

# Searching for the 17th Century on Nevis

The Survey and Excavation of Two  
Early Plantation Sites

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with contributions by

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Front Cover: the sugar works at Upper Rawlins before the excavations

Back Cover: the 1675 date-stone for John Combes from Fenton Hill

### **The Early Colonial Settlement and Landscape of Nevis and St Kitts: Studies in the Historical Archaeology of the Eastern Caribbean**

This series will provide the full publication of the historical archaeology projects undertaken between 1999 and 2009 on Nevis in the Eastern Caribbean by the Department of Archaeology, University of Southampton. Collaborating organisations included the island historical societies, Bristol City Museums and Art Galleries, and National Museums Liverpool together with various scholars from Britain and North America. The lead editors for the series are Professor Roger Leech (University of Southampton) and Dr Robert Philpott (University of Liverpool). The following reports are planned:

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# Contents

List of Figures.....	v	Sugar Cone Moulds.....	95
List of Tables.....	vii	Clay Tobacco Pipes.....	97
List of Contributors.....	viii	Glass Vessels and Flat Glass.....	104
Acknowledgements.....	ix	Dress Accessories and Personal Ornaments.....	108
Dedication.....	xi	Furniture and Furnishings.....	110
1. Nevis: Settlement and Sugar.....	1	Personal equipment.....	110
The Historical Archaeology of 17th-Century Nevis.....	1	Kitchen or Table Equipment.....	111
Topography, Geology and Soils of Nevis.....	1	Arms and Armour.....	112
The English Settlement of Nevis.....	3	Ironwork.....	112
The Economy of Nevis and St Kitts in the 17th Century.....	5	Structural Fittings.....	114
The Move to Sugar Cultivation.....	5	Construction Materials.....	115
Demographic Change from the Late 17th Century.....	6	Ceramic Building Materials.....	117
Indentured Servants and Enslaved Africans.....	6	Addendum: unstratified finds from the site.....	120
The Division of the Island.....	9	Evidence of Subsistence: Faunal Remains.....	120
The Island Roads.....	10	Introduction.....	120
Impermanent Architecture and the Tobacco Economy.....	11	Part 1: Bones.....	120
The Sugar Industry.....	11	Comparison with Other Sites.....	124
Cisterns.....	17	Concluding Remarks.....	125
Urban Settlement.....	18	Part 2: Invertebrate remains.....	125
The Research Projects.....	18	Introduction.....	131
2. Excavations at Fenton Hill, St George’s Gingerland Parish, 2007 and 2009.....	20	Documented history.....	131
Introduction.....	20	3. Excavations at Upper Rawlins, St George’s Gingerland Parish, 2005 and 2006.....	131
Early Settlement in St George’s Gingerland.....	21	Survey of Upper Rawlins.....	133
Historical Evidence for the Plantation.....	21	Survey of the Adjacent Hillsides.....	134
Documented History.....	21	Location and Topography.....	135
Ownership of the Estate.....	23	The Excavations.....	135
Location of Combes’s and Jory’s Plantation.....	32	The Sugar Works: Boiling House and Curing House.....	135
The Subsequent Ownership of Jory’s Plantation.....	34	Boiling/Curing House Area.....	139
Archaeology of the Fenton Hill Site.....	35	Domestic Range: the House and Kitchen.....	143
Excavation and Building Survey of Structure A.....	36	Test Pits.....	146
The Archaeological Excavation.....	38	Discussion of the Buildings.....	147
Extension to the North of Structure A (Area III).....	51	Conclusion.....	148
Discussion of Area III.....	55	The Finds.....	148
Structure G: The Main House.....	55	Afro-Caribbean Pottery.....	148
Trench VII.....	57	European Ceramics.....	158
Discussion.....	58	Note on Westerwald Sherd from Context 59.....	159
Plan and Function of Structure A.....	61	Discussion.....	160
The Late 17th-century Main House.....	64	Sugar Cone Mould.....	161
Post-Emancipation Occupation.....	67	Clay Tobacco Pipes.....	163
Post-Emancipation Settlers.....	68	Glass.....	169
Final Stages of Settlement.....	70	Other Finds.....	172
Conclusions: Summary of Sequence.....	70	Personal Ornaments and Dress Fittings.....	173
The Finds.....	73	Household Fittings.....	174
Prehistoric Decorated Sherd.....	73	Sugar Processing Equipment.....	174
Afro-Caribbean Pottery.....	74	Household Equipment.....	175
European and Oriental Ceramics.....	85	Arms and Armour.....	176
		Ironwork.....	176
		Building Materials.....	177
		Ceramic Tiles.....	178

