unsuitable elevation for a very finite fort perimeter. Recourse to evidence of bawn height in Ulster would be more useful—although this is typically using different building materials not including timber (see Table 4 above). Here, using Pynar’s survey (Hill 1970:455-589), we can assume the fort walls were at least nine or ten feet
tall, which is a minimum height with many defensive perimeters 15 feet tall or above in Ulster. If we assume that Hume is correct about the height of the firing step at 2.9 feet, this would preclude the use of the palisade as a breastwork (chest-high defense with defenders firing above the wall) and instead would allow defenders to fire through loop holes within in a palisade that completely protected them from arrows and gave some security against musketry.

If defenders did fire from a breastwork, there was probably a second lower step to allow them to get down to ground level to reload. This has been plow sheared away and probably consisted of a wattled earthen bank or boards pinned against the latter with wooden stakes.

**Summary of the Wolstenholme Town Complex**

The Wolstenholme Town complex is a very useful comparative example of vernacular influences on town development during the Virginia Company period during times of peace (ca. 1619–22). It uses the Romano\Medieval small-scale variant model with an extensive ordinal system. As in the case of the Flowerdew example, Harwood has dispersed the majority of his servant population at the expense of his town center. In turn the town is really a small but relatively effective administrative center containing burgesses. The town is already trending toward a villa—agglomerated around a single manor inside of a fort with two domestic units and one barn. The pattern
seems to be a logical outgrowth of a "farm model" because Harwood had more people and goods than any normal farmstead (see Key Analogues Chart). These are arranged via a geometric triangle which was surveyed in rods, based on Vitruvian classical influence. These Vitruvian models were also an influence in Ulster—rather than necessarily being the face value model for Wolstenholme Town. While it is somewhat unclear, it appears that the "chain of being" which ranks things in Elizabethan England, has something to do with a geometric slighting of the barn in the town plan. We think this has to do with its pure utilitarian nature but also because it contains objects which somehow must be ranked below buildings having people when placed in a community venue.

The fort was as carefully laid out as the town. It shows an interesting combination of influences. These relate primarily to two influences. One, there is a more modern military-styled flankered redoubt model organized on geometric principles seen in the fort's trapezoidium shape and this contrasts with most Ulster bawns because most of them were square or rectangular (see Table 4). Some of the design and layout approaches in the fort's layout resemble the Flowerdew model. Two, the fort uses ca. 14th-century or Late Medieval square or rectangular styled flankers. Harwood is not alone in choosing the latter or the former, and French and Spanish parallels indicate similar catch-as-catch-can timber fortifications during the frontier stage—freely mixing old and new designs.
JORDANS JOURNEY (44PG302)

Town Planning Courtesy of the Weaponocks and Powhatan Chiefdom

Jordans Journey, sister site to Yeardley’s Fort and contemporaneous with it, is just as important as the Yeardley/Piersey agglomeration in its own right. This is true especially if one is interested in fleshing out a basic sense of scale within Charles City Corporation regional settlements during cultural conflict with the Powhatan Chiefdom 1622–32. In this comparative analysis, we are theoretically looking at an example of a more frequent second link in the regional defensive chain, for Jordans Journey was never asked to defend the James River from Spanish incursions in the scheme of Charles City Corporation defensive policy. Since we can find comparative examples of the fortifications at Flowerdew which are classical and Renaissance, with comparative examples provided by Spanish, English (Ulster), Dutch, and French documentary sources, in some ways Jordans Journey may be more important to regional studies in historical archaeology than the Flowerdew work. This is a fortification that can inform us about what less-powerful elites did to defend themselves during Native American warfare in the upriver James River basin. Is there archaeological evidence of functional defensive shifts from Flowerdew? Are there corresponding parallels with town-planning ideals here? How much of what we are seeing is due to reactions to Native American behavior? How does this site shift away from
Ulster settlement models to become a regional Chesapeake architectural
expression?

The Historic Context and Settlement Model of Jordans Journey

In Barka's (1993:332) overall ranking system based on the Muster of
1624/5, Jordans Journey is in fourth place over Flowerdew, which is tied for
fifth place with Neck of Land near Jamestown. The higher ranking at
Jordans Journey is probably due to the large number of houses listed in the
Muster of 1624/5. Does this make Jordans Journey materially superior to
Flowerdew? One reason why one suspects it is not is that, despite the large
number of houses at Jordans Journey, there is not a single listing of
specialized separate commercial buildings such as storehouses and tobacco
houses or a windmill, all items which are directly associated with raising
capital in one way or another. As we have seen, Piersey's Hundred has three
storehouses and four tobacco houses, probably built by Yeardley. These data
indicate that at Flowerdew, separate buildings were required for commercial
catchment of bulk storage of surplus food and cash crop items, including corn
and tobacco. These are items which presumably could not be stored just in
dwellings or specifically their lofts. In turn, by inference, lofts and small
cotes (cottages), the latter of which are conjectured from the 44PG302 site
plan, surely are where these items appear to be stored at Jordans Journey
(Jester and Hiden 1956:14–18, 22).
In addition to lack of evidence of purely commercial buildings at Jordans Journey, the fine texture of the structure of the two 1624/5 muster listings is also different. Every tenant has his or her own housing at Jordans Journey in addition to food stores, weapons, and livestock (Jester and Hiden 1956:14–18). In contrast, at Flowerdew, as we have seen, all tenants except Samuel Sharpe, who is theoretically "at the castle," is simply listed by personal possessions and food items, etc. while their dwellings are listed corporately under the implied auspices of Piersey's servant household and overall possessions (Jester and Hiden 1956:20–22). In turn, other sumptuary goods like a titled minister (Pooley) and artillery concentrations add to this disparity. In other words, Piersey's Hundred seems to mimic a public corporation, while Jordans Journey, like the vast majority of the Virginia muster holdings, appears "on paper" as a series of private holdings retaining an essentially more personal household by household infra-structure. Again, this only serves to make Jordans Journey more important as a comparative example in reconstructing Chesapeake culture during this period.

Barka's (1993:334) analysis of the muster notes that 4 out of the top 7 holdings in Virginia 1624/5 occur in Charles City Corporation. This is probably an additional empirical confirmation of several things. It is probably a product of the higher biomass in the Interior Coastal Plain (Binford 1964, 1991; Turner 1976:82). It is also probably the influence of Dale and Yeardley through removing to this more healthful area as part and
parcel to appreciation of Native American and Anglo-Dutch settlement models. These things appear to be associated with the presence of seasoned Ancient Planter leadership consisting of colonists arriving before 1616 and dispersed from Bermuda and Henricus and the satellite public corporation sites when the center of the colony had moved upriver (Jester and Hiden 1956:xxi). In sum, this overall picture constitutes a second broader major parallel with Native American settlement models in addition to the "Bermuda Hundred Model" first began at Kecoughtan by Gates, Yeardley, and Brewster (Hodges 1995).

Notably, in 1619, Samuel Jordan from whom the settlement takes its name, was a burgess from Bermuda Hundred along with none other than Samuel Sharpe—future plantation commander of Flowerdew (1622–25+) and Westover (1623–24) (Kingsbury 1933:153–154). Sharpe appears to have traveled to various plantations, including Berkley Hundred, to militarily and defensively organize them, which had almost certainly occurred at Flowerdew by 1623. So we are looking at a real neighborhood where the settlement leaders knew each other fairly well and appear to have cooperated with one another.

Similar to Flowerdew, Jordans Journey was one of the seven or eight plantations held by the Virginia Company in the aftermath of the Massacre of March 22, 1622 (Kingsbury 1933:612; Mouer et al. 1992; McLearen and
Mouer 1993). This policy is likely to have been an acknowledgment of
decisive defensive action of some sort, for John Smith received hearsay
popular news from Virginia that, "Master Samuel Jordan gathered together
but a few of the straglers about him at Beggars-bush, where he fortified and
liued in despight the enemy" (Arber 1910:2:584). Smith may have gotten this
information from Purchas (1926:19:169) who notes similarly, "Master Jordan
at Beggars Bush gathered a few about him, and fortified himself despite of
the enemie," with slightly less editorial rationalization regarding stragglers.

Importantly, Jordans Journey does not figure at all in the list of
"palisaded" strongholds or those having "greate Ordnance" (cannon) boasted
dryly in the Virginia reply to Butler's Dismasking (Kingsbury 1906:363, 365–7).
We do know that Jordans Journey received martial law acquisition of
cattle from Smith's Hundred and we can probably assume it was palisaded by
1622–23 from both its context and its archaeology (Brown 1898:470).

In 1622–23 Nathaniel Causey represented Jordans Journey as
burgess, so the agglomeration at 44PG302 may have benefited from him as
acting plantation commander due to the recent death of Captain Samuel
Jordan in 1623 (Mouer et al. 1992:11). It is possible Causey occupied a
second settlement cluster at 44PG300 to the east of 44PG302 (cf. Morgan et
al. 1995). During this catastrophic—though often financially rewarding—
post-massacre period, wealthy widower Cisley Jordan apparently played a
shrewd, if not duplicitous game of feminine and political maneuvering by simultaneously engaging herself to marriage to both Grivell Pooley (by 1623, the tax-supported minister based at Flowerdew) and Captain William Ferrar, apparent later plantation commander at Jordans Journey (Kingsbury 1935:218–219). Through her clever manipulation of these men, Cisley Jordan enjoyed, one suspects, special chivalrous patronage from the two male suitors who vied with one another for both her affections and estate. Ferrar was a lawyer who, perhaps through those very skills, eventually won Cisley's hand in marriage although Cisley's clever politics were soon afterward prohibited by law (Hatch 1957:67).

In any case, Ferrar's rise to power at Jordans Journey is indicated by his literal listing at the head of the Jordans Journey Muster of 1624-25 similar to that of Sharpe's placement at Flowerdew. In addition to Ferrar and Mrs. Jordan, there are 11 servants and two Jordan children listed in the muster presumably at 44PG302 (Jester and Hiden 1956:14–15). This of course, is less than a third of Piersey's servant population.

There is no mention of a formal plantation militia commander here in the 1628 court records, as was the case for Piersey' Hundred, Shirley Hundred ('main" and "Island" [Eppes Island]), and the "Colledge" (Henricus), the "Neck-of-Land" (Bermuda Hundred flood plain peninsula), and Westover—all strongholds in Charles City Corporation (MacIllwaine
1979:192). The presence of glass beads suggests that Jordans Journey was, however, licensed to trade with Indians either before or during the 1622+

From the historic record, therefore, it appears that Jordans Journey eventually bowed out of becoming an institutionalized militia center after a fairly spirited beginning. Perhaps this was due to having had numerous immigrants sick with scurvy and dysentery dumped on it by the Virginia Company. This factor may have resulted in the large and greatly disorganized cemetery which probably greatly debilitated much of the commercial promise of this settlement due to labor losses (McClearen and Mouer 1993). In turn, the high ratio of houses to the total number of households may be a reflection of large numbers of temporary structures by those passing through Jordans Journey under martial law during the period 1622 to 1623. This was a factor potentially modified by complimentary desires to segregate seasoned labor from unseasoned and frequently ill recent immigrants.

The Jordans Journey Archaeological Site

While the muster of 1624–25 does not note any palisades at Jordans Journey, Virginia Commonwealth University archaeologists have recovered evidence of at least ten or so buildings crammed into an irregular and pentagonal hole-set palisade (Jester and Hiden 1956:14–15). The building
complex is dominated by five large apparent dwellings grouped toward the south end of the palisade (Mouer et al. 1992). This is a perfect match with the number of dwelling houses specifically noted in the muster of 1624–25 under the Ferrar/Jordan household (Mouer et al. 1992; Turner and Opperman 1993:Figure 4) (see Figure 91).

**Toward Isolating Initial and Post-Massacre Phasing at Jordans Journey**

Since the site was mechanically stripped it is difficult to know where, if present, the original Samuel and Cisley Jordan plantation complex was within the incredibly dense architectural grouping of post-massacre architectural improvements. Without evidence of phasing, the isolation of "town planning" efforts will elude this study. In order to find the first phase, what should we be looking for? One suspects that there would be some evidence of rational planning here. The Phase 1 would isolate a farmstead which is innocent of more pretentious planning activity. Using the Key Analogue Chart, we can observe that the Structure 1 unit resembles a long house due to its use of a gable pen fold analogous to a byre. This was probably once wattled and therefore lost to the plow. An outgrowth of a small enclosure is also preserved at the opposite gable where a stepped-down storehouse (Structure 21) and a separate quarter (Structure 20) are present. This is probably the original Jordan home lot, capturing it at a time when the longhouse needs needed to be addressed by new buildings and new spaces
Figure 91
The Jordans Journey false redoubt ca. 1622-25. Note Vitruvian triangle with hierarchical Structure 5 at vertex.
simply because Jordan had more resources to deal with following the notion of an "exploded west English longhouse."

Second and following closely on the heels of previous postulates, we should be looking for a post-massacre response that would hypothetically incorporate the earliest portions in the site complex into the reactive defensive enclosure as a labor-saving energy model. This is a factor offered by Structure 20, whose east facade is integral to the hole-set defensive perimeter. Based on the above assumptions and other artifact data, Virginia Commonwealth University (VCU) also isolated Phase 1 as Structures 1, 20, and 21 (Mouer et al. 1992:55–56). So this is our best candidate for the original Jordan manor and it has been independently identified as such by VCU. Thus, the familiar offset but linear builder's group (Structures 1 and 20) is probably the original Jordan homestead (Mouer et al. 1992:59–60).

Let us assume that the new intensive architectural concentration added to the Jordan home lot is a reactive pattern of "in-growth" given the close relationship between the buildings and the match with the immediate post-massacre group of five buildings noted in the muster (Hodges 1993:Figure 3 top right). This is an example of town planning patronized courtesy of the Weyanoc tribal group.
The Isolation of the Tripartite Plan

Based on the above discussion, if we are going to find town planning evidence, it will be seen in the new buildings added to Jordans Journey, which are by default Structures 4, 5, and 10. Is there anything special about this building group? Our tool for spotting this component is identical to that used at Yeardley's Fort at 44PG65—namely plane geometry. Geometric analysis of planning indicates that Structure 4, 5, and 10 are grouped in a tripartite arrangement, with Structure 5 forming the hierarchal core. The grouping is formed by a 120-degree angle which forms a series of hypotenuses at 30-degree angles. These hypotenuses to the triangle are seemingly based on gable post linear divisions of Structures 4 and 10 on 8-foot steps at specifically half their linear width. There are thus a total of three steps from the top of Structure 4 (long facade) to the bottom of Structure 10 (long facade). Each of the subordinate structures is exactly 22 feet apart based on the bisector line of the 120-degree angle, giving the gap of 11 feet on each side. In turn, the bisector links up directly with the vertex of the 120-degree angle which divides Structure 5 right down the center (vertically) into two equal halves, each 18 feet wide where two massive bay posts are also evident. Just as in the case of subordinate buildings of Structure 1 and 2 at Yeardley's Fort and at the Shirley Plantation Complex, the analogous 120-degree angle hits corners of the subordinate buildings at Jordans Journey (see Figure 92).
Figure 92
Detail of tripartite core plan Jordans Journey 1622–23. There are 10 points of correspondence here; arrows show possible lines of fire.
So this appears to be reasonably good evidence of a planning mental template.

Again, we are confronted with a spatially staggered tripartite configuration with 14 to 16 points of correspondence, any of which would be lost if the geometric angles are shifted by more than about half a foot in any direction. This is undoubtedly homage to the classical wisdom of Vitruvius. Although the pattern seems almost bizarre, it is, for all its oddness, more symmetrical between subordinate building gaps than Yeardley's A-B line in relation to Structure 1 and 2 at Flowerdew. Simultaneously, it is a less flexible system for controlled additions since cramped space precluded the use of the Pythagorean theory.

The staggering of buildings in this Jordans Journey "core tripartite plan" group is duplicated in the London Company settlement of Magherafelt (Camblin 1951:Plate 12). Here also each subordinate building on the bi-linear street is staggered along a series of regular steps. This may suggest that the original plan at Magherafelt and Jordans Journey is actually based on a rectangular plan which could easily be divided into a series of hypotenuses. These stagger lines are: (1) possibly acknowledging the chain of being to express social down-scaling from the hierarchal building in Structure 5; (2.) are allowing the buildings to flanker one another most efficiently;
(3) they are designed to give privacy through perhaps once present door yards or activity areas; or (4) all of these things simultaneously.

As a completed package, the Jordans Journey town is really bi-nodal or at least somewhat reflexive, and in this it reflects care so as not to offend previous social order. The new tripartite plan acknowledges Structure 5 as its new hierarchal structure, which is where we think Farrar lived, keeping a law office and perhaps chapel as public space in the hall. As a Captain in the militia, Farrar may have chosen to use heavy riven planking set with gun loopholes to side his house, and may have also built a parapet with crenulations on his deliberately low sloping roof to make into a type of variation of a tower house (Brunskill 1971). This is one clear node. The second node which makes a reflexive social statement is symbolized by the original Jordan Complex where the original plantation commander lived. The vertex of the triangle (described above) uses the Jordan quarter as its reference point at an interior and more central building corner (A-E). The actual centerline of Structure 5 (not the triangle) hits Cisley Jordan's House at no particular architectural place. In between these outer nodes were servants (Structures 4 and 10) who were better protected than either Jordan or Farrar (exterior near redoubt wall) in what the author is calling "warm architecture." While the overall bi-nodal plan is shabby in application, there seems to be something going on in this bi-nodal social package that physically links Cisley Jordan and Ferrar, and manages to link all of the subordinate
quarters in a different way. In turn, the entire unit is linked by the C-H line and the Jordan hearth and the line heading off below point B which shows the opposite square of the core tripartite plan as paralleling the gable facade of Structure 20 (Jordan Quarter). In between these nodes are guesthouses (Structures 4, and 10) thrown up for newly arrived immigrants, many of whom are deathly ill on arrival and during the 1622 famine died as attested by the riotous graveyard to the west.

In sum we are looking at a recognizable although slovenly shameless scramble to make Jordans Journey look like a town between 1622 and 1623 in response to Butler's criticisms, and Sandy's pleas for "orderly villages" in new plantations. We are a far cry from the more monolithic architectural statements made by Yeardley and Harwood, because less labor and financial backing is present. By the same token we cannot say that this plantation is devoid of a Renaissance spirit through its statement of humanitas referencing Vitruvius. In Martin and Goujon's 1547 printing of Architecture De Vitruve, a copy of a Roman military camp or bastide illustrates a series of options on how to stagger bi-linear streets some match Jordans Journey's simpler incarnation (Martin 1547:18).

Fortifications At Jordans Journey: The False Redoubt

On the master plan the author has shown somewhat unclear suggestions of fortification embellishments in excess of the outer palisade
wall or incorporated into it. Below, while we will emphasize the outer wall as
the main defense, we will very briefly note things which are best attended in
the future by the original VCU archaeologist rather than the author. There
might have been efforts to fortify the Jordan's Manor very early on. These
might include a Z-Plan attached to the manor, perhaps operating in concert
with an enclosed door yard. If so, these were probably Z-Plan barricades at
ground level with a flanker near the Structure 1 chimney that are very poorly
defined since the plan would have to include demolishing the chimney and
cannibalizing its posts. There does appear to be a lobby entrance into the
Jordan home lot (a small square of posts) and VCU suggests a redan (V-
shaped embellishment) here also. There may be a flanker attached to
Structure 20 and another attached to Structure 5, but the latter is poorly
placed except to edit entry.

Given the unclear information noted above, we will focus on what we
call a "false redoubt." We call the pentagonal fort a false redoubt as a sort of
bowing to its vernacular application here verses a purely military model.
This term is more preferable than "defensive enclosure" or "enclosed
settlement" because the Jordans Journey settlers are doing their best to
reference a military redoubt. We know this because the shape of the
enclosure is non random. It has a three clipped corners; one near
Structure 20 is like those at the Yeardley\Sharp redoubt and within
Harwood's Fort (pan coup or gorge lines). The gorge lines at Harwood's Fort
are extended as a piece of military grammar in what would be called a "spur" by the contemporary English soldiers (the sharp angle facing the river near Structures 16 and 18). There is a triangular watchtower or at least a raised firing platform at the apex of this spur. Notably there is a redoubt built in the basic form of the Jordan palisade during the siege of Coevorden by Maurice of Nassau's troops in 1592 (though the illustration may have been idealized as it was not published until 1616). The redoubt's entrance location suggests a Spanish outwork along the first perimeter (Hogg 1981:118). Again returning to Maxwell's (1950:63) model, he notes, after they grouped with houses of better numbers they, "fortified with pallisades and redoubts [author's emphasis]." Other international an English precedents for the Jordans Journey works should be noted. The 16th-century Spanish at Santa Elena built a spur attachment to a Z-Plan fort (South 1991). Frenchman, Champlain's 17th-century Quebec settlement, also has a bullet-shaped or bastion-shaped overall perimeter featuring a spur and an opposite clipped corner angle (Reps 1969:Figure 23). Doe Castle, in early 17th-century Ireland, has an earthen spur attached to its original perimeter (Leask 1977; St. George 199:259). Spurs, typically as expansions of pre-existent forts, continued to be popular with the English in West Africa in the 18th century (Lawrence 1964:Figure 3). (See Figure 93.)
Redoubts or forts with spurs.
(A) English: Jordans Journey 1622–25+.
(B) Irish: Doe Castle late 16th century, early 17th century (St. George 1990).
(C) Spanish: Fort San Marcos (Z-Plan fort with spur) 1576 (South 1991:9)
(D) French: Quebec, Canada, ca. 1606 (Hannon 1969). Note: A to D read from the top.
How much effort was put into planning this false redoubt? Is this a catch-as-catch-can "folk" redoubt or part of a disciplined though vernacular Renaissance tradition as it is laid out?

Analysis of this plan suggests that while it is not a great work, it was carefully planned based on plane geometry (see Figure 94). The analysis drawing shows the sorts of things we're seeing at Flowerdew and Harwood's Fort but the rationalism in the plane geometry in much simpler. Arabic reference points 6A, 6B, 6C, and 7 are referencing a sensitivity to the original Jordan home lot (Structures 1, 15, 20, 21) when the perimeter was thrown up. Buildings 5, 16, 17, and 18 are showing their sensitivity to an already present false redoubt and palisade perimeter.

When we draw in the exterior polygon of the redoubt (lines linking every angle of the fort), we can see that it was based on an inscribed square (reference points 1, 2, 3, 4). We have probably numbered them in the sequence in which they were originally measured out. The militia official who laid this out (Captain Jordan, Captain Sharpe, or Captain Maddison of the Charles City militia) inscribed the rectangle at reference point 4-8, 6-9, 5-A, 6-A, and 7-A. The key angles create symmetrical incisions of the rectangle block. The angle between 6-A-8 is 140 degrees, as is the angle 4-A-9. The angle 4-A-6 is 40 degrees, as is the angle 8-A-9. Using the archaeological plan as a basis for study, most of the angles appear in clean round angle
The structure of the false redoubt at Jordan's Journey with Pts. 4, 9, 8, 7, 6, 5 being the exterior polygon.
numbers including all but one secondary angle. There is a one-degree error in angle 6-A-9, and one secondary angle (1-5-6 at 29 degrees) is also off by 1 degree. These are very tolerable error factors given the centuries of plow shearing at this site.

Based on this hard design data revealed through soft structural analysis, it appears we have revealed the actual contemporary plan and the mental template behind it. Like Yeardley and Harwood, this person had a clear knowledge of plane geometry and used it with confident ease. Given this compelling redoubt plan, it is very possible that Structure 20 was cannibalized to make palisades and other houses within the false redoubt's perimeter while its west wall may have been retained to become part of the palisade. Notice how the resulting perimeter allows for settlement growth with in the spur area. Also note how it retains cattle and pigs during Native American warfare, as was the case in Yeardley's Fort.

Summary of Jordans Journey

Important to this study, Jordans Journey proclaims its English civility through use of a carefully measured-out Vitruvian triangle during times of war. This is a wonderful example of a small-scale variant and vernacular Romano-Renaissance plan. It is Romano because of the Vitruvian core tripartite plan which is centered on Farrar's House and the hypothetical chapel which doubled as a courtroom. The bi-linear street so created dead
ends on the Jordan Manor and a palisade. There is a second street which
passes between the Jordan Manor and Structures 4 and 10 and leads to a
defensive spur—as opposed to a street leading to a bastion. While the civility
is "spare," it is present.

The false redoubt is carefully laid out as a vernacular copy of a
military redoubt. The redoubt is not a fort; no exterior walls are flanked.
Despite this, no self-respecting Native American warrior would get near this
settlement except to fire it (and then in small numbers who had to contend
with watchdogs). If warned of serious foreign threats, male militia would
depart to Flowerdew, where the Jordans Journey occupants helped build and
maintain an anti-European fort every Sunday or every "so many" Sundays.
In turn, it is more than likely that Flowerdew, and Shirley Hundred militia
and servants help build the palisades and possibly Structures 4, 5, and 10 in
a reciprocal exchange system not unlike a rather earnest barn-building event.
Here we should not fail to note the architectural similarity between these
structures and Structure 2 at Flowerdew with their earthfast studs between
hole-set bays. Moreover, Piersey probably acquired Jordan' Journey's saker
(a medium small cannon) sometime between 1624–25 and 1626 when Jordans
Journey bowed out of its emergency post-massacre phase. It is also possible
lawyer Farrar's courtroom took on a more-than-ordinary value to Charles
City Corporation during the period of our interest.
Inspection of the Key Analogues Chart suggests that Jordans Journey is the "odd ball" site in our study group. This is because of the bi-polar or bi-nodal dynamic in the ordinal plan which honors both Ferrar's and Cisley Jordan's Manor as the hierarchical units. Nonetheless, here a tripartite ordinal plan presides over an exploded west English farmstead, which is used as a bread-and-butter work area supporting the brief town configuration.

THE NANSEMOND FORT: TOWN PLANNING COURTESY OF THE NANSEMOND INDIANS

During the Third Anglo-Powhatan War (1644–46) Governor Berkeley appointed Captain William Clayborne, the former Virginia Company surveyor and Sir George Yeardley's protégé, as "Generall and Chief Commander" of county militia operations throughout Virginia (Shea 1985:62). A string of forts was established along the western frontier by military entrepreneurs who were willing to take on the responsibility for their upkeep and provide an adequate garrison for the defense of each English holding. Because the forts were established under private patronage, albeit paid for by the public "Castle Tax," it is likely that the design of each was left up to the individual commanders.

These public works included Fort Charles, located near the falls of the James; Fort Royal, probably near the present town of West Point, at the confluence of the Pamunkey and Mattoponi rivers; Fort Henry, at the falls of the Appomattox River, in the present city of Petersburg; and Fort James, on
the bluff of the Chickahominy River above Moysonec in what is presently New Kent County (Hening 1809–33 I:293-294, 326–7). At the conclusion of the Third Anglo-Powhatan War, each fortification continued in use as a trading post for the Indian trade. For Norfolk and Isle of Wright Counties, the options were grim during the war which pitted them against what was still one of the toughest and most populous tribes in Coastal Virginia—the Nansemonds. Due to the impoverishment of public funds and the cost of conducting war, the local county government was informed by Virginia government that local fortification would have to be taken by their own financial initiatives (Hening 1823:315).

Because of the responsibilities associated with upkeep of a fort and support of a garrison, we can postulate that whoever built the Nansemond Fort of 1644–46 was a wealthy and influential individual relative to other planters in the area (Hodges 1993; Kelso et al. 1990; Luccketti, pers. comm. 1992). Possible candidates would include Captain Willoughby and Captain Edward Windam, who, along with Richard Bennett, John Sibsey, Thomas Dawe, and others were the most prominent militia officers in the area (Stewart 1902:32, 34).

It is not known whether the fort was publicly funded. Its inland location may indicate that it was a fully private defensive effort. Alternatively, the militia may have chosen to establish the fort at an inland
location for fear of being sacked by foreign rivals while preoccupied with the Indian war. Nonetheless, the difficulties associated with amassing the labor needed to erect a fort suggest the effort was assisted through the castle tax. Regional fortification clearly was financed locally, with commanders receiving 6,000 pounds of tobacco, lieutenants 4,000 pounds, and sergeants 2,000 pounds a year. Every 14–15 tithables were to pay for one soldier. We know through such underpinnings that Lower Norfolk County was able to fund 40 men during the Third Anglo-Powhatan War (Hening 1823:315; Shea 1985:62; Stewart 1902:31).

**Site Structure**

Four phases in the evolution of the Nansemond Fort have been identified by Nicolas Luccketti's and Bly Straube's analysis. The site began as an unfortified home lot, was transformed into a palisaded defensive work, and ultimately reverted to an unfortified homestead. See Figure 95. In Phase 1, the settlement consisted of two dwellings (Structures A and B), at least one outbuilding (Structure C), and an unpartitioned yard. The Phase 1 plan of the Nansemond settlement exhibits a familiar linear domestic growth pattern similar to the Phase 1 plans of Jordans Journey and Newman's Neck and the relationship between the company compound and domestic site at Martin's Hundred (Hodges 1990; Mouer et al. 1992; Noel Hume 1982).
Figure 5: (above) Simplified Plan of The Harbor View Fort; (below) A Preliminary Site Evolution from 1635+/-5 to 1720-40:
Phase 1: ca. 1635, Linear Yeoman Homelot
Phase 1A: ca. 1644, Threat Stage Giant Demi-Lune
Phase 2: ca. 1645, Bawn Constructed w/ Master Plan
Phase 3: ca. 1645 - ?, Accommodation to Bawn
Phase 4: To ca. 1730, Bawn Cannibalized, "Nansemond"

Figure 95
Plan of the evolution of the Nansemond Fort/Site ca. 1635-1730 (Hodges 1993:Fig. 5.)