Early 19th-century Re-occupation .....	180	Appendix Table 2.4. Fenton Hill: Afro-Caribbean pottery by form type and wall thickness	A-54
Evidence of Subsistence: Faunal Remains .....	180	Appendix Table 2.5. Fenton Hill: Afro-Caribbean pottery by sherd size	A-55
Invertebrates .....	180	Appendix Table 2.6. Fenton Hill: Clay tobacco pipes – types by context	A-56
Vertebrates .....	181	Appendix Table 2.7. Fenton Hill (FH09 only): Nail lengths – frequency by context	A-61
4. Plantation Society, Material Culture and Global Connections .....	182	Appendix Table 2.8. Fenton Hill: condition of faunal remains	A-62
The Estate of Upper Rawlins .....	182	Appendix Table 2.9. Comparison of faunal remains from Fenton Hill with other excavated Nevis sites	A-64
Fenton Hill .....	185	Appendix Table 2.10. Comparison of Cow, Sheep/ Goat and Pig remains from Fenton Hill with other excavated Nevis sites	A-68
Plantation Layout .....	187	Appendix Table 2.11. Fenton Hill: Frequency of molluscs by context and phase	A-69
Material Culture, Trade and Economy .....	188	Appendix Table 3.1. Upper Rawlins: Context listing	A-83
Material Culture and Identity .....	191	Appendix Table 3.2. Upper Rawlins: Afro-Caribbean pottery by method of recovery (weight in grams)	A-88
Building Materials, Furnishings and Fixtures .....	193	Appendix Table 3.3. Upper Rawlins: Afro-Caribbean pottery: quantification of form types by context (weight in grams)	A-89
Provisions .....	195	Appendix Table 3.4. Upper Rawlins: Afro-Caribbean pottery sampled for INAA	A-90
Trade Goods.....	196	Appendix Table 3.5. Upper Rawlins: European ceramics catalogue	A-91
Nevis and the Home Ports .....	197	Appendix Table 3.6. Upper Rawlins: Clay tobacco pipe catalogue	A-96
Bristol .....	198	Appendix Table 3.7. Upper Rawlins: Faunal remains – frequency of species by context	A-102
London.....	201	Appendix Table 3.8. Upper Rawlins: Molluscs – frequency of species by context	A-103
Liverpool .....	201		
Summing up.....	202		
5. References .....	203		
Maps.....	215		
Unpublished Archives References .....	216		
Abbreviations.....	217		
Index.....	218		
<b>Appendices</b>			
Appendix 1: Documents Illustrative of 17th-century Nevis	A-4		
Appendix Table 2.1. Fenton Hill: Context index and stratigraphic relationships	A-43		
Appendix Table 2.2. Fenton Hill: Afro-Caribbean pottery – quantification of form types by context (weight in grams)	A-51		
Appendix Table 2.3. Fenton Hill: Afro-Caribbean pottery sampled for INAA	A-53		

The appendices are available online at <http://doi.org/10.32028/9781789698862-appendices>