Perhaps with increased access to labor and the support of the castle tax, the builder was better able in Phases 2 and 3 to express the planning ideals which comprised his mental template. The result was a hierarchical configuration formed by a manor (Structure A) and two new subordinate structures located to the south: a quarter (Structure d) and a barn or warehouse (Structure E). The settlement was also enclosed during Phases 2 and 3.
The plan of the fortification is a trapezium, or four-sided polygon having no parallel sides. A line drawn between the bastions in the northeast and southwest corners of the fortification divides the trapezium into two right triangles with opposite angles of 72 and 73 degrees (the error created by a musketeer). This master plan squares its angles with the bastions (A-A prime; B-B prime) in a manner similar to the Cliffs Z-Plan. This design appears part of a rational strategy to provide as much room as possible for a new tripartite core building plan within a larger inner courtyard, while accommodating cattle, swine, and possibly horses in a smaller space in the western outer courtyard of the site. By 1646 "parties of house" have become popular with the militia and "scouts" (similar to rangers) since the horse, whether ridden or used as a pack animal, better enabled them to keep up with Native American warring parties and allowed them to increase the range of their patrols (Shea 1985:62-63, 67). Therefore, Structure B probably became a horse stable and dairy barn once the fort was in full maturity.

The mental template expressed by the mature Nansemond Fort is very similar that expressed at Flowerdew (see Figure 96). The basic structure at each site is a manor, or seat of the plantation commander (Structure A at the Nansemond Fort), surmounting an exploded West English longhouse plan comprising (moving from west to east) the byre (west enclosure and Structure B at the Nansemond site), hall (Structure D, the quarter/garrison house), cross passage (avenue between Structures D and E) and service/storage area...
Beyond the variability in the angle of outbuildings, the overall structural pattern between the two forts is functionally identical.
(Structure E, inner room). It is interesting that this spatial code is seen again at the much later site with no basic changes in placement but certainly in building orientation. To accommodate the code, the function of Structure B at the Nansemond Fort changed through time from a quarter to a stable/byre house with drains and a sheiling (see Beresford and Hurst 1971:Figure 38; Fussel 1966:38, bottom; Rowley and Wood 1984:Figure 16). Both sites have the same solar angle (Keeler 1978). Similarly to Flowerdew, Jordans Journey, and Magherafelt, in the tripartite plan at the Nansemond Fort, the subordinate buildings are also staggered. As in the case of Yeardley's Fort, the storage unit at the Nansemond Fort is farthest from the manor, perhaps due to the lingering influence of the chain of being—or alternatively, purely utilitarian needs for large dooryards especially near the gable of the barn. In Figure 97 Flowerdew and the Nansemond Fort are shown together next to an early Norman motte-and-bailey castle; all three appear to have “base courts” reserved for animals.

The main difference between the spatial code in the Flowerdew and Nansemond settlements is not in the structure of the functional spatial code, but rather in the facade orientation of the two new subordinate buildings which contribute to the tripartite plan centered on the manor. While at Flowerdew, Jordans Journey, and Magherafelt, the tripartite plans comprise buildings sharing a common orientation of their long facades, at the Nansemond Fort the subordinate buildings, Structures D and E, are turned
Figure 97
(Top) Early Norman motte-and-bailey fort. Note service "base court" to left (Toy 1984:53); (Middle) Yeardley's Fort base court to left (cattle pound) (Hodges 1993); (Bottom), Nansemond Fort base court livestock and horse corral to left (Hodges 1993).
so that only their short north facades face the long south facade of the Structure A manor. Therefore, the site is most similar to Wolstenholme Town, which as we noted above seems to have a "farm model" influence behind its villa-like broad courtyard (see Key Analogues Chart).

We have drawn a detailed plan of the interior of the fort which we will troubleshoot for competence and the overall ambiance of the forts core architectural statement (See Figure 98). The east facade of the Quarter (Structure D) is five degrees out of square with the west gable facade of the manor (Structure A) (line A-B-C). A barn (Structure E) is 10 degrees out of square with the east gable of the manor house (line D-F). It is also 5 degrees out of square with the east fort curtain (Line K-L-N is square as a 90-degree extension). It is also out of square with the south curtain wall. The tithe barn in sum is definitely shabby from most any angle—in terms of would-be formal placement.

Is there any cultural ambiance here besides a wonderful vernacular version of a tripartite core plan? There appear to be two porches attached to the manor; these may define the location of an east chapel chamber from a separate fort commander's hall. This notion is based on the Roman principia model of a dirt-cheap temporal and religious social configuration. If the owners are not aware of this connection—which seems likely—then this is not humanitas—that is, not a non-corremative reference to classical
Figure 98
Detail of core tripartite plan at the Nansemond fort. Note out-of-square building regimen.
antiquity. Rather, it is a simple hierarchical structure which was certainly perceived by all the occupants of the fort, perhaps in imitation of previous examples. A militia captain, his wife and children, and perhaps a minister lived here. Additionally, maid servants who help feed and wash clothing for the men probably were here, especially when Structure B was rolled over as a horse stable an dairy barn. As in the case of Flowerdew, these ladies were also integral to dairying practices at the fort.

The quarter added to the new fort based on Luccketti's and Straube's research suggests that we can call this unit a garrison house. We can presume a sergeant lived there (married or unmarried) presiding over a company of perhaps 20 men who almost certainly were impoverished bachelors. We suspect any maid servants have shifted to the manor by the time of the full fort garrison social event.

Additional variant small-scale town planning behavior occurs in the community rather than entirely private utility of the barn. Above, it was noted that every 14–15 tithables were to pay for one soldier. Consequently, we suspect this is literally a tithe barn since it was added to the fort. This of course recalls the Flowerdew magazine and the storehouse at James Fort which were publicly owned at least during war or early settlement, respectively.
The variance between the orientation of the buildings at Flowerdew and the Nansemond Fort may reflect the variance between, respectively, the iron discipline of the Anglo-Dutch Virginia Company martial law and the less-rigorous and, therefore, more precarious social control exerted by corporate interests and militia levies in a frontier context. It is quite possible that the Nansemond Fort represents an earlier private settlement commandeered by the Virginia militia. Surveillance of the inhabitants might be of particular concern in such a context. When the stockades at the Nansemond Fort were cannibalized or demolished in Phase 4, the storehouse or barn received its own enclosure. This, one surmises, is the sort of defense of commodities intended to keep labor out and commodities in, which Deetz (1993:33–34) has discussed in relation to the ambiance of the Flowerdew Fort.

**The Nansemond Fort as a Fortification**

It is generally understood that the Z-Plan fortification, as employed at the Nansemond Fort and elsewhere, allows only two flankers, rondells, or bastions to flank all four walls. The relationship between the Z-Plan fortification and the Renaissance mental template is less clear. Some preliminary research has suggested that the Z-Plan, familiar from Ulster examples employed to defend individual manors, is Scottish in origin if only published information in English is consulted (cf. Hodges 1993:211–212).
Surprisingly, there is also evidence that the seemingly unpretentious Z-Plan flanking defensive system was used by town planners in Italy during the Renaissance.

Large angled bastion embellishments are quite expensive to construct, and Italian Renaissance town planners employed Z-plan defensive systems to flanker entire town wall systems as cheaply as possible. For example, in the *Codice Magliabecchiano* by Giorgio Martini (printed 1451–64) the plan of an ideal city crossed by a river is depicted. In addition to normal exterior defenses, the city features diagonally opposing, huge, angled bastions in a Z-Plan whose throats form fortified entrances which serve to protect an eight-sided town wall that has smaller rondels (round towers) flanking each polygon angle (Argan 1969:Figure 8). The Z-Plan design also attracted the interest of Leonardo Da Vinci who, sometime between 1482 and 1499, sketched the Castello in Milan, a small work appropriate in size for comparison to the Nansemond Fort (Pedretti 1985:66–67). (See Figure 99.) Da Vinci's quadrangular Z-Plan castello is a brilliant shorthand version of a gunpowder castle bristling with gun ports and narrow windows, although it lacks Alberti's and Martini's angled bastions.

Richard Barthelett's circa 1603 drawing of an unknown late 16th- or early 17th-century Native Irish work shows a Z-Plan system used to defend against English siege attackers. Inside the Irish work is a Vitruvian
Z-Plan forts. (Top) Irish fort defended against English from painting by Richard Bartlett ca. 1590-1602 (Archives Dublin); (Bottom) a fortified pavilion in Milan designed by Leonardo Da Vinci (Pedretti 1985:67).
hierarchical arrangement of creights (Ryan et al. 1993:216). Spanish use of the Z-Plan fort is illustrated by the Planta de Argol, built by 1637 in Chile, which contained a classically organized town (Guarda 1990:Figure 391). Another Spanish work, the Presidio of Santa Barba, dating from ca. 1788, provides another example of a Z-Plan fort defending a small town in a villa arrangement (Morrison 1952:Figure 206, 241). While we commonly associate the Z-Plan system of fortification with smaller manorial defenses, these examples show that it was also used as a practical means of defense for small communities.

Other more practical factors other than Renaissance models influenced the form of the perimeter of the Nansemond Fort. For example, the bastion associated with the inner courtyard containing the manor, quarter, and barn is much larger than the opposite bastion in order to accommodate the larger human population concentrated in northeast quadrant of the fort. The larger bastion also flanks the north wall of the fort, which faces the most broken terrain. This face of the fort potentially was the most threatened. During Phase 1A an earlier palisade was erected between Structures A and B defending this face of the buildings (William Leigh, pers. comm. 1991).

It would be incorrect to call the flankers at the Nansemond Fort "bulwarks," since there is no evidence of artillery at the site (Ramm et al. 1964:101). What makes the use of the bastion-like flankers at the
Nansemond Fort especially interesting is the influence of bulwarks (or tambors) as well as demi-bastions on their design. The northeast bastion has only a single obviously straight flank facing south. However, its otherwise curvilinear plan can be broken into facets showing the location of straight ribands (see detailed plan of the core settlements).

Within the curvilinear builder's trench of the smaller southwest flanker is evidence of two faces and two flanks, yet the arrow shape of a bastion has been abandoned. Instead, the faces of the flanker extending beyond the line of the west curtain have the familiar bay window shape of the demi-bastion at Yeardley's Fort at Flowerdew. An additional flank angle was added by shifting the entire unit to the south so that it extends beyond the south curtain.

The southwest flanker at the Nansemond Fort is similar to the tower bastions at the Hallowes/Steel Tower House, which are seemingly cleverly cheated demi-bastions which nonetheless have the two flanks and two faces of a normal full bastion (Hodges 1993:206–207). In both designs, face angles were created to join the flank angles.

At the Nansemond Fort a line of maul-driven posts representing a post-and-wattle revetment is located just north of the southwest flanker, opposite the entrance into the cattle pound or horse corral. The revetment indicates that the flanker almost certainly had a turf-laid (sod), elevated
firing platform. The revetment also would have served to direct animals away from the defensive work.

Any evidence indicating that a similar firing platform was associated with the northeast flanker apparently has been destroyed by plowing. Also presumably removed by plowing is all evidence of a shallow ditch which would have followed the exterior of the stockade perimeter. The ditch would have increased the effective height of the wall and would have allowed water to drain away from the posts which comprised the perimeter. Exterior turf walling was probably reserved to reinforce only the angled and curvilinear flankers, since artillery attacks were not anticipated. In turn, the Nansemond Fort probably uses large "flowlers" (not unlike punt guns), or "wall Pieces" were probably used in place of artillery in its flankers.

**Summary of the Nansemond Fort**

In sum, the relatively imprecise execution of the plan of the interior of the Nansemond Fort contrasts sharply with the freely applied mathematical precision of the plan of the fort perimeter. This suggests that a skilled and knowledgeable party laid out the fort (perhaps Claybourne), but subsequent additions to the settlement were planned and executed by less inspired individuals. Luccketti (pers. comm. 1998) noted that the fort's captain was probably an indentured servant during the Virginia Company period (the author is presently unable to locate or recall his name). This person was
probably more precisely less well educated and less personally disciplined. Overall, the settlement's ambiance as an architectural statement seems to make it an artifact of a more rough-and-tumble "folk" or "yeoman" social orientation since geometry seems to be based on "eyeball" layouts of the core plan. Because of this the site is an extremely important artifact of past culture since the vocality of the owner's worldview has been preserved in some manner (Deetz 1977).

Rowley and Wood's (1982) research allows us to point out that it is likely this is a "farm-styled home lot" converted to a "farm-modeled fort" based on a late medieval unit in which typically a barn was set at an "L-shaped" angle to a domicile and shed. If we are accurate in our identification of this plan, then we can say that its main addition is an opposing servant housing opposite and staggered with the barn. Whoever occupied the fort was a successful and popular farmer and saw farming needs as the main thrust in planning the interior of the settlement. For this person the fort phase is probably a temporary inconvenience. If the barn or storehouse (Structure E) had a north-facing gable door, the variant orientation of the subordinate structures at Nansemond might be explained as a means to facilitate pedestrian movement from the manor or surveillance of access to the store (see Neiman 1978: 1993). These factors would have been of little concern at Flowerdew, where Structure 3 was hedged in against the storehouse and quarter by the "blindes" or quick-set hedge.
Although the Nansemond Fort was not designed from its inception according to a classically inspired plan, it does informally meld a "rustic" interpretation of a Vitruvian ordinal plan with an L-plan English farmstead or "farm" plan with a sort of "action based" immediacy reflection its new public burden in an "other directed" format (Geertz 1973). The Vitruvian plan is adjusted rationally to accommodate separate housing for the labor force, a feature lacking in the farm plan; the barn and storehouse, normally separate buildings in the farm plan, also are combined (Beresford 1971:Figure 17).

Although the type of tripartite plan used at the Nansemond Fort is essentially different from those seen at Flowerdew, Jordans Journey, Magherafelt, and Shirley, the Nansemond Fort is superficially similar in a broad sense to Palladio's more geometrically precise Villa Trissina, in Vicenza, and to Mount Airy and Mount Vernon (Morrison 1952:276, 321, 356–357).

The layout of the Nansemond Fort is also reminiscent of a number of Renaissance-inspired quadrangular fortifications simply because there are only a limited number of options for tripartite building placement within the square or rectangular forms of Roman principia, forum, camps, or Renaissance works. The defensible chateau at La Ferme Du Manor in Hesdigneul, in the Pas de Calais, exhibits this sort of plan with the tripartite
units joined to the courtyard walls, as does the fortlet at Chateau De Saint More. Both of the chateaus at La Ferme Du Manor and the Chateau De Saint More are 15th-to-16th-century French defended manors with turrets (round towers) at every angle of the architectural perimeter (Eberlein and Ramsdell 1926:Plate 41, Plate 156). At Princetown, Gross-Friedrichsburg, in West Africa of 1688, a similar, although more rigidly geometrically based plan, was built by German engineers in 1688 (Lawrence 1964:Plate 51a).

Familiar applications of this simple tripartite plan, which create a courtyard, include the Governor's Palace in Williamsburg and numerous similar neo-classical 18th-century plantation complexes in the Chesapeake which feature an angular application of a "C-shaped" plan that is symmetrical along a planned hypotenuse.

Similarities in the arrangement of the buildings within James Fort (as interpreted by Foreman 1938), Yeardley's Fort at Flowerdew, and the Nansemond Fort suggest reference to a shared mental template. The only significant variances among the plans are in the specific orientations of the buildings and the function of the ordinal building.

THE SUSQUEHANNOCK FORT

As noted in Chapter 1, the Susquehannock Fort is included as a Native American control site in this study. It is a fortified Native American town with a European-influenced defensive perimeter. The Susquehannock Fort
directly affected behavioral activity at the Clifts and Hallowes English
colony sites and may have benefited from Yeardley's protégé, William
Claiborne (Fausz 1988). Consequently, we place this fort in front of Clifts.

Minor raiding from Doeg Indians triggered initial fears of Indian raids
in Virginia in 1675. These fears got mixed up with the popular perception
that a wholesale Native American uprising associated with King Phillips War
in New England might occur in Virginia (Kevin Kelley, pers. comm. 1996;
Washburn 1957:25, 38, 40). The Susquehannocks were unfairly implicated in
the Native American depredations which eventually led to the events we
have come to call Bacon's Rebellion. It may be, however, that as a result of
interactions with Europeans through the fur trade, some Native American
groups by the third quarter of the 17th century had reached parity in
armaments with most English homesteaders, engendering in the colonists a
profound sense of insecurity.

According to Jennings (1988:17–18), the Susquehannocks originally
were extensively involved in the Swedish fur trade as allies against the
English, Dutch, and Delaware Indians. The Swedish leadership employed
the Susquehannocks as surrogate mercenaries in 1643, fully arming and
drilling the warriors with muskets and even artillery to compensate for the
Swedes' lack of manpower. The Susquehannocks eventually were displaced
from western Maryland and eastern Pennsylvania by Iroquois rivals, and in
1652 made peace with the Maryland government by ceding land (Jones 1988:191).

In 1675 the Susquehannocks sought safe refuge from Iroquois warfare near Piscataway Creek at the stockaded village of the Moyones, a tributary Indian group. Here the Susquehannocks built a strong fortification and refused to move, occupying the fort for approximately 18 months. In 1675, the 100 Susquehannock warriors, along with women and children who occupied the fort, endured a siege of six weeks by forces of 500 militia each from Maryland and Virginia. Only siege-enforced famine eventually forced the Susquehannocks to flee to the Northern Virginia frontier. The retaliatory raids they conducted here are likely to have directly inspired the Clifts Bawn and Hallowes Tower House and surely helped to fan the fire of Bacon's Rebellion.

The Susquehannock Fort was the subject of archaeological testing and excavation many years ago (Ferguson 1941). The site had been plowed extensively and subjected to severe erosion from the river. Approximately one half of a 200-foot-wide heavily stockaded fort was located during subsurface testing. The stockade posts generally measured 5–8 inches in diameter and all exhibited evidence of burning, perhaps a result of the English siege.
Ferguson's (1941) drawings and descriptions of the fort include no references indicating that the stockade posts were set within a ditch (see Figure 100). This could be a uniquely Native American feature of the fortification. It is more likely, however, that the posts had sunk into the lighter subsoils below the fill of the builder's trench as was sometimes the case at Flowerdew. Inside the stockade were found a small ossuary, several pits which may have contained ritual offerings, and curvilinear traces of at

Figure 100
The Susquehannock fort, a flankered redoubt 1675. Note entrances next to each demi-bastion, revetment of top demi-bastion (Ferguson 1941).
least two or three incompletely burned structures (Ferguson 1941:9). The fact that only traces of the buildings remained indicates that the stockade posts were deliberately set more deeply than those of the structures, as was the case with the Weyanoc palisade at 44PG65 at Flowerdew.

Two squared demi-bastions (half bastions) were installed at each of the two surviving curtain wall corners of the Susquehannock Fort. Each demi-bastion was placed so that a salient projection existed primarily to flank only one length of curtain, with the result that the bastion faces look similar to a cartwheel. As in the case of the Yeardley Fort, this disposition was designed primarily to provide flank fire down each single curtain wall only, and permitted little desirable cross fire between the bastions. Ferguson (1941) noted that the post molds in the demi-bastions were on average larger than those within the zones of the curtain. The faces (the sections projecting outward) of the demi-bastion were about 16 feet long, while the flanks (the sections projecting at right angles to the curtain walls, to enable fire down the length of the wall) were about 12 feet long. There was a distinctive gap between the flank and the adjacent flanking curtain wall. As seen in the southwest bastion at the Nansemond Fort, this gap created a fortified entrance protected by each adjacent elevated bastion (Purchas 1625 10:1753).

Inside the northwest bastion of the Susquehannock Fort was a series of post molds forming a nearly complete square open on the side against the
north curtain wall. This construction represents an attempt to revet with a
counterfort an elevated earthwork platform, with interior stockade
revetments within the demi-bastion that could only be entered from a
ramp/gorge within the safety of the interior of the fort. It is likely that a
similar construction was used within the southeast demi-bastion but its
traces were erased by plowing.

Thomas Matthew, a contemporary observer, described the
Susquehannock Fort as follows:

"The walls of this fort were high banks of earth, with flankers having
many loop holes, and a ditch round all, and without this a row of tall
trees fastened three foot deep in the earth, their bodies from five to
eight inches in diameter, [these were] wattle 6 inches apart to shoot
through with the tops twisted together, and also artificially wrought as
our men could make no breach to storm it, nor (being low land) could
they undermine it by reason of water--neither had they cannon to
batter itt, so that twas not taken, untill famine drove the Indians out
of it." (Maxwell 1850, as cited in Ferguson 1941:3-4).

The technique used at the Susquehannock Fort of wattleing the tops of
the stockade posts is suspected to be of Native American origin. Situating
the fort on low-lying land, which ensured that the ditches would be wet and
function similarly to a moat, has antecedents in Dutch systems of
fortification, and prevented attackers from undermining the fortification
(Duffy 1979:91–93). It is likely that the Susquehannock Fort had a box
rampart only at each raised demi-bastion, since Matthews' confused
description would make it impossible to fire through loopholes if the stockade were "without" (outside of) the ditch and therefore a primary palisade.

The Susquehannock Fort is remarkably similar to the "flankered redoubt" pictured in Ward's (1639) Animadversions of Warre, the only difference being that the demi-bastions illustrated by Ward are half arrow-shaped bastions with one flank suitably angled to facilitate the transformation to a quadrangular fort with four full arrow-shaped bastions (Ramm et al. 1964:50, 102). See Figure 101.) The north flank of the bastion at Yeardley's Fort is also angled, indicating that Yeardley intended to shift to full bastions. The Susquehannocks, however, intended their demi-bastion to be more like blockhouses if added to on opposite flanks.

The Susquehannock work is a wonderful illustration of selective acculturation since it melds traditional Native American building traditions with fortification techniques inspired by Swedish or Dutch antecedents. It is possible the European design of the fort was the result of William
Claiborne's patronage. Claiborne was allied with the Susquehannock through trade relations, and he had extensive political alliances, often against the Calverts of Maryland (Fausz 1988:67–91). It is remarkable how the influence of Yeardley's protégé, Claiborne, extended across three subsequent periods of warfare in Virginia.

Archaeological excavations have revealed that the Susquehannock Fort housed caches of valued Native American and European trade items as well as ossuaries. The fortification thus served as a strongly ideo-technic arena for its native occupants in a manner comparable to James Fort, which housed the English settlers' church (Arber 1910 II:433–4; Brown 1890 I:184A).

THE CLIFTS SITE AND FORTIFICATION: 1675–1705

When the Susquehannocks abandoned their fort, their 75 warriors separated into small war parties with the intent of killing 10 Englishmen for every tribal leader who had been murdered by the English during a parlay prior to the siege of their fort. Approximately two-thirds of the frontier in the Northern Neck was vacated by the English out of fear of the Susquehannocks' retaliatory raids. The string of frontier militia forts established by the English was now considered useless to defend the private citizenry, so they were abandoned. As ordered by Governor Berkeley, the militiamen were redirected to selected fortified houses which included Clifts (Washburn 1957:22–25, 32).
The Clifts Fort (Hodges 1993:203–205, Figure 6; Neiman 1978, 1981a, 1981b) and the Hallowes/Steel Tower House (Buchanan and Heite 1971; Hodges 1993:205–208, Figure 7) date from the fourth quarter of the 17th century. While it is possible that these settlements were erected prior to the siege of the Susquehannock Fort, when militia left their houses it is certain they were built in reaction to the subsequent retaliatory raids of the Susquehannocks. Once again, as noted by Maxwell at the time, the English defense required local community cooperation:

“In these frightful times the most exposed small families withdrew into our houses of better number, which we fortified with pallisades and redoubt, neighbors in bodys joined their labors from each plantation to others alternately.” (Maxwell 1850:63).

Of the two fortified houses from this time period which have been excavated in the Chesapeake, Clifts has the most potential to further our understanding of planning ideals associated with fortification. The Clifts site hypothetically was built by Thomas Pope, who was the son of a militia Colonel.

Neimnan's study of this site is perhaps the best and most comprehensive single site study to have emerged from the 1970s (Neiman 1980a, 1980b). Consequently we will move right into the interests of the present discourse.
The Clifts Courtyard: A Debased English Interpretation of a Rustic Vitruvian Villa Or Just A Farm?

By about 1670 the Clifts frontier plan consisted of a manor, a quarter, and a smokehouse partially enclosed by a snake fence—a possible reuse of the catena principle of gravity fences given strength by angles (see Chapter 2) (Neiman 1980b:2–3). The Clifts Z-plan fort built in 1675 was demolished by at least 1678, and the settlement, composed of the manor and a subordinate quarter located to the southwest, subsequently grew steadily in a very curious manner, apparently unfettered by fears of Indian attack. By 1705, a barn, indicative of increased wealth and cachement needs, had been added to the east of the quarter, as well as a dairy near where the smokehouse once stood (Neiman 1978:Figure 4, 1981a:24–25).

Let us focus briefly on the competence of this plan to see if we can note any behavioral characteristics which will help us gauge the attitudes toward the buildings Thomas Pope may have had. (See Figure 102.) The Phase 1 quarter was built at a nearly perfect right angle to the south facade of the manor (Line E-A-B with 1-degree angle). The Phase 2 quarter was built within 1 degree of accuracy to a right angle from the manor (Line E-C-D). Pope seems to be very concerned with creating order in relation to these buildings containing people and his own house. In contrast his dairy is 9 degrees out of square with the Phase-2 quarter (which was almost perfectly square with the manor) (Line J-L-M against M-L-N). His new barn appears
Figure 102
Detail of the core tripartite plan at the Cliffs site. Note tight plan of quarter vs. loose outbuildings.
to be sighted south against the east gable of the manor. The barn is 5
degrees out of square with the south facade of the manor (Line A-E-F against
F-G-H). Possibly two things are happening: either Pope is less concerned
with the precise relationship to the house that buildings containing objects
have, or he is thinking about convenience and pure utility. In the first case
we may be seeing the lingering effects of the chain of being so that people are
not only closer to the manor but in an orderly chained relationship to it
through hierarchal social rank (manor over quarter) and correspondences
("people house" are more closely linked in the cosmos than "object- or animal-
related houses"). In the second case Pope just doesn't care about detailing
the geometry of outbuildings except in terms of functional placement in a
more open and therefore abstracted yard. Outbuildings facade adjustments
are not irrational but relate to accessibility and convenience to work areas
and door yards, many of which are somewhat invisible to us archaeologically.

With the simple addition to the settlement of a quarter and barn, the
plan of Clift recreated the most basic aspects of the tripartite plans of
Yeardley's Fort of 1622–32, Wolstenholme Town (1619–22) and the
Nansemond Fort during construction phases 2 and 3, dating from ca. 1644–
46+. The resemblance to Wolstenholme Town and the Nansemond Fort is the
strongest, since the long axes of the subordinate buildings at Clifts are
oriented perpendicular to the long axis of the manor. In the staggered
positions of the quarter against the barn, the symmetry of Wolstenholme
Town drops out also, giving the Nansemond Fort the strongest parallel. In this parallel we think we can still see what is essentially a Late Medieval farm model that has had the addition of labor housing added to it in order to create a sort of courtyard between the quarter and barn and behind or in front of the manor (see Key Analogue Chart). The front door is probably facing south given the symmetry of the lobbied south door chamber within the door chamber itself and along the south facade of the manor in general.

The three settlements also exhibit more fine-grained similarities in the spatial codes which are expressed. These can be seen specifically in the manner in which meat and dairy processes were integrated into the plans of the settlements. At Clifts, the smokehouse (installed during Phase 1, ca. 1675–85) and dairy (added during Phase 2, ca. 1705–20) are immediately west of the manor and quarter. Of these, the smokehouse was installed in about 1675–85, the dairy by 1705 through 1720. At Yeardley’s Fort, located west of the Structure 1 gable were a shedded byre, buttery, annex yard croft/byre, well/dairy yard, and cattle pound or bawn. At the Nansemond Fort, located west of the Structure B sheiling were the Structure B quarter converted into a cow barn and stable, replete with drains and stalls (see Rowley and Wood 1984:Figure16).

By 1725, with the expansion of the manorial complex at Clifts, the quarter, once used primarily for housing laborers, assumed more of a kitchen
role, perhaps following the "provisioning quarter" concept seen at Structure 1 at Yeardley's Fort (Neiman 1978:Figure 5, 1981:26–27). A walk ran along the west side of a garden fence, leading toward an offset porch entry flanked by a series of outbuildings. Antecedents for this plan can be seen in the surrogate street at Yeardley's Fort, running to Structure 3 between Structures 1 and 2, and the avenue and informal courtyard between Structure D and E at the Nansemond Fort.