## List of Figures

<p>Vince Hubbard at the Fenton Hill excavation in 2007 proudly displaying his book <i>Swords, Ships &amp; Sugar</i> (photograph: Robert Philpott)..... xi</p> <p>Vince working on the excavations at Mountravers in the summer of 2001 (photograph: Roger Leech) ..... xi</p> <p>Vince with his latest discovery on the beach north of New River, July 2003 (photograph: Roger Leech) ..... xi</p> <p>Figure 1.1. Location of Nevis and the Leeward Islands in the Caribbean ..... 1</p> <p>Figure 1.2. Nevis, showing the location of towns and the main plantations mentioned in the text (contour interval 50 feet)..2</p> <p>Figure 1.3. 'Plan de l'Isle de Saint Christophe. Plan de l'Isle Nieves' c. 1630 (Bibliothèque nationale de France GE D-17178) ..... 4</p> <p>Figure 1.4. The Divisions of Nevis, reconstructed from documentary sources, air photographs and field survey (Leech 2007, fig. 3) ..... 8</p> <p>Figure 1.5. 'Carte de l'Isle de Nieves' by J.-N. Bellin, published 1764, from <i>Petit atlas maritime</i>, Vol. I, no 84 (by courtesy of The University of Liverpool Library, classmark k.3.66) ..... 10</p> <p>Figure 1.6. Detail from William Hack's 1687 map 'The west end of Nevis; &amp; part of St Christopher' (copyright The British Library Board, Sloane MS 45.74). ..... 12</p> <p>Figure 1.7. Coconut Walk windmill, Nevis (photograph: Robert Philpott, 2009)..... 13</p> <p>Figure 1.8. A mid 17th-century view of sugar making (Du Tertre 1667, II ,122) ..... 14</p> <p>Figure 1.9. Title page of Thomas Jefferys's <i>The West Indian Atlas</i> (1780) showing an informal loading place for sugar, at an unnamed Caribbean location (copyright The National Archives CO 700/West Indies21) ..... 17</p> <p>Figure 1.10. Hermitage plantation, Nevis: cistern (photograph: Robert Philpott, 2013) ..... 18</p> <p>Figure 1.11. Hermitage: drip filter with reused 18th-century Montelupo olive oil jar inside to catch water (photograph: Robert Philpott, 2013) ..... 19</p> <p>Figure 2.1. Fenton Hill: boiling house (B) from SE ..... 20</p> <p>Figure 2.2. Fenton Hill: interior of Structure A, after removal of topsoil layer 100 in SE corner, from W ..... 21</p> <p>Figure 2.3. Detail of Sharpe's map of late 1990s, showing estates in St George's parish..... 22</p> <p>Figure 2.4. Burke Iles's map of Nevis 1871, detail of St George Gingerland parish ..... 23</p> <p>Figure 2.5. Plan of the Fothergill Estate, 1893, by L. M. Kortright (Courthouse records, Land Title Register Book 1, fol. 54; EAP794/1/10/1/25); the copy obtained has cut off two names on the left side, 'Golden Rock Estate' and 'Sundry Proprietors' ..... 24</p> <p>Figure 2.6. Fenton Hill: the date-stone, reading I C / XX / 1675, found close to the probable site of the main house ..... 25</p> <p>Figure 2.7. Putative reconstruction of Jory's and neighbouring estates in the mid 18th century (based on Sharpe's map, Fothergill's of 1893 and mid 18th-century Nevis Common Records)..... 27</p> <p>Figure 2.8. Fenton Hill: archaeological survey of the plantation remains, 2008-09 ..... 36</p> <p>Figure 2.9. Fenton Hill: boiling house (B) from N ..... 37</p> <p>Figure 2.10. Fenton Hill: plan of Boiling House (Structure B), by R. Leech ..... 37</p>	<p>Figure 2.11. Fenton Hill: Cistern C, from S ..... 38</p> <p>Figure 2.12. Fenton Hill: Cistern D, from W ..... 38</p> <p>Figure 2.13. Vertical air photograph of the Fenton Hill site 1968 (courtesy of Hunting Surveys Ltd)..... 38</p> <p>Figure 2.14. Fenton Hill: plantation remains, boundaries and structures visible on the 1968 Hunting Surveys Ltd aerial photograph (darker shading are structures, light grey are earthworks). See text for identification of structures. .... 39</p> <p>Figure 2.15. Fenton Hill: animal mill (M), revetment wall in foreground, from S, with Nevis mountain in background ..... 40</p> <p>Figure 2.16. Fenton Hill: interior of Structure A, showing sill at base of walls and gable wall, from W ..... 40</p> <p>Figure 2.17. Fenton Hill: Structure A, E wall from outside showing window in gable and offset wall for gutter ..... 41</p> <p>Figure 2.18. Fenton Hill: Structure A, E wall from outside showing window in gable and offset wall for gutter ..... 41</p> <p>Figure 2.19. Fenton Hill: Structure A, S wall showing horizontal slot (125), linking vertical slots (126 to the left, 123 to the right), the top of the offset course to the right, and the scar of the mortar facing to the left; from N ..... 41</p> <p>Figure 2.20. Fenton Hill: Structure A, S wall showing vertical slots 126, 114, 116, 112 (L to R), horizontal slot (125) and mortar line, from N ..... 41</p> <p>Figure 2.21. Fenton Hill: SW corner of Structure A, showing overlapping wall, and drain hole in wall, from NE ..... 42</p> <p>Figure 2.22. Fenton Hill: Structure A, interior showing the W gable wall with overlapping side walls, from SE ..... 42</p> <p>Figure 2.23. Fenton Hill: Structure A, plaster surface of threshold (240) after removal of blocking, showing the stone step and mid 19th-century colluvial layers, 217-219, from S 42</p> <p>Figure 2.24. Fenton Hill: Structure A, plan of excavated areas ..... 43</p> <p>Figure 2.25. Fenton Hill: Structure A, Phase 2, showing post impressions and post-holes of original timber structure ..... 44</p> <p>Figure 2.26. Fenton Hill: plan view of post-slot 114, showing chamfered corners ..... 45</p> <p>Figure 2.27. Fenton Hill: Structure A, Phase 4.1, showing stone walls encasing timbers..... 46</p> <p>Figure 2.28. Fenton Hill: Structure A, Phase 4.2, showing structural alterations to the stone structure ..... 47</p> <p>Figure 2.29. Fenton Hill: interior of N wall from S, showing post-slot 407 to left ..... 48</p> <p>Figure 2.30. Fenton Hill: Structure A: Wall 132 with foundation trench and post-hole 115, from N ..... 48</p> <p>Figure 2.31. Fenton Hill: Structure A, plan of Phase 5, final use and disuse of the stone building ..... 50</p> <p>Figure 2.32. Fenton Hill: Structure A, threshold of eastern door (context 519) from SW ..... 51</p> <p>Figure 2.33. Fenton Hill: Structure A: context 226 and wall slot above, from S..... 52</p> <p>Figure 2.34. Fenton Hill: Structure A, Phase 6 ..... 53</p> <p>Figure 2.35. Fenton Hill: Structure A, northern extension (Area III) showing context 301 from N..... 55</p> <p>Figure 2.36. Fenton Hill: Structure G, section across building platform, with make-up (dark grey) and destruction deposits (mid grey) ..... 57</p> <p>Figure 2.37. Fenton Hill: Structure G, Trench VI, section through make-up layers from W ..... 57</p> <p>Figure 2.38. Fenton Hill: Structure G, section through building platform from W; Trench VI front, Tr. VII behind, showing wall 611..... 58</p>
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Figure 2.39. Fenton Hill: Structure G, Trenches VI (L) and VII showing southern wall of structure, context 611.....	58
Figure 2.40. Fenton Hill: Structure G, stone foundation (wall 611), with projecting porch and <i>in situ</i> earthenware tiles, from SE; Trench VII to right .....	58
Figure 2.41. Hermitage, Nevis: late 17th-century estate house showing shingled exterior; the domed cistern and drip filter stand to left of main house .....	59
Figure 2.42. 'View of a Spanish building', a post-in-the-ground building, from Edward Long's <i>The History of Jamaica, 1774 (vol 2)</i> .....	62
Figure 2.43. Fenton Hill: prehistoric sherd SF1380 context 505.....	73
Figure 2.44. Fenton Hill: prehistoric sherd SF1380 context 505.....	73
Figure 2.45. Fenton Hill and Upper Rawlins: Afro-Caribbean pottery – graphic representation of cumulative percentage frequency of wall thickness by codes .....	76
Figure 2.46. Fenton Hill: 1-20. Afro-Caribbean pottery .....	80
Figure 2.47. Fenton Hill: 21-29. Afro-Caribbean pottery .....	81
Figure 2.48. Fenton Hill: 30-46. Afro-Caribbean pottery .....	82
Figure 2.49. Fenton Hill: 47-61. Afro-Caribbean pottery .....	83
Figure 2.50. Fenton Hill: 62-70. Afro-Caribbean pottery .....	84
Figure 2.51. Fenton Hill: 1-15. European ceramics.....	91
Figure 2.52. Fenton Hill: 16-30. European ceramics.....	92
Figure 2.53. Fenton Hill: 31-39, 41-45. European ceramics; 40. Chinese porcelain .....	93
Figure 2.54. Fenton Hill: 46-52. European ceramics.....	95
Figure 2.55. Fenton Hill: British sugar mould sherds with slip on interior.....	96
Figure 2.56. Fenton Hill: sugar mould fabrics - A: British-made and B: Nevis-made .....	96
Figure 2.57. Fenton Hill: British sugar mould rim - vessel 1 ..	96
Figure 2.58. Fenton Hill: British sugar mould with fine stripes of slip on interior - vessel 2 .....	96
Figure 2.59. Fenton Hill: Nevisian sugar moulds with evidence of wheel-thrown manufacture - right, vessel 5 and left, vessel 6.....	96
Figure 2.60. Fenton Hill: 1-19. clay tobacco pipes .....	102
Figure 2.61. Fenton Hill: detail of no. 15, pipe with worn and smoothed stem end, context 237 SF2289 .....	103
Figure 2.62. Fenton Hill: glass bottles and drinking vessels: 1-5. Glass wine bottles. 1. SF1731. 2. SF1568. 3. SF28. 4. SF469. 5. SF239. ....	105
6-8. Drinking vessels. 6. SF6. 7. SF2215. 8. SF2216. 9. SF2231 phial. 10. SF595 FLORIDA WATER bottle.....	105
Figure 2.63. Fenton Hill: miscellaneous finds. 1. SF12 bead (2:1). 2. SF46 bead (2:1). 3. SF76 buckle. 4. SF66 buckle. 5. SF72 buckle. 6. SF2242 buckle. 7. SF2277 button. 8. SF1303 button. 9. SF47 button. 10. SF59 button. 11. SF35 copper-alloy button. 12. SF2233 mount. 13. SF1943 curtain ring. 14. SF871 stud. 15. SF872 stud. 16. SF2312 thimble. 17. SF14 bone box lid. 18. SF64 lead ball. 19. SF2239 gunflint. 20. SF98 percussion cap. 21. SF1137 chain. 22. SF56 key. 23. SF1582 tile (1:2). Scale all 1:1 except where stated.....	111
Figure 2.64. Fenton Hill: modified money cowrie shell, context 404.....	126
Figure 3.1. Map by Sharpe of estates in Nevis dated c. 1990, showing location of Upper Rawlins estate (north at top)...	132
Figure 3.2. Aerial photograph of the area from Upper Rawlins (top left) to Rawlins in 1968. The Rawlins stone windmill tower is marked with an arrow top right (extract from Directorate of Overseas Surveys 99-KT.1, Nevis- 6500ft, 1 March 1968 Frame 22) .....	133
Figure 3.3. Upper Rawlins in its landscape setting: 1 boundary bank; 2 trackway on same alignment as 1; 3 the cattle mill; 4 the boiling house and adjacent structures; 5 the house; 6 the trackway or plantation road extending downhill;	