As with the Nansemond Fort, one cannot describe the plan of Clifts as classically inspired, per se. What we can say is that Clifts resembles an English farm plan which expresses some of the statements of humanitas expressed in the Vitruvian rustic villa (Geertz 1973; Morgan 1926:174, 175). Vitruvius stated, "The first thing to settle is the standard of symmetry, from which we need not hesitate to vary." In other words, convenience and efficiency should never be sacrificed to the ideal plan. At Clifts, the symmetry of the convenient plan is maintained by balancing the quarter with a diagonally opposing barn. The Clifts plan is a far cry from the institutional architecture of site 44PG65 at Flowerdew, yet the base model is identical. The plan of Clifts appears to be based on Late Renaissance interpretations of Vitruvius' Greek and Roman rustic farmhouse models, which are often less symmetrical than the more formal plan of the Roman villa because these were normally utilitarian units (Morgan 1926:183–188). The existence of a hierarchical plan is evident at Clifts, although the subordinate activities,
which are centered on the hierarchical manor, are themselves arranged in a more organic plan. For instance the dairy is almost about as close to the manor as the quarter, which devalues the position of the barn in an application of "Vitruvian man/Vitruvian triangle " order.

**The Clifts Z-Plan Fort**

Clifts is a Z-Plan fortification with a palisade wall or "chemise" which closely skirts the fortified house (Hodges 1993; Neiman 1978, 1980; Salter 1985:155). (See Figure 103.) Antecedents for this fortification suggest the proximity of the manor and the chemise is an acknowledgement of the vulnerability of both the timber-built stockade and hole-set frame house to fire.

![Figure 103](image-url)  
**Figure 103**  
The trapezoidal emergency Clifts Z-Plan fortlet compound compared with the Ulster, Ireland Skinners Company "Bawn" (Hodges 1993; after Neiman 1981, St. George 1990).
In searching for the origins of the application of Z-Plan fortification to a manorial holding, as opposed to a town or citadel, the author has identified an English miniature illustration from an early 15th-century edition of *The Duke of John Mandevill*, published ca. 1425 (Chrisk 1924:Figure CCCX). This example pre-dates Italian Renaissance works such as Martini's ideal city (1451–64) or Leonardo Da Vinci's (1482–99) Castello in Milan (1482–99) (Argan 1969:Figure 8; Pedretti 1985:66–67). Although it might be North English or Scottish, this fortification is tentatively identified as French, based on the distinctive style of the high conical round turret or rondel roof. This style was popular elsewhere on the Continent, but not in England (Platt 1981:Figure 41, 107, 147). Given the date of the miniature, the fortification is likely to date from the second phase of the Hundred Years' War (1396–1457). Thus, this effort to flank a small courtyard predates previously published dates suggested for the origin of this technique by 75–100 years (Dupuy and Dupuy 1970:409–418).

The early Z-Plan Mandevill work suggests that some of the supposedly French chateaux, such as the Chateau la Ferme du Manor in Pas de Calais in northern or western France, may in fact be of English origin, dating from the second phase of the 100 Years' War (1396–1457) when England owned or contested these sections of France (Dupuy and Dupuy 1970:412, Eberlein and Ramsdell 1926:Plate 41). Examples of Z-Plan houses in such places as Les Trovrelles-Echinghen and Chateau Jacquot (Eberlein and
Ramsdell 1926:Plates 71 and 164) indicate that the Z-Plan castellar house (whose farmstead courtyard is often hard to date) originated as early as the second quarter of the 15th century from the need to defend small manorial holdings within territorial buffer zones between France, England, Burgundy, and later Scotland.

With the exception of details in the walling, the basic plan of the work depicted in the miniature is the same as that of the Salters and Skinners Company Bawn in Ulster, Ireland, illustrated in St. George (1990:257). Each work has two opposing "turrets" or rondels, incorporates the exterior wall of the manor with the perimeter, and has a single defensive courtyard whose width is equal to the distance of the manor from the front of the perimeter (Hodges 1993:Figure6c; St. George 1990). The illustration of the Salters and Skinners Company Bawn also depicts a separate, full masonry castle with a bi-linear line of peasant cottages outlining the avenue which leads to its front main gate. The bi-linear town model here appears to have resulted through the efforts of peasants, and perhaps unlicensed merchants, to insinuate themselves into the town.

Other examples of Z-Plan design can be seen at the core of the late 16th-century Spanish fort plan at St. Augustine, which has an added annex courtyard attached to it (Lorant 1946:25) and in Chile at the second quarter 17th-century Planta de Argol(Guardia 1990: Figure 391, 198). A Z-Plan
dominates the presidio in Santa Barbara, California, built by the Spanish by 1788 (Morrison 1952:241); and a stable at Fort Laramie in the Wyoming Territory has an Ulster-like Z-Plan Bawn (Robinson 1977:Figure 97). English, Anglo-American, and Scottish examples are shown in Figure 104.

In sum, the Z-Plan is a minimal statement of competence for achieving the goal of flanking a defensive perimeter. As such, it meets the technical definition of a "fort" (Ramm et al. 1964:101). The Z-Plan was used in a variety of contexts which had in common the need for an economical system of defense. The Z-Plan originated during the early Renaissance period as projectile weapons such as the crossbow and the first guns were first being used, and the subsequent use of the Z-Plan in the Chesapeake and elsewhere has little or no relation to its use in Ulster. The timber-built Clifts Z-Plan Fort probably has more, not less, in common with the original North Border defenses of the 15th century before they were rebuilt in stone in the 16th and 17th centuries. Consequently, it, together with the Hallowes-Steel Tower House, are precious examples of a very rare early "pele houses" (houses of fence) which are totally absent from present Europe and therefore European publication regarding standing masonry castles.
Figure 104
Z-Plan forts and castles and related works (Hodges 1993:Fig. 7).

B. Terpsie Castle (Simpson 1960); C. Hallowes Tower House: 1. Site Plan (Buchanan and Hette 1971); 2. Conjectural Reconstruction; and D. May House 1664; 2. Major White House 1680 (Forman 1938); 3. Suggested Enfilade.
SUMMARY DISCUSSION AND CONCLUSIONS

In some ways this document has become a parody of itself. In order to understand Flowerdew, we have chosen to study mainly one individual—Sir George Yeardley—during a period in which the individual was the culmination of cultural dignity, namely the terminal Elizabethan Renaissance (Rice 1970:79–82). In order to understand Renaissance activity we have resorted to the comparative method, a methodology developed in the Renaissance using modern archaeology which began with Renaissance excavations into classical antiquity seeking wisdom of past behaviors (Rowse 1977).

In this document, we really only set out to understand one single settlement, 44PG65 at Flowerdew, which we found we could not interpret without recourse to a larger database. In attempting to frame research on 44PG65, this document has endeavored to locate the presence or absence of any form of English "civility" that would place small Virginia forts, or hierarchically organized courtyarded farmsteads on a sound basis within the parameters of Renaissance international city planning models or a more conservative rural farming building tradition (Garvan 1951; Deetz 1977). It was hypothesized that either "folk" or "yeoman" behavior would be referenced or, alternatively, that references would be made to classical antiquity (Beresford and Hurst 1971; Deetz 1977; Garvan 1951; Reps 1972). Our reason for this effort is because it was thought that these works, through
their evidence of defensive or civil courtyarding, would attempt to maintain either a dialogue between these two variant traditions or lean toward one or the other.

We suggested that a strong tradition of classical and Renaissance planning ideals might create consciously scaled down parodies of larger models that we could appreciate through the bounded nature of fortifications or courtyards. We theorized that Renaissance fortification would reference larger Renaissance models and therefore classical antiquity over parochial Ulster models which were deemed but one expression of similar behavior.

One supposes that all we have accomplished is "thick description" of site plans and the cultural "webs of their meanings" (Geertz 1973:5). As fate would have it, little other choice was to be had, and an enormous research vacuum has been attended to in some hopefully useful manner. Our examination was divided into two main parts, an analysis of fortifications and an analysis of the cognitive basis of planning itself within small nucleated forts, villages, villas, or farmsteads.

**Summary Fortifications**

First it would be useful to dispose of fortifications as examples of rational and even scientific Renaissance cognitive behavior, so that we may go on to what one suspects might be more important hierarchical behavior
within forts and on courtyarded sites. Our database for forts has been profoundly weakened by methodology limitations to only include study sites that also have core tripartite plans which include habitations. These notions were thought to be useful to minimally humanize military defensive technology.

In Chapter 1, Bawn models supplied by St. George's (1990), Garvan (1951) and Reps (1972) supplied us with major models which have informed this study since bawns and forts intersect with town-planning models on several fronts, while use of Argan's (1979) Vitruvian analysis of town plans has helped us understand Garvan and Reps in a very useful manner. St. George’s (1990) arguments have been less useful, simply because of his lack of a functional and contextual approach in favor of modeling along broader theoretical lines, which has proven a dangerous course. For instance, in St. George’s (1990) work, the majority of examples of contemporary courtyarded sites, or 19 out of 35 illustrated examples (54% of the comparative samples) are on a specific defensive footing as may be observed by the presence of flankers, tower house, and such like. Of these 19 defensive works, 100 percent that were probably actually called "bawns" during the contemporary period in which they are used are from Ulster, Ireland, and date ca. 1610–25. Therefore, these particular named "bawns" were not courtyarded out of an elaborately profound ideological inspiration as St. George maintains though a study of "utterances," but instead were on a
defensive footings as required by the laws of 1608–09 in which settlers were given two years to meet the "Order and Conditions of Plantation" based on the level of investment of undertakers (Hill 1970:79, 89)(see Table 4).

Therefore, the basic competence (conceptual plan) of the cognitive bawn models lies in the high-level organizers of the Ulster experiment, in much the same manner that Governor Argall might make a proclamation about palisades in Virginia in 1618.

The performance (actual results of plan) of each settlement illustrated by St. George often references a castle-building tradition dating from at least the 14th century. Those with four corner flankers or bastions were referencing a lingering masonry Anglo-Norman building tradition surviving through standing works, Roman, Greek, and Byzantine tetrapygons studied by Renaissance thinkers and, through Alberti and others, original Italian Renaissance ideals dating from the 15th centuries. Those with diagonally opposite flankers were referencing a brilliantly simple Italian and French Renaissance plan dating from at least the first quarter of the 15th century (Crisp 1924 II:cccx; Lawrence 1979:178–180; Toy 1985:47–48). Many of the private Ulster defenses imitate pared-down models of those of previous military campaign-fortified camps and forts as shown by Richard Bartheletts maps of ca. 1603, or courtyarded defensive models which clearly predate both Estienne, Surfleet, and Markham (Lacey 1993:204; Ryan et al. 1991:181, 204;
Simpson 1966:78–79). In sum, technically this system of "bawn" courtyards is referencing a defensive courtyarding tradition that is almost as old as civilization itself (Toy 1989:1–10).

Second, out of a total of 16 recognizable non-defensive courtyards, out of 36 illustrated courtyards by St. George (1990), 9 or 26% are simply townhouses which are courtyarded through Renaissance villa ideals and the vagaries of physically restricted town life. Most of the townhouses he illustrates mimic the basic grammar (rules) of Renaissance versions of Vitruvian plans which are preceded by elite castle designs such as the ca. 1386–90 Bodiam Castle ((Martin and Goujon 1547:93 qiij; Toy 1984:Figure 136). The original defensive plan at Bodiam—as it plays in the townhouse forms of St. George—are in the new "bawn versions" simply courtyards that are equally well organized but denuded of turrets or defensive towers since, by the early 17th century, no private household could stand against a modern army anyway, and defense against theft and unedited social entry is the main goal (Sampson 1992).

In turn to actually illustrate the types of rural farmstead that are most like the Bray Rossiter farm of 1652–60, St. George uses a total of 7 or 20% out of a total of 35 illustrated examples which actually convey in some manner Markham's and Estienne's essential ideals which St. George is seems to be primarily concerned with in his essay. These, in turn, appear to be
based on modern Late Renaissance adjustments to the essentials of Vitruvius' Greek and Roman rustic farmhouse models which are often less symmetrical than the more formal ordinal Roman villa or forum plan (Morgan 1926:183–188). So by not contextualizing the Ulster material, we can abuse it by mixing our metaphors and defensive models up with courtyarding that is entirely innocent of serious defensive intent, except perhaps from theft and social intrusion.

In any case, one feels that given such "would be" defensive ambiguity, we should discard the notion of using the term bawn at all in Virginia, in favor of military and defensive terms that do have specific meanings that can convey a less mystified ambiance. There are probably cases when this "bawn" ambiguity can work for us, such as in the term "Yeardley/Piersey Bawn" when a para-military settlement enclosure might need to be comprehensively included with serious fortifications—for most bawn defenses are clearly compromised by commercial and farming needs. Yet, in the Chesapeake the word "bawn" has been more often used to mystify rather than clarify cultural meanings. In contrast, by using technical military terms even if they are contemporary terms in that context (which are always difficult to work with), the functional descriptions we use will more often cut across works built by the, English, French, Spanish, Scottish, and native Irish from ca. 1425 to 1867. These fortification meanings will clearly have almost nothing to do with the Ulster Model. The Ulster parallels themselves
remain invaluable because of their similar contexts if we read them with caution.

We will now leave discussion of Ulster temporally. In this document the author has taken recourse to classical defensive works to understand Flowerdew defenses since this is the direction the parent Dutch works and Eighty Years’ War works originally led us to (Duffy 1979:91; Parker 1986:12–13, 18–19). Knowing that the Romans invented wheel barrels, if one uses a wheel barrel, whether gardening or on an archaeological site, one is not necessarily referencing classical antiquity; rather, the linkage is more often through moving dirt. Yet we have shown through the Flowerdew case study, Anglo-Dutch military technology and the Renaissance field fort—at least in terms of design and fabrication technology—did have a consciously known Roman heritage since most field works, like Roman military camps, were temporary affairs. Therefore, for at least the first generation of Virginia's Anglo-Dutch soldiers, fort building was indeed a form of non-commemorative references to classical antiquity provided by humanitas. This humanitas was largely because the masonry castle was doomed by cannon, and earth-and-timber forts needed to be revitalized to defend mobile state armies in the field—or static European towns—more cheaply and rapidly. Study of Vegetitus (Milner 1993) and Vitruvius (Morgan 1926) shows strong influences, along with Renaissance scientific improvements and field simplifications of the same.
This document could not have been written without employing other European models, including especially French and Spanish contemporary material. What did the French and Spanish learn from the Ulster Model? Arguably, they learned and needed nothing. Each area had its own defensive traditions which were melded during European warfare because of the international composition of the state and mercenary armies, resulting in a huge 16\textsuperscript{th}-century school of field fortification—such that French fortes, chateaus, and Spanish fuertes and presidios and English forts and bawnes have more in common than not. This paradigm is that throughout Europe there were active frontiers and buffer zones in which small defensible: 'manors, garrisons, and self-sustaining farmstead agglomerations were needed from at least the 14\textsuperscript{th} to 17\textsuperscript{th} centuries when all were doomed by state armies. This was not the case in "Third World" countries like North America where the vernacular defensible manor and small timber fort or earth-and-timber fort was given a new lease on life—because it still "worked" as suitable defenses against Native Americans and small European fleets.

The various archaeological sites could not be briefly compared against high-style Renaissance design components in order to establish objective information regarding their performance. Obviously, it is foolish to assume that any of the early Virginia works were even pretending to be high-style works. Nonetheless, Alberti's standards, which only reached their main vogue by the 16\textsuperscript{th} century, give us an objective set of standards and a sense of
functional variability that helps us isolate vernacular trends in the performance of fortifications (Parker 1986:5–16). The great variability within our study group is not only functional or contextual; rather, it is also the result of the individuality of the English leadership.

What are the basic hypothetical categories of works that we have observed? The categories listed below are taken from Ramm (et al. 1964:100–103) and indicate that temporary field works are the predominate type of works in our data suite whose appropriate identifications are attempted. Below, many of the works that would be called "flankerred redoubts" by the mid-17\textsuperscript{th} century and later might have been called "sconces" (especially if their base plan was square or star-shaped and the works were temporary) by the early Elizabethan and Jacobean soldiers (Hale 1964b:xccii). These are best listed:

1. Yeardley's Fort—Irregular Quadrangular Flankerred Redoubt;
2. James Fort—Triangular Flankerred Redoubt;
3. Harwood's Fort—Quadrangular Flankerred Redoubt;
4. Jordans Journey—Redoubt with Spur;
5. The Nansemond Fort—Z-Plan Flankerred Redoubt;
6. The Susquehannock Fort—Quadrangular Flankerred Redoubt; and
7. Clifts Fort—Z-Plan Flankerred Redoubt.
Of these works, only one, the "fort" at Martin's Hundred, is not part of a Virginia militia war or well-documented threats of foreign intervention. Of this group all six are clearly referencing Renaissance defensive traditions which were developed between from 1425 to 1600, with chief inspirational categories being the Renaissance-defended manors (Z-Plan works at 1425+) and the huge macro-school of the Eighty Years' War (1566–1648) which re-absorbs the Thirty Years' War (1618–48) (Dupuy and Dupuy 1970). In the latter category, masonry-reveted Renaissance citadels were reduced to more useful and cheap earth-and-timber works and, disregarding the Renaissance perimeter configurations, they otherwise employ classical building technology emerging directly from assiduous study of Roman-fortified military camps. The stockade perimeter is thought to be the result of the Roman "valli" and a super abundance of timber resources.

If we try to maintain an objective perspective on this very short list of sites, the most important examples of fortifications or courtyards in this study group in terms of new or challenging information emerge from Jordans Journey and the "fort" at Martin's Hundred where we are least able to apply meaningful explanations and where ambiguity is still a major problem (Binford 1987). We hypothetically learn from Jordans Journey about hasty Native American warfare behavior by unpretentious plantation owners with minimal militia support. Regarding the "fort" at Site C at Martin's Hundred, and Jordans Journey, we have been forced to learn more about the
importance of the exterior polygon and design modeling in general. Wolstenholme Town may be telling us that we should possibly look more carefully at the ca. 1619–22 Phase 1 at Flowerdew. The other types of fortifications are fairly or very well documented, and mostly what we learn from them is about earth-and-timber fort building technology itself through archaeology—rather than contemporary military text books, which generally leave much to be desired. We have learned details of eccentric English demi-bastion influence on flankers, and curtain configuration and fabrication.

We will now turn to each recommendation of Alberti dating from the 1440s (Devries 1992:269) to get a sense of the actual performance of 17th-century Virginia works against high-style works.

In category one there are really two categories of work: "that fortification walls facing gunpowder weapons should be short enough to easily see the ground below them and wide enough to withstand the impact of cannonballs." That is, "part one" walls must be short, and "part two" cannon must be resisted (Devries 1992:269). Here, only part of Flowerdew (especially on the water side) and James Fort (especially at the corners) could withstand artillery cannon balls so far as we can presently determine. In terms of height we can assume that all fort walls served their purpose.

Turning to category two: "that artillery towers projecting at an angle beyond the walls should be added to the fortification—this would not only
protect the fortification itself, but also keep offensive guns at bay and cover blind spots along the fortress walls" (Devries 1992:269). We find the following hypothetical or known results of these recommendations.

Flowerdew has one artillery "tower," the ravelin. The bulwarks were lower at both James Fort and Flowerdew. At the Nansemond fort, the Susquehannock Fort and Cliffs, wall guns or "fowlers" were mounted on elevated flankers, but these were not really towers. Jordan's Journey had a saker, probably mounted on planks on the ground for a brief period (1622–26).

Category 2 offers few surprises because of the great functional variability of the works. In general, use of musketry flankers is typical in smaller works for anti-English or anti-Indian defense in the same way as Alberti's artillery towers, and this tradition probably most clearly references the manorial defenses of the European private frontier dating from ca. 1425 primarily intended to defend against limited raids. Virtually every site with an artillery tower is along the coast and supported by war booty or public funds or some sort. In reading contemporary writers, it is clear that the soldiers did not see their forts as passive nouns, but as verbs from which each bastion was intended to "play" upon each curtain (Barret 1598).

In the category of high-style Renaissance fort number three, Alberti recommends, "that angled bastions projecting out at regular intervals from
the fortress walls be built, giving increased flanking cross-fire along the surface of those walls" (Devries 1992:269). This is a recommendation for additional flanking works along the wall in addition to curtain corner works. At present this category is easily disposed of in the Virginia data set through Yeardley's fort with its bastard or flat bastion along the fortification envelope. Numerous Ulster "bawn" examples display this characteristic, used typically as fortified entrances that also flank walls and since, these have already been noted in the text, we will move on—rather than focus on a rare attribute in Virginia.

In Alberti's category 4, "that as time passed further refinements should be added to the fortification: wide and deep ditches along the walls to keep enemy artillery at a distance and to cut down on mining with detached casements or bastions called ravelins built beyond or across those ditches to further impede enemy artillery or infantry attacks" (Devries 1992:269). Mouer (et al. 1992) feels that single earthfast postholes beyond the main hole-set palisade envelope at Jordans Journey might be a redan. At Yeardley's Fort a ditch 5–7 feet wide was found in zones not annually below the water table. A casemate or "murder/slaughter house" was implanted to defend the front ditch. At James Fort, turves rather than deep ditches apparently made up the main earthwork system, while at present a 4-foot-wide ditch may have helped create a "batter" outside the stockades and drain the site as would be most similar to a temporary fortified camp if this isn't a
double-wide robbed parapet ditch. The Susquehannock fort, by its placement on a flood plain, eluded mining.

In category 5, of Alberti's high-style Renaissance fortifications, he recommends that, "extensions should be built to these fortifications, complete with crownworks or hornworks, to protect outside strategic areas." (Devries 1992:269). James Fort up until 1614–14 used blockhouses as outworks within a macro-landscape, with one on the narrow Neck of Land (1609) to edit land entry, one at Hog Island (1609–10) to warn of foreign shipping, and one on Backe Creek (ca. 1613) to watch over cattle. At Flowerdew a redoubt (built by at least ca. 1625–26) was added to help triangulate cannon fire on ships and defend the outer settlement perimeter. In a vulgar application of the concept of an outwork, neck-land pales were secondary defenses, certainly at Flowerdew. The pentagonal work at Henrico acted as an outwork to the paled town, as did neck-land pales at Henrico, Bermuda Hundred Coxendale, and Rochdale, some of which were replete with commanders or fortified "bordering houses." The paired forts at Kecoughtan at Fort Henry and Charles were part of a macro-defense of Fort Algernon at Point Comfort.

Although many of the field works erected in early Virginia were "rough and tumble," they apparently worked as useful defenses. Fortification technology tends to be associated with high-status settlements and public efforts often provided through private contracts to the Virginia Company or
the Crown colony. All forts in this study are laid out with the identical care as may be observed in building a house, although the plans are occasionally more complex. Accordingly, most cannot be described as "folk defenses" (Deetz 1977:39–40). Does our study group automatically prove the Renaissance mind is present? Probably at Flowerdew and James Fort and the Nansemond Fort, it does. Yet, the Susquehannock Fort—which is, along with James Fort, interestingly the closest to a modern textbook fortification in the entire study group (at least in terms of form)—demonstrates that a Renaissance defensive perimeter may be just that, a Renaissance defensive perimeter. In other words, the material culture within the Susquehannock Fort indicates they are still retaining many aspects of their traditional culture, and they have only chosen to use things like firearms and forts because these are tools for them. Except for the first generation of soldiers, this might be the case for other fortifications—they are just tools and do not necessarily indicate the trappings of a full Renaissance ideology.

Since all English works seem to vary in one way or another from textbook examples of the same, many alterations are possibly due to vernacular influences pertaining to the English subsistence economy (west English plan), farmstead layout, and perhaps efforts to make social statements to and orient resident and non-resident English. Despite this, mastery of geometry was apparently something of a source of pride for the white planners, and the Susquehannock Indians apparently also took these
notions to heart. Perhaps, this sort of militant "power geometry" is one of many direct ancestors to Paca's "power garden" (Leone 1988).

**The Core Tripartite Plans: What do they Mean? Why are they Important?**

Dell Upton (1988:425) noted, "far from being a period of medieval lassitude, the 17th century in Virginia was an era of rapid architectural and social metamorphosis that laid the foundations for the familiar landscape of the eighteenth century." Very preliminary study of a handful of plantations spanning the 17th century suggests that settlers were profoundly constrained by the insular nature of adaptations to the Chesapeake tobacco mono-culture which is nothing new, although within public forts the fur trade was also important (Carson et al. 1981). What might be newly offered here, is clear evidence that more grandiose planning ideals noted in seminal studies by Garvan (1951) and Reps (1972), including especially what we have chosen to call the "Romano/Medieval small-scale variant" pattern, were never fully abandoned by some Chesapeake social elites who had amassed enough labor to express their ideals.

As the first generation of settlers began to reconcile real plantation needs with town planning ideals that were beyond their reach, they appear to have chosen to reduce the model of a tripartite plan which was originally intended to be surmounting and defining full bi-linear streets—into just that—a tripartite plan, a tripartite plan which is familiar to us chiefly
through typically grand stately 18th-century architecture! If this study has any value at all, it is surely here, for through these common tripartite plans we are now entitled to begin to appreciate the differences between the two cultural periods and their common antecedent models.

Our study group seems to reveal the fact that there was a phase in Renaissance architecture when often less formalized Vitruvian experimentation preceded rigorous applications of Palladian architecture— with the exception of the competence (not the performance) of Yeardley's Fort. The seemingly flagrantly informal nature of a handful of Chesapeake agglomerations has fooled us because we only looked for idealized planning models. Vitruvius said, "the first thing to settle is the standard of symmetry." Few of us realized he also added in the same sentence, "from which we need not hesitate to vary" because under the concept of humanitas the original elite settlers were allowed to interpret where to draw the line in freely interpreting classical wisdom (Morgan 1926:174, 175). Along with 44PG65, only two other sites really recommended study by geometry, the Vitruvian plan at Jordans Journey and the villa-like Wolstenholme Town complex. The rest of the archaeological study suite seems to have chosen to create informal rustic farms or villas, but we dissected them also to record this systematically too.
Only four Chesapeake sites can really be called town efforts—James Fort, Wolstenholme Town, Flowerdew, and Jordans Journey. All Ulster plans used for comparative evidence in this study employ the Romano/Medieval town plan model—with some sort of bawn enclosure superimposed over a subordinate tenant- or servant-occupied bi-linear street. Out of the Chesapeake group, the town plan is profoundly biased by defense; James Fort, described in 1610, is under the condition of war (1610–14) and must defend the chief entrepot. Flowerdew and Jordans Journey are built in war threat or war contexts (1621–32). Sixty-six percent of the war-biased Virginia group employs the intensive Romano/Renaissance Plan, while 33% employ the extensive Romano/Medieval Plan. Both of the latter are either joint stock companies (Martins' Hundred) or simply private plantations (Clifts). The presence of cheap ideo-technic plans in defensive agglomeration may account for the Vitruvian plans rather than the Ulster Model per se.

By comparing our study suite to the Ulster sites of Macosquin, Magherafelt, Moneynmore, near Cloraine (agglomeration outside of town below a ordinal cattle pound), Salterstown, and Belleghy, we hope to at least introduce comparison with Ulster with a little more depth. These Ulster sites are unfortunately only known to us only through contemporary illustrations (Camblin 1951; Garvan 1951; St. George 1990). When the functional use of buildings is considered between Ulster and Virginia plans overall, this information, provides fairly compelling evidence that the Virginia settlement
models were not blindly copying the Ulster Model at all—even from the beginning. Out of a total of six Chesapeake sites, 1 or 17% comprised subordinate "tenant/quarters" on both sides below the ordinal structure, with Jordans Journey being the only example during a war context resulting in an intensive plan. In contrast, of seven sampled Ulster sites with ordinal bi-linear plans, 100% have tenants or servants on both sides of typically much more robustly occupied street plans. In Virginia 83% of the settlements have chosen to include a storage facility in the first and often only rank of the initial tripartite group. This catchment would probably include tobacco only once in cask, corn, and other farm stores. While it is not always clear from the Ulster drawings, cachement buildings appear to be absent. In Virginia they show the "villa" or "farm model" influence is stronger from the beginning. This may also be due to the imitation of cheap fort models created during the military regime, largely by Dutch and Ulster veterans.

Focusing on the Virginia Group, four tripartite plans or 75% (not counting James Fort, which is a specialized work) contained tenants or servants on only one side of the bi-linear layout. In those four sites (not counting James Fort) 100% have a quarter on the right or west side of the manor, and a storage facility on the left or east side as seen from the manor looking toward the agglomeration. This is hypothesized to be a form of social etiquette, as the right side is favored for servants over objects, which are placed on the left or less appreciated side. If Hume has correctly identified
the hierachal structure at Martin's Hundred, this right/left etiquette is not always favored, as all servants and tenants are placed to the left in an apparent anomaly (either because it is on the northeast bank of the James River or for other unknown reasons). If the more symmetrical and robust company compound is the manor, the site is flanked on both sides by tenants and servants following the Ulster model.

Default variance from the Ulster ideal is not restricted to the Chesapeake. Out of a total of six Ulster plans, only 33% (Salter's Town and Bellaghy) were able to honor the orders of undertakers' recommendation that, on larger plantations, a defensive castle with a bawn court be placed over a bi-linear street. At one or 17% of the settlements including only Macosquin, clearly a settlement of the "upper rank" of undertakers, the castle and bawn defaulted into a courtyard, presumably surrounding a manorial garden. At two settlements (or 33%) including Magherafelt and Moneymore, the bawn defaulted into a cattle pound with no manorial occupation at all. At one (or 17%) settlement near the suburbs of Coleraine, potentially low-ranking undertakers or Scottish settlers loosely cluster around what appears to be a communal cattle pound.