7 the 'slab' or pond; 8 oval enclosure and roofed building of cruciform plan; 9 and 10 trackways; 11 ruined windmill tower of Rawlins plantation; 12 upper round road to Stoney Hill plantation; 13 modern paved road to Zetlands village; 14 modern road within Zetlands village .....	134
Figure 3.4. Upper Rawlins: overall plan of plantation complex from 2002 survey by R. Leech and N. Fradgley, with additions from the excavation plans .....	136
Figure 3.5. Upper Rawlins: view of the plantation complex from SW, after clearance in 2002; the 2m scale stands by the boiling train .....	137
Figure 3.6. Upper Rawlins: plan of boiling train and cistern ..	138
Figure 3.7. Upper Rawlins: elevation of west-facing wall of boiling train (shaded areas are voids) .....	139
Figure 3.8. Upper Rawlins: boiling train showing stoke-hole apertures and vents above, from SW .....	139
Figure 3.9. Upper Rawlins: boiling train showing stoke-hole apertures and vent above, from W .....	139
Figure 3.10. Upper Rawlins: boiling house, ceramic tiles <i>in situ</i> (19), surrounding the 'copper' setting, from SE .....	140
Figure 3.11. Upper Rawlins: copper settings and flue in boiling train, from SE.....	140
Figure 3.12. Upper Rawlins 2005: wall and mortar tank 45, with earthenware tiles 19 surrounding copper, from E.....	140
Figure 3.13. Upper Rawlins: boiling house, rubble floor surface (40) and wall, from E.....	140
Figure 3.14. Upper Rawlins: boiling train showing base for clarifier, revetment wall to right, and first setting for copper, from SE .....	141
Figure 3.15. Upper Rawlins: stone gutter in boiling train, from SW .....	141
Figure 3.16. Upper Rawlins: blocked flue in boiling train, showing conversion from Spanish to Jamaica train.....	141
Figure 3.17. Upper Rawlins: cistern 62 within boiling house, from SE .....	141
Figure 3.18. Upper Rawlins: Trench 5 cutting through collapsed rubble, and wall 27 of boiling house, from S.....	142
Figure 3.19. Upper Rawlins: wall 53 and blocking 51, showing mortar on wall, from NW .....	144
Figure 3.20. Upper Rawlins: walls 72, 92, trench in house and test pit from N .....	144
Figure 3.21. Upper Rawlins: Trench 6, wall 32 to left, with steps 42, and wall 39 to rear with drain 73, from SW. Walls 32 and 39 are of one build with 42 and of similar construction, faced with plaster. The upper part of wall 39 lacked mortar and had been rebuilt at a later date from loose blocks.....	144
Figure 3.22. Upper Rawlins: plan of main house and kitchen area (Trenches 1, 2, and 6) .....	145
Figure 3.23. Upper Rawlins: Trench 6 showing wall 32 to the rear, with steps up to kitchen area and in left foreground rubble of wall 53, from SE .....	146
Figure 3.24. Upper Rawlins: Trench 6, showing steps 42 and wall 32 to right, wall 53 to left. To rear, trench cuts through colluvial deposits 28, 29, 31, from E .....	146
Figure 3.25. Upper Rawlins: Trench 1 within house, showing absence of floor layers and concentration of probable natural stones, from W .....	146
Figure 3.26. Upper Rawlins: 1-18. Afro-Caribbean pottery ..	154
Figure 3.27. Upper Rawlins: 19-27. Afro-Caribbean pottery .....	156
Figure 3.28. Upper Rawlins: 28-32. Afro-Caribbean pottery .....	157
Figure 3.29. Upper Rawlins: Afro-Caribbean pottery, decorated sherds. 1. STP130; PRN3166. 2. Context 29 PRN3071 (no. 33, below).....	158
Figure 3.30. Upper Rawlins: Westerwald stoneware sherd with inscription, from context 59 .....	159
Figure 3.31. Upper Rawlins: 1-6. European ceramics .....	160

## List of Tables

Figure 3.32. Upper Rawlins: profile of sugar mould rim.....	162
Figure 3.33. Upper Rawlins: sugar moulds. a) Surface of sugar mould rim, exterior. b) Surface of sugar mould rim, interior. c) Fabric of sugar mould sherd. d) Rock in sugar mould rim	163
Figure 3.34. Upper Rawlins: clay tobacco pipes (1:1).....	169
Figure 3.35. Upper Rawlins. 1-2. Glass wine bottles. 3-4. Glass phials.....	171
Figure 3.36. Upper Rawlins: utilised stones. 1. SF1504 whetstone (1:2). 2. SF1023 hone (1:1). 3. SF126 hammerstone (1:2). 4. SF211 chert (1:1), and detail of edge with use-wear (2:1). 5. SF210 chert (1:1).....	173
Figure 3.37. Upper Rawlins: miscellaneous finds. 1. SF01 bead (2:1). 2. SF204 buckle (1:1). 3. SF206 button (1:1). 4. SF161 tack (1:1). 5. SF205 strap fitting (1:2). 6. SF158 skimmer (1:2). 7. SF124 marble (1:1). 8. SF125 gunflint (1:1).....	175
Figure 3.38. Upper Rawlins: building materials. 1. SF1009 unglazed cut-down tile. 2. SF2000 green-glazed tile. 3. SF140 curved plaster surface.....	179
Figure 4.1. 'Jesups' estate plan (courtesy of Southampton Archives Office D/MW).....	183
Figure 4.2. Clarke's estate plan c. 1818 (courtesy of Nevis Heritage and Conservation Society).....	185
Figure 4.3. Fothergill's: remains of the chimney and boiling house (photograph: Robert Philpott, 2018).....	186
Figure 4.4. Golden Rock: plantation buildings (photograph: Robert Philpott, 2013).....	189
Figure 4.5. Simmonds: the windmill, the only substantial surviving structure of the plantation (photograph: Robert Philpott, 2018).....	192

Table 2.1. The divisions of Jory's plantation after the death of Frances Bladen in 1746 and subsequent descent.....	30
Table 2.2. Summary of ownership of Fenton Hill and neighbouring plantations.....	33
Table 2.3. Archaeological and historical sequence at Fenton Hill.....	54
Table 2.4. Fenton Hill: Afro-Caribbean pottery - wall thickness codes by sherd count.....	77
Table 2.5. Fenton Hill and Upper Rawlins: Afro-Caribbean pottery – cumulative percentage frequency of wall thickness by codes.....	77
Table 2.6. Fenton Hill: List of Bristol makers' marks on clay tobacco pipes.....	98
Table 2.7. Fenton Hill: Species by phase (NISP = Number of individual bone specimens).....	122
Table 2.8. Fenton Hill: Species by phase (by percentage).....	123
Table 2.9. Fenton Hill: Invertebrates by phase.....	127
Table 2.10. Fenton Hill: Invertebrates by phase (by percentage).....	128
Table 3.1. Upper Rawlins: Afro-Caribbean pottery, quantification by form type (weight in grammes).....	153
Table 3.2. Upper Rawlins: Afro-Caribbean pottery, frequency of measurable rim diameters by form type and size division.....	153
Table 3.3. Context Summary: Summary of the clay tobacco pipes recovered from the Upper Rawlins excavations (UR04 – UR06) by context, showing the numbers of bowl (B), stem (S) and mouthpiece (M) fragments recovered from each group. A note of any marked or decorated pieces is also given, together with the total number of marked (Tot Mkd) or decorated pieces (Tot Dec) from each context. The overall date range represented within each group is listed (Date Range), as well as the likely deposition date based on the latest pipe fragments recovered (Deposition).....	167
Table 4.1. From the Bristol Port Books, exports of English earthenware (Eew) and Earthenware (Ew) of unspecified origin from Bristol to Nevis in 1662-1700 by number of pieces (p) (after Reg Jackson, <a href="http://www.bristolpottersandpotteries.org.uk/exports.php">http://www.bristolpottersandpotteries.org.uk/exports.php</a> ).....	199

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# Acknowledgements

## Fenton Hill

Two seasons of research were undertaken at Fenton Hill, in 2007 and 2009. The work was directed by Roger Leech and Robert Philpott. Subsequent post-excavation work and the preparation of this report has been led by Robert Philpott, assisted by Roger Leech, both of whom are very grateful to Elaine Morris, Director of the Nevis Heritage Project, for her continued support of this part of the overall project.

The authors would like to record their grateful thanks to the following: the site owner, Mr Wade Knowles, for his enthusiastic and generous support for the project, and for his unstinting efforts to facilitate the excavation; Mr John Guilbert, former Director of the Nevis Historical and Conservation Society; and generous contributors to the Nevis Heritage Project, Mr Ernie Dover of Morning Star and the late Dr Vince Hubbard. A fieldwork permit for the Fenton Hill excavation was obtained from the Planning Department of the Nevis Island Administration with the valuable assistance of Mr John Guilbert.

The re-interpretation of Structure A was greatly aided by the discussions and suggestions from archaeologists and architectural historians Fraser Neiman, Carter Hudgins, Martha Hill and Derek Wheeler, who visited the site during the fieldwork for the St Kitts-Nevis Digital Archaeology Initiative in July 2008.

In 2007 undergraduate students at the University of Southampton Louise King, Rachel Basinger, Naomi Holliday, Rebecca Lee, James Miles, Sarah Parker, Luke Paton, Fiona Ritchie, Graham Tahernia and Michael Whitty undertook the excavation, with the assistance of volunteers Jean Hunter and Mike Hunter who undertook much of the initial photography of the finds on site. Kathryn Attrill was finds supervisor, Deborah Costen supervised the environmental sampling, and Pamela Leech completed the recording of finds after the students had left. Lynsey Bates, then a PhD student at Pennsylvania State University, Philadelphia, assisted with the total station survey in 2008.

In 2009 the excavation team was supervised by Bradford University MSc student Anys Price and consisted of University of Southampton undergraduates Rebecca Blake, Nicholas Byrne, James Elkins, Stuart Locke, Ian Marks, Sophie-Alice Meyer, Abigail Parkinson and Emma Young. The finds were processed initially on site by Sophie-Alice Meyer, and from the second week onwards by Pamela Leech.

Specialist finds reports were provided by David Barker (European ceramics), Sheila Hamilton-Dyer (faunal remains, animal bone and shell), David Higgins (clay tobacco pipes), Elaine Morris (prehistoric pottery, Afro-Caribbean pottery and sugar mould) and Robert Philpott (glass, metalwork, other small finds and building materials).

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## Upper Rawlins

The site was first surveyed by Roger Leech and Nigel Fradgley in July 2002, assisted in site clearance by Alex and Eric Klingelhofer. The first season of excavations in 2005 was directed by Roger Leech and Bruce Williams, and assisted by the late Andrew Townsend and Amanda Summerfield, the last three of Bristol and Region Archaeological Services (BaRAS).

This work took place with the permission and support of Mr Edward Herbert and the Nevis Historical and Conservation Society, and coincided with the first overseas conference of the Society for Post-Medieval Archaeology held on Nevis in June 2005, being visited by the Society's conference tour. The initial survey and the subsequent excavations were much assisted by the clearance of vegetation across the site and adjacent hillside, undertaken by residents of the Nevis



Prison Farm under the overall direction of Inspector Alton Liburd; the work was further supported by Vince Hubbard, historian, whose encouragement and enthusiasm has been much appreciated. Further excavations in 2006-7 were directed by Roger Leech and Robert Philpott, then of National Museums Liverpool. A fieldwork permit for the Upper Rawlins excavation was obtained from the Planning Department of the Nevis Island Administration with the valuable assistance of Mr John Guilbert.

In 2005 the finds supervisor was Linda Mitchell, and work on site was undertaken by University of Southampton postgraduate student Alexander Threlfall (site supervisor) and undergraduate students Clare Forshaw, Michael Antoniadis, Sophie Bradley, Robert Brooks, Matthew Fletcher, Kristian Hodges-Peck and Charlotte Ward.

In 2006 work on site was undertaken by University of Southampton undergraduate students Mike Hancock (site supervisor), Hollie Turner (finds supervisor), Louise King, Sam Chapman, Isobel Keith, Meya Kallala, Robert Lee, Andrew Lennox, Vanessa Rees-Heaver and Sophie Wright, with some input in the final week from Robert Philpott. Pamela Leech undertook the initial processing of the finds on site.

Post-excavation work and preparation of this report has been led by Robert Philpott, assisted by Roger Leech, both of whom are, once again, grateful to Elaine Morris for her continued support of this part of the overall project.

Specialist finds reports were provided by David Barker (European ceramics), David Higgins (clay tobacco pipes), Elaine Morris (Afro-Caribbean pottery and sugar mould, and faunal remains) and Robert Philpott (glass, stone objects, building materials and metalwork).

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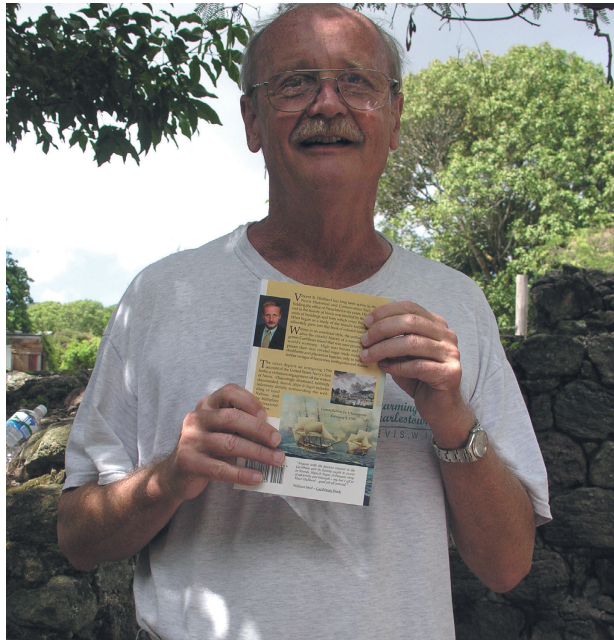
### **General acknowledgement**

The above projects could not have been undertaken without the generous support of the University of Southampton Department of Archaeology's summer fieldwork training programme and the financial input to this made by the individual students participating. The support of successive Heads of Department and Department Administrative Officers is gratefully acknowledged.

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## Dedication

This volume is dedicated to the memory of Dr Vincent K. Hubbard.



Vince Hubbard at the Fenton Hill excavation in 2007 proudly displaying his book *Swords, Ships & Sugar* (photograph: Robert Philpott)

Vince Hubbard hailed from the town of Kingsport, Tennessee. He studied for a BA in Political Science and History at Vanderbilt University, followed by a JD from the University's School of Law. He was a long-term resident of Nevis, where he settled in 1985, and had been active in the Nevis Historical and Conservation Society, serving as President for six years. His interest in the fortifications and ruined buildings that studded the islands led to research on the history of both St Kitts and Nevis. In 1991 he published his first book *Swords, Ships & Sugar: History of Nevis* (Premiere Editions International, Corvallis, Oregon), which went through seven editions, and in 2002, *A History of St Kitts: The Sweet Trade* (Macmillan Caribbean, Oxford). His continued interest in the excavations which are published in the present volume meant he was a frequent visitor to the sites, bringing new insights with an infectious enthusiasm and a boundless sense of curiosity. He was also a generous funder of the Nevis Heritage Project's archaeological work, and his contribution is gratefully acknowledged here.



Vince working on the excavations at Mountravers in the summer of 2001 (photograph: Roger Leech)



Vince with his latest discovery on the beach north of New River, July 2003 (photograph: Roger Leech)





# 1. Nevis: Settlement and Sugar

Robert Philpott and Roger Leech

## **The Historical Archaeology of 17th-Century Nevis**

This volume is intended as the first of a series reporting on the research in historical archaeology undertaken for the Nevis Heritage Project between 1999 and 2009 on the island of Nevis, one of the Lesser Antilles in the Eastern Caribbean (Figure 1.1): *The Early Colonial Settlement and Landscape of Nevis and St Kitts: Studies in the Historical Archaeology of the Eastern Caribbean*. The focus of this monograph is two research projects designed to advance our understanding of life in Nevis in the 17th century: at River Path, Fenton Hill (Chapter 2) and Upper Rawlins (Chapter 3) in St George's Gingerland parish (Figure 1.2).

The archaeology of the English islands of the Caribbean in the first century of settlement is not well understood. From an assessment of the historical and documentary sources and research undertaken elsewhere in North

America, various possibilities for future research on Nevis were identified. In this account some emphasis is given to the first decade of the 18th century, well documented as a consequence of the French raid of 1706, the documentation for the 1700s offers many insights into Nevis in the preceding century.

## **Topography, Geology and Soils of Nevis**

Nevis has an area of 93km<sup>2</sup> and is oval in plan, with a length north-south of 12.3km and a maximum width of 9.6km. Topographically, the island is dominated by the central Nevis Peak, rising to 985m, with a series of lower volcanic hills with a broad south-east to north-west trend, from Saddle Hill (381m) in the south-east to Windy Hill (309m) in the north-west, and the dominant ridge of Butlers Mountain (478m) projecting from the central mountain to the north-east. The ground slopes steeply down from Nevis Peak, at a gradient of 40%, flattening out on to gentler slopes from the foot of the



Figure 1.1. Location of Nevis and the Leeward Islands in the Caribbean

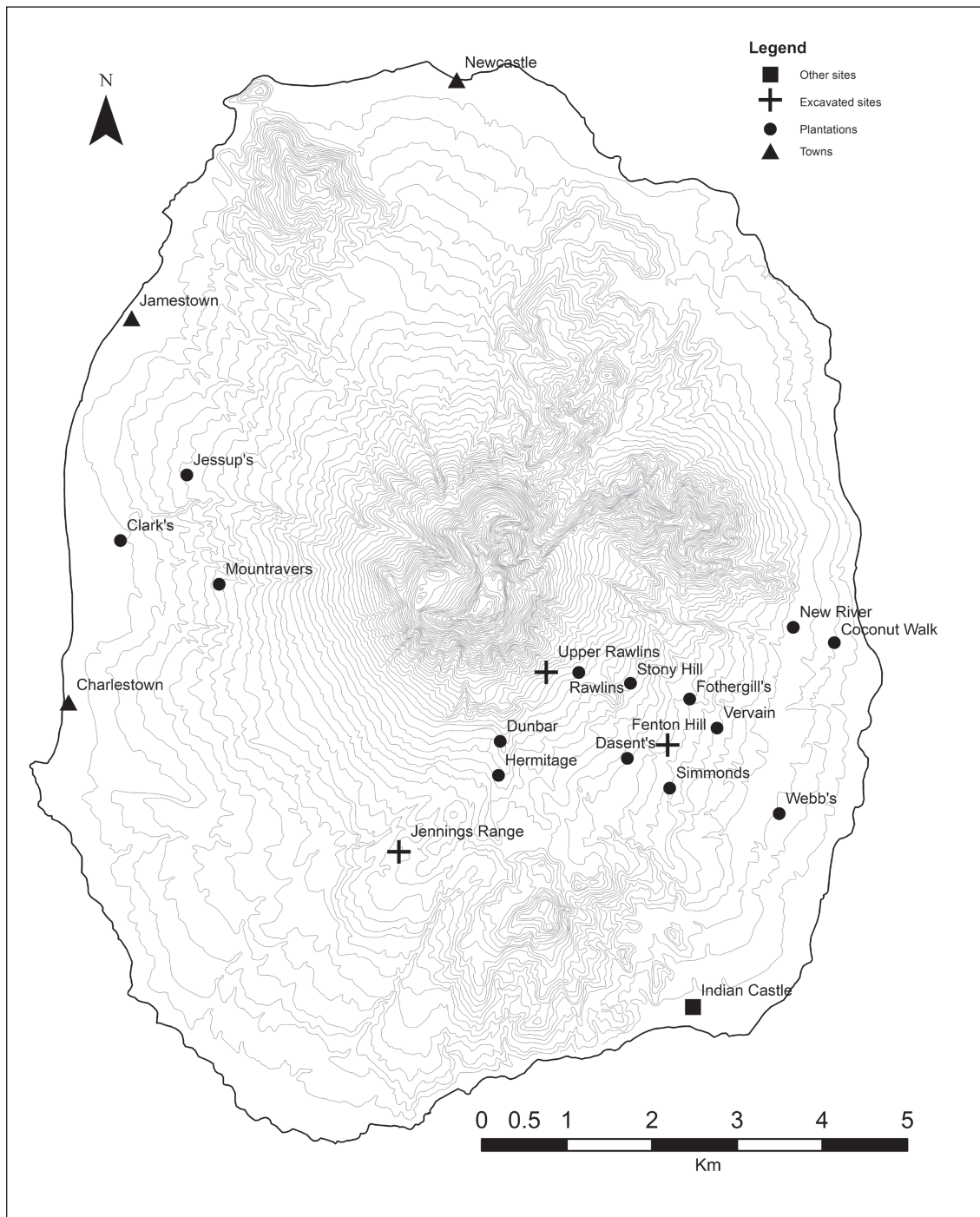


Figure 1.2. Nevis, showing the location of towns and the main plantations mentioned in the text (contour interval 50 feet)

mountain to the sea creating a broad coastal fringe. The mountain sides and coastal plain are dissected by ten steep-sided valleys, known locally as ghuts,<sup>1</sup> which hold intermittent watercourses, with only the Bath Stream, fed by perennial springs, flowing all year round.

<sup>1</sup> Ghut, also spelt gut or ghaut, is a term used widely in the Eastern Caribbean for a watercourse (e.g. Dyde 2005, 5). It is defined as 'a small cleft in a hill through which a rivulet runs down to the sea' derived from the 17th-century *gaot*, a mountain pass, from Hindi: *ghat*; the latter has the meaning of a set of steps down to a watercourse (*Collins English Dictionary*).

The climate is tropical marine, with steady north-east trade winds and relatively high year-round humidity. Average annual rainfall in Nevis is 1170mm with distinct variation between the drier windward or east side of the island where Fenton Hill, for example, is situated with an approximate annual rainfall of 800-900mm compared to the wetter leeward or west side. The average temperature is about 27°C with little seasonal or diurnal variation (Lindsay and Horwith 1999).

Geologically, the island of Nevis consists of a single volcanic complex comprising several volcanic domes or centres. The prominent central Nevis Peak is a typical andesitic lava dome, characteristic of the Lesser Antilles. The island is largely made up of volcanic deposits of Pliocene origin with the exception of the oldest unit, on the southern slopes of Saddle Hill, a small outcrop of conglomerate containing blocks of crystalline limestone which contain mid-Eocene foraminera (DoE n.d.). The Fenton Hill estate and Upper Rawlins lie on undifferentiated flank deposits from Nevis Peak, consisting mostly of block/ash flow deposits (Hutton and Nockolds 1978).

The soils of Nevis are derived from ejected volcanic rock and ash deposits, so are rich in minerals sought by plants. The physical properties are such that the parent material weathers rapidly into soil. Despite soil erosion on cultivated slopes around the island, as a result of recent land management, the ill effects have been to some extent offset by rapid soil formation. Nevisian soils are deficient in potash, an imbalance which was rectified in colonial times by planters manuring cane fields (Lindsay and Horwith 1999).

### *The English Settlement of Nevis*

First, a few words must be said about the historical context. Nevis was initially settled in the years 1628-31, together with Barbados, St Christopher (usually known as St Kitts), Antigua and Montserrat, one of a number of islands settled under the patent issued by James I to the Earl of Carlisle (for the details of which see Dunn 1973, 119-20). Prior to this, the islands of both St Kitts and Nevis were first sighted by Europeans in 1493 during the second voyage of exploration and colonisation