Admittedly, inclusion of Chesapeake rustic villas or small militia forts with Ulster towns is not really a fair comparison. So all we are looking for here is an attempt at getting a very basic sense of praxeological default
variability verses idealized plans which did not always play out as intended. Given these serious sampling biases, nonetheless, this flawed analysis indicates in sum that defaulted town plans in both Virginia and Ulster tend to have functionally shifted to more pressing subsistence or catchment needs, through either lack of funds (Ulster) or lack of labor (Virginia). Smaller agglomerations in Virginia, as the reader may recall, are thought to be because many tenants and servants on the same plantations are out of nucleation in planting fields in what we have called the "Bermuda Hundred Model." The greater frequency of shifts toward pastoral specialization is an environmental and Celtic-influenced shift in Ulster, while in Virginia the shift to catchment is a probably a product of tobacco and corn agricultural specialization and therefore alternative investment.

**Social Space and Etiquette**

In sharp contrast to the 18th-century sites, virtually every site in our small study group has gone out of its way to stagger hypotenuses or spatial arrangements among the subordinate core structures—except at Yeardley's Fort where the Pythagorean right angle competence is perfect, but the performance is either bungled, or deliberately jettisoned by 2–3 feet. At Wolstenholme Town the plan was also perfect and yet it was deliberately defaulted out of symmetry. Deetz (1977:111) predicted asymmetrical patterns for 17th-century sites 20 years ago because Renaissance-based
architecture had not penetrated the informal 17th-century farmstead or housing within it. Is there a cultural significance to this variant relationship?

The main new ingredient in Beresford's and Hurst's (1971) and Rowley's and Woods' (1982) traditional English "farm plan" seen in the 17th-century Virginia sites is the addition of separate buildings for labor. Neiman (1978) has argued that the movement of labor out of initially communal housing in the manor was in large part a consequence of the introduction of slavery—at least at Clifts. In our study group spanning from 1607 to 1725 the addition of labor is generally a consequence of forced building expansion, typically of English servants. At Martin's Hundred, for instance, the Site C company compound starts with one end chimney, has a second added, and then expands to a domestic quarter to accommodate sickly immigrant arrivals billeted at the domestic site (a presumed rest house). Extreme wealth or martial law got a lot of our study sites occupied with additional labor. Adding this new labor to the frequently southwest side of the manor opposite southeast farm stores—even before other buildings such as barns or stores were added to our study sites—suggests that even at Clifts a Vitruvian plan was in mind from the beginning which would allow for a passage between buildings as the planned plantations grew.
The hypothetical reason why the quarter and storage facilities are spatially staggered in four out of five sites in our 17th-century study group is that closeness to the manor (and spatial orderliness in relation to the manor) is quite possibly part of a deeply socially invested resulting ordinal pattern. If this is the case, the hidden cultural message is the ordinal arrangement and makes a very simple statement that servants are ranked above objects in an essentially Elizabethan statement of the "natural order" of things. In other words, the manor is ranked architecturally above the quarter which is ranked second in nearness to the manor, while objects are ranked third. If there were deep concerns over protecting the stored objects from servants, one suspects this pattern would be reversed, with objects ranked closest to the anxious eyes of the senior militia or planters (see Neiman 1978, 1993).

We also noted above that, with the exception of Site C at Martin's Hundred, of the two subordinate buildings the building code always places servants on the right or "good" side of the manor and is always seemingly more clearly in geometric harmony with the manor than storage facilities which may be less important culturally.

The theoretical underpinnings behind the inference that the buildings are staggered by closeness in rank to the manor is offered here with great caution. This hypothesis emerges from three sources. First, in military encampments, tents or buildings are ranked both by space and size. The general's tent or dwelling is always larger or distinctively embellished and
placed within a central or hierarchal location in relation to smaller subordinate structures or tents. This was a part of the Romano/Renaissance small-scale variant model discussed in the overview and research design (Barret 1598:157–158; Digges 1579:120; Hannon 1969:118; Ramm et al. 1964:Plate 10 left; Ryan et al. 1993:181). In the military especially, but also within society at large, social rank definition tends to lubricate cooperative activities by cutting down on direct competition through a directional flow down from the top. Therefore, our study sites are like carrots, reminding soldiers, tenants, and servants where they are in the scale of things and—in the settlement ideal—where they might be headed.

Second, such activity as the rise of individualism in the Renaissance probably underscored a need for more elaborated rank definition since social fluidity in the beginning of the "me generation" meant that everyone's expectations for advancement were on the rise. Natural nobility of character began competing with nobility of birth. Blue blood was increasingly less important than superior courtly behavior and skills as suggested by Castiglione in, The Book of the Courtier (Rice 1977; Simpson 1959:8–12). Carson (1994) argues that as early as the 16th and early 17th centuries this increasingly fluid social activity combined with increased urbanity created by travel, created a need for a sort of mutually accepted language of good taste between people and objects which allowed strangers to interact with one another. He argued that social stratification based on a demand for things
beyond "create comforts" drove the consumer revolution. In our model social stratification occurs within spatial placement within settlements.

Bushman (1993:xii, 32–44) suggests that part of the rise of gentility in America was an awareness of visually and socially communicable social rank which also lubricated courtly behavior, allowing ease of negotiation of space and social boundaries. He suggests these polite graces were derived from princely court books defining to courtiers just what sort of behavior was appropriate in the 16th and 17th centuries. For instance, when walking with a superior, the superior was given the right hand place (Bushman 1993:39). If we look at our solar-oriented settlement plans and we stand at a quarter (southwest) and face the manor (north), it is in the right-hand place. As we have seen, this mutual respect system allowed the quarter to be seen on the right-hand side of the manor.

French courtesy books were especially popular in the 17th century. One version translated into English in 1671 noted, "In Courtin's [courtesy book] every person, every place, and even individual objects were ordered by rank, and every act was to be performed with these rankings in mind. Every room had a head and foot, the location farthest from the door being the place of highest rank; in a bedroom, the bed was the place of honor" (Bushman 1993:38). Yeardley's personal nearness to Dale and Gates, as a body guard, and through travel to the court of King James I, clearly helped him soar up
the social scale. This is because of his apparent ability to negotiate courtly space and get close enough to powerful patrons to then operate on personal charm and charisma, which he apparently had in abundance.

Switching to other examples of architecture, for example at James Fort, the church was farthest from the gate; in Yeardley's Fort, Structure 3 was farthest from the gate; at Nansemond a south gate below the cross passage/street places Structure A in the place of honor, as are the church and manor of the former. By the same token, if the quarters or court of guard were not placed closer to the church or manor than the storage facilities, then it might be that this would be considered an insult to the servants or soldiers. Servants in Virginia were only temporary indentured or militia levies (who were servants in the same condition) or simply smaller planters seeking succor in numbers within a community fortification. These people would have probably felt uncomfortable being placed parallel to objects. Servants in the coldly geometric Palladian symmetrical system would be told that they were ranked on the same scale of things as objects. At Yeardley's fort, in contrast, a ranking of people and objects on the same plane was simply a matter of orderly space, which was felt necessary to regiment movement and rational organization within the site in an institutional manner—afforded by the social security of the rigid military rank present there. This well-defined rank definition allowed space to be abstracted in favor of pure form—arguably in contrast to the "socially invested" space on many other sites.
At Jordans Journey we can probably assume that the nearest Structure to the ordinal structure (Structure 5) was Structure 4 since this was closest to the ordinal structure. By being opposite the ordinal structure at Jordans Journey, a high place of honor could also be retained by Cisely Jordan—just as in some small-scale Ulster plans a church would be opposite the bawn (Reps 1972). At the Nansemond Fort and Cliffs, the 17th-century Virginia planters did not see space as an architectural abstraction the way we have since the 18th century when pure form was allowed free expression without a similar concept of social and objective nearness in every ranked spatial detail. In the Palladian plan everyone and every thing is placed in an inferior position to the main abstracted design and ordinal building. It is an entirely different—if not self-indulgent—or coldly impersonal plan in which everything submits spatially to the main house and its owners.

Third, as the reader may have surmised these rankings, are not just concerned with social status, but are part of a more comprehensive system of natural order and world view merely alluded to above. Tillyard (1942:66–82, 94) suggests there were still considerable aspects of the medieval mind beneath much in Elizabethan thinking. One key factor that was predominant was always seeking to "order correspondences." For instance, the order of the body politic, peasant, squire, sheriff, aristocrat, and king was thought to be a reflection of a cosmic or macrocosm order. By the same token, good, evil, savage, civil, order, and disorder were complimentary reflections of
a whole. Perhaps a good Virginia example of the order of correspondences might be Yeardley's letting Indians hunt for him, as this was considered a natural thing to do since Native Americans were closer to nature in the natural order of correspondences. In our particular crude planning paradigm, the ranking of buildings could simply define a natural order rather than a socially invested order with the occupants of the manor, over servants, over objects. As we invoke James Fort into comparison with more secular fortifications, the placement of the church in a superior ordinal position simply suggests that godly order ranks over military force (court of guard) or objects. Hence, the cleverness in placing a chapel in association with plantation commanders at Flowerdew and the Nansemond Fort in order to morally dignify a religious and secular conflict between "heathen" and godly Christian virtue.

There are of course less profound reasons why the buildings might be staggered. While the author does not know if these ideas are original to Thomas Hubka (1984:9, 71), he suggests that around each architectural form on New England farmsteads are invisible spaces called dooryards, or backyards, etc. that define both work and leisure activity areas which are extensions of each building. These appear to effect how nucleated 19th-century New England farmyards are organized so that each activity area forms a convenient energy model for farmyard use. Each activity area has hidden paths often linking them. These articulations cut both through and
across architectural spaces. This may explain why staggered yards were
built into Jordans Journey and Magherafelt plans apparently from the
minute they were laid out in the planner's mind. This attribute is thought to
be inspired by French Renaissance conceptions of an ordinal Roman military
camp plan which anticipates alternating service yards or "dooryards" on a
playful checkerboard grid (Martin and Goujon 1547:18). A second motivation
is surely practical convenience which acts as a modifier in the less formal
spatial groups.

Cognitive Space and Patterning

myth—partially through the dialectic of museum interpretations of Plymouth
Plantation's evolving museum programs—observed that initially the Deetz-
inspired museum staff got rid of many absurd Pilgrim myths. However,
during the Vietnam era, he replaced them with new myths that the pilgrims
were ultimately "just plain folk" presented as "earthy and hard-living
peasants" and "communards". Additional study indicated the pilgrims had
not really been true medieval peasants, but were often of middling status
with strong convictions rooted in their own imminently more complex culture.
This document has endeavored to exorcise this same "folk culture myth" for
the Virginia Chesapeake using evidence from Virginia described, not in the
author's words but that of the words and deeds of the original cultural
protagonists which required reading not just from the 17th century—but from
Roman times through "the exact pen of Vegetitus" and Vitruvius (Kukla and Fausz 1977; Martin and Goujon 1547; Milner 1993; Morgan 1926). The author is not saying that there wasn't a folk culture present in Virginia, but is simply pleading the case that this folk culture was a larger and lower tier to a powerful minority of social elites who had absorbed northern European humanism inspired by their own interpretations of Renaissance. Unless we accept greater complexity in our holistic conceptions of the 17th-century Chesapeake "mind-set," then research in Virginia, the Chesapeake, and New England will be condemned to be the equivalent of two oarsmen on a row boat—facing in opposite directions and therefore paddling in a circle leading nowhere.

The archaeological evidence of architecture discussed primarily in this thesis is simply surface manifestations of larger things. It is not a fair characterization to describe 17th-century elite cognitive behavior as traditional or medieval in structure. There is instead a multi-tiered society where an elite group is familiar with plane geometry, mapping skills, the profession of arms, mercantile practices often on an international scale, courtly behavior, and all sorts of non-traditional behavior. According to Cason's (1994) consumer model, the middling planters are looking toward these social elites for setting the standards of civil behavior.
Although our archaeological study group is very small, the author has argued that the cognitive basis for the abundant legendary cliché of the "bawn centered above a bi-linear street" is a direct reference to humanitas, non-commemorative references to classical antiquity. Not counting 15th- and 16th-century examples or 18th-century examples of tripartite plans, this study has provided 12 data sets from the 17th-century English colonial settlements bearing resemblance to Manila and Montreal. These references were therefore made by and shared between English, French, Dutch, and Spanish colonists to the New World and Africa (Cummings et al. 1974:42; Camblin 1951; Garvan 1951; Lawrence 1963:Figs. 4a, 7b, 13a, 37, 51, 87; Reps 1969:Figure 14, 15, 17). Both civil and military behavior were guided by the demands of the ground and the available resources present as well as loftier ideals. The staggering variability in the larger database shows in these international works—as well as the similarities—and argue that this was a vital, dynamic, and highly individualistic tradition of humanitas since classical antiquity was not commemorated blindly—it had to serve real non-commemorative needs.

This Vitruvian-based humanitas (permissively or non-permissively geometric)—seen more frequently in our small study group than Palladian-based humanitas (always rigorously geometric)—does not have to totally replace the Structuralist cognitive model posited by Deetz (1977), who had a very limited database when he penned his assertions. Instead, it allows us to
approach change in the Structuralist model, to see the 17th century as a period of experimentation as Upton has suggested which occurred not only in towns, but within elite plantation agglomerations which was the real heart of the Virginia experiment and economy. This change allows us to observe a shift from informal Vitruvian (Nansemond Fort, Clifts) and formal Vitruvian behavior (Yeardley's Fort, Wolstenholme Town, Jordans Journey—admittedly possibly a garnish), to the comprehensively rigid formality of 18th-century Palladianism. Only in the 18th century would direct metaphors, such as Greek cornices and white pillars alluding to classical antiquity, become an obtainable or desirable mode of expression.

In our study suite we cannot avoid mentioning that the professional military through Sir George Yeardley, and gentry military through Captain Jordan, seem to be on the cutting edge of a fundamental change in cognitive behavior. However, at Yeardley's Fort and Jordans Journey, the formalism of the plans might also argue that there might be a correlation between the level of cultural threat and the degree of rigorousness in which plans are created. In this process the Vitruvian plan at Jordans Journey is based on a 16th-century French bastide interpretation of a Roman military camp (Martin and Goujon 1547). Wolstenholme Town softens this military edge by positing a model of personal discipline for a villa plan—one that is perhaps the clearest anticipation of 18th-century mansion complexes.
In contrast the rigors of the plan at Yeardley's Fort is almost certainly a more direct copy of the authentic spatial ideals of Roman military camps which were studied assiduously by Andrea Palladio in the 16th century. This important architect was absolutely fascinated by the study of Julius Caesar's and Polybius' military campaigns—as he was by standing or buried Roman and Greek villas (Hale 1983:471–490; Rowe 1977; Willey and Sabloff 1993:1–3). Palladio's own studies therefore admirably thread together the "web" of military and civil planning "significances" which this document has argued are not contradictory elements in appreciating "world view" seen in vernacular architecture (Geertz 1973:5). Palladio's studies of classical ruins also thread together the web of significances, which are the foundations of our profession of modern historic archaeology, more soundly grounded in the liberal arts and the comparative method which got us out of the "medieval mindset" (Rowe 1977).

Deetz (1977:92–93) suggests that vernacular architecture is built by the occupants of settlements themselves and reveals a sensitive indicator of what they considered important. This is a very good idea. This is in opposition of academic architecture which is typically hired out and often therefore a less sensitive indicator of world view on any particular archaeological site or standing building regimen. However, as we learn more about the concept of humanitas we find that even "high rollers" such as President Wingfield, George Yeardley, military engineer Digges, and Thomas
Jefferson deliberately reference the classical world specifically by their own actions and interpretations to create an authentic "action-based" personal architecture rather than an essentially submissive academic architectural statement. In this process, all of our study sites are addressing the basic aspects of Renaissance architecture, mass (tripartite plan), symmetry (literal or staggered), and perspective (hierarchal, optical, historical) (Kruft 1984).

Use of classical wisdom to underpin the insecure civil populations at Flowerdew and Jordans Journey—whose hidden spatial code has been broken in this document—makes a clear statement that ideo-technic architecture for the English was intended to be Roman based. Their perceptions of their own civility or "world view" are telling us of the classical world, which they have chosen to identify themselves with in the frontier experience in a direct contest between perceived savages "in discord"—and "personally disciplined" servants of the invasive Christian state (Jennings 1980:2–5; Shackel 1993). As well as being useful and rational plans, references to Roman imperialism display their cognition of their own perspective of what is really occurring in the Virginia experiment.

The stability of the English colony created during the context of the Second-Anglo Powhatan War convinced the English that they were indeed a civilized people who "had arrived." Given the brutal aspects of the frequently un-civil or un-chivalrous ethnic conflict, this "spare civility" seen in simple
tripartite plans was desperately needed as cultural symbols of greater things
which they were not able to express in more elaborated forms through the
kinds of direct metaphors we have often sought in vain.

Rustic villa forms such as the Nansemond Fort and Cliffs are
seemingly melding Vitruvian wisdom with farming needs, as the seminal
manor is clearly placed in a hierarchal position. They use their
hierarchal/subordinate farms in the same way as a neo-classical Vitruvian
plan, but the informality of their layout still yields to daily convenience—
alien on the great plantations of the 18th century. It just may be that, by the
time of the construction of the decidedly "rustic" tripartite plans at the
Nansemond Fort and Cliffs, their world views preserve an increasingly
debased vernacular vulgarization of tripartite villa plans. Perhaps this is
because the original florescence of the Elizabethan Renaissance had seriously
waned to the point that the original classical references appear to be lost.
The early tripartite plan at Martin's Hundred, however, suggests that these
plans are simply informally applied vernacular versions of Vitruvian town
plans as they are used since all of the five plantations studied share
functional similarities on a building by building basis (Geertz 1973).

If we briefly pause, to approach the frequent three-part basis and
dialectic of structuralist theory, namely two parts—in opposition, and the
third part—resolution of the same, we can get predictable results in an
almost anecdotal fashion. The hierarchical manor or headquarters (1) can be seen as the resolution of and the controlling force behind labor and action (quarters); (2) and objects (storehouses, capital gains, extracted colonial products created by actions); and (3) (Levi-Strauss 1963). If this is the case, a spatial paradigm of Virginia society and its ethos in microcosm could indeed be invoked as was the case in Upton's (1986:97–98) study of seating in 18th-century ecclesiastical structures (which we noted in our brief revue of James Fort). Upton's two rows of church pews centered below an altar with a crucifix is, of course, similar to patterns seen in Post-Medieval gardens, paintings, and certainly the small-scale variant Romano/Medieval town plan itself.

If this microcosm model is really the case, under this model Virginia is the exploded west English longhouse or west English plan (with all its requisite functional trappings) with a manor superimposed over it. This manor is the seminal and key organic part of the "Vitruvian body" (analogy between human bodies and architecture) as its "head" literally and figuratively. Thus, in our structuralist dialectic the manor does not resolve the opposing tensions between labor (quarter) and goods; they simply are articulations of basic needs. Therefore, looked at in another way, this is really a symbol signifying itself, if you will, which should not be mystified.
If we take the "Vitruvian head" model seriously, by implication where this "head" is in the Virginia landscape is important. Marshall Newce, Sir George Yeardley, and Samuel Jordan were going nowhere after the massacre. Based on the atomist qualities of the cultural protagonists, their fortified settlements are statements of individual or personal secular power which is a hallmark of the Renaissance psyche (Rasmussen 1951:66–69; Rice 1970:76–78, Upton 1979). In other words, these people are telling us that they, as disciplined individuals on their own plantations, rather than in constrained communal towns, are the personification of expressions of English civility in its rawest and most direct form. These highly individualistic people are resolved to determine their own fate and—so to speak—their own town plans: plans which they have simplified and interpreted as formal or "rustic" villas, with imminently more appeal in the Chesapeake landscape.

PRACTICAL SPACE

In the following summary discussion the author tries to tease apart vernacular building influences from Renaissance and Vitruvian influences to obtain a more balanced and down-to-earth approach to our study group.

Through analogue linkage with James Fort and Yeardley's Fort, the familiar tripartite pattern might indicate a military plan in which the most basic needs of a small settlement and market town are met with no frills—in much the same manner that the contents of a suitcase summarize the most
basic needs of a traveler. Reduced down to the main core structural units, this simple plan features three basic components: a centered manorial seat, a subordinate quarter, and a subordinate barn (magazine or warehouse) which always provide a macro-cross passage leading to a church or manor which variously masquerades as a plantation headquarters and chapel.

The archaeological plan at Yeardley’s fort is more monolithic because it served largely through an institutional capacity as a protected town and market center. Thus, formal and informal paths needed to be clearly demarcated. In contrast, the Nansemond Fort is indistinguishable from civil Clifts of 1705, based on its most essential core architectural spacing—beyond its relative constriction to incorporate improvements into a defensive shell. This similarity in functional plans among the study group could suggest a "grange model" or some sort of a broader model can best hold this frontier settlement model together. Do they lie in familiar vernacular architecture? Is it possible to tease apart the influence of traditional vernacular building influences on the Vitruvian plans to get a fairly good idea of realistic specific impacts?

During the medieval period Beresford and Hurst (1971:Figure 17, 104) and Rowley and Wood (1982:Figure 13, 44–45) suggest that there is such a thing as a "peasant farm" or a "farm plan," respectively. This plan consists of simple rural farmstead agglomeration consisting of three buildings
containing (1) a rectangular dwelling house, (2) a byre or barn retaining cattle and/or food stores or hay, and (3) a smaller service or storage structure. The main core building block is shown as "L-plan" in the relationship between the dwelling (one main bar of L) house and the barn (a second main bar of L forming an vertex or angle). The author confesses that he doesn't know how important the medieval "farm plan" was in the 17th-century Chesapeake or England for that matter. However, if we use this plan to model changes in the Chesapeake study suite considered in the present study, we can at least predict the impact of Vitruvian planning as it intrudes into this real basic agricultural unit. As a spatial model, this can only be done for sites at Martin's Hundred, the Nansemond Fort, and Clifts where the settlers have chosen to add structures at a rough right angle to the manor in perhaps much the same manner as the original "farm plan" suggested by our British colleagues. (See Figure 105.)

By the 17th century the barn has been shifted to a more spatially subordinate position below the manor, at least in the Chesapeake. In the meantime the L-plan itself often substituted a kitchen/quarter unit in place of the barn. At Clifts, where we have the best temporal sequence, what occurs is the main new changes are two-fold. A quarter is shrewdly plopped into the initial farm plan first in order to acquire enough capital to create an opposite barn which reabsorbs the small storage building. At sites like Yeardley' Fort the plan does not need to accrete through time as it does at
Clifts, since through great wealth or martial law, labor investments allow the process to occur rapidly if not simultaneously. In the tensions between these plans are the seeds of Palladian formalism which replaced the "rustic" Vitruvian plan between about 1700 and 1750 in the Chesapeake. Seventeenth-century Virginia plans which do not seem to be influenced by Vitruvian wisdom in Virginia but which have the "L-plan" are tentatively identified as the Kingsmill Tenement and Pettus Plantation, and possibly Richneck Plantation (Carson et al. 1981:Figure 6, Figure 9, David Muracha pers. comm. 1997). Michael Salter (1985:6–7) notes that the "L-plan" as an integrated masonry block—
highly variant from the farm plan except in basic form—was used as a
defensive stance in Scotland and perhaps north England.

Beresford and Hurst (1971:Figure 17, 104) and Rowley and Wood
(1982:Figure 13, 44–45) also recognize a west English longhouse plan, where
an inner room is at one end of the structure, a larger living area or hall
occupies the center, and a byre is placed in the other side, so that all of the
needs in the "farm plan" noted above are contained in a single linear
structure still used in the Welsh marches and other zones in the 17th century
(Smith 1975). These have been recognized in New England and Virginia
(Deetz 1977:95–98; Hume 1982:187–188, 244–245). In this document we
have tried to use the west English longhouse to explain larger plantation
landscapes at Yeardley's Fort, Jordans Journey, and the Nansemond Fort
where it is indicated that the byre is captured during a period of farm
evolution when it is ejected out of the single architectural block of the parent
longhouse building form—but in a linear growth pattern out from the main
concentrations of buildings. Since such a plan emphasizes linear building
arrangements, those sites in our study group that show this pre-disposition
also in subordinate buildings orientations at Yeardley's Fort and Jordans
Journey, the only two sites with a formal geometric plan, besides
Wolstenholme Town.
If we look at this hypothetical explosion of functional space in the west English longhouse plan in more detail and extend it to other aspects of the room use in the parent longhouse form, then we can predict that storage and service areas also exploded out as shown in this chapter. If we apply Carson's (1994) consumer model to this and think about the impact of the tobacco boom on social elites who had more things—especially labor and bulk products than then ever before—then clearly the best explanation besides Vitruvian wisdom for this explosion from rooms or partitions in a single core unit exploding to separate specialized buildings is that they had no other choice except to modify their vernacular building regimen (see Neiman 1993).

The west English longhouse model actually blends into a larger study group, with the Clifts site and the Nansemond Fort also sharing attributes. Hence, at places like Yeardley's Fort, the Nansemond Fort, or Clifts, a model of these needs resulted in a west byre, a west quarter or hall, a central cross passage, and east-placed barn or warehouse with a manor superimposed—as the Vitruvian head—over all at the end of the central passage. Since at both the Nansemond Fort and the Clifts site the manor was built first, this means that you have to plan to achieve such an exploded west English longhouse motif in your architectural statement (Luccketti 1992; Neiman 1978, 1980). In a strange sort of way, this compliments the expanded Renaissance time perspective Rowe (1997) and Shackel (1993) variously speak of. Elite Chesapeake planters are clearly not living for the moment—they knew what
they wanted. Admittedly, through martial law or extreme relative wealth, the gratification at Yeardley's Fort and Jordans Journey and the Nansemond Fort was fairly rapid.

If we then turn to look at Carson's (1969) relationship between the West English house plan with a central cross passage which he has suggested evolved into the 18th-century "Virginia house" with a central hall and two opposite rooms and then extend this as a simple spatial model by analog extension using whole plantations, one suspects some worthwhile insights might emerge. If you look at the spatial pattern between Yeardley's Fort and Shirley, we can get a fairly good idea of vernacular changes more of degree than form which simply require a Vitruvian head. The analog turns the central passage in the West English longhouse or the West English house into a parallel pattern seen in the central passage between two subordinate outbuildings in a forecourt, which becomes a street in the Romano/Medieval town plan. It is not difficult to understand how, even as a vernacular model, a tripartite plan might emerge from a rational expansion of a cross passage running outside a West English style manor which would be useful to approach subordinate buildings. Throw in Vitruvian and Palladian ordinal ideals and rationalism and thus perhaps is created a very simple architectural statement of "new classical" humanities. This would be right out of the heart of a more traditional vernacular building regimen which begs for a formalized status definition in a labor-intensive agricultural economy in
daily face-to-face contact. Most Chesapeake planters preferred farm
convenience unlike our study group (see Carson et al. 1981; Kelso 1984).
New England farmers and some other areas continued to be happy with
Beresford's basic farm plan right into the 19th century (Thomas Hubka 1984).

Carson's (1986:55–56) west English-influenced relatively open
Virginia and Maryland farmyard probably reflected wider spaces needed in
southern colonies, as there were larger and more complicated social groups
all interacting within and among these dooryards, including sergeants acting
as overseers, lieutenants, and captains, as well as tenants, servants, and
local visitors. Also, there were bulk agricultural products such as corn and
tobacco, requiring large amounts of space to process them (Neiman 1993).

So far the evidence of influence of the west English longhouse has had
appeal as an explanatory spatial/functional model which—because of unique
Chesapeake conditions—lent itself toward a Vitruvian manipulation
especially during war. Of our study sites, Yeardley's Fort and Jordans
Journey perhaps show the strongest influence of exploded west English
longhouse plans (see Figure 106). Beresford and Hurst (1971:Figure 17)
humble us here, for their analysis of "Medieval Peasant House Types"
indicates that beyond the addition of a quarter for farm labor, there is
nothing in our core tripartite plan that is not present in some form in the
most pretentious medieval "peasant" farm. What does this buy us? It is
Sites that seem to have the strongest debt to a west English exploded long house with a hierarchical manor or headquarters building.
thought that the one aspect all our 17th-century study group and the 18th-century sites have in common is that there is a need expressed in this architecture to underscore the predominance of the planters or militia leaders in authority. Thus, this is an inherent hierarchal action perhaps defining the insecurity of the scale economy given the insular nature of the various plantations. In addition to this, perhaps the tripartite plan provided a sort of mystified sense among planters that they were one cut above peasants and therefore, in the wild frontier, had "arrived" somewhere even as Chieftains of earth-and-timber forts, or as "Lords of the flies" on isolated private plantations. In any case, it is with this same sense of humility that this document ends, with a feeling that what we don't know still outweighs what we do and that the road this discourse has taken is more valuable than any solutions it has potentially offered to a very complex and continuing behavioral puzzle.

We end here with Figure 107, which shows a town plan from a French edition of Vitruvius printed in 1547, which shows a town plan with staggered subordinate town lots below rows of hierarchical structures that look like a Roman fort from our introduction.
Figure 107
A plan showing staggered alternating town lots looking like a Roman fort (from a French edition of Vitruvius 1547) Jan Martin Translator.
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Notes:
Kulikoff's research was placed on the Internet and was called to the author's attention by Taft Kaiser in 1993.
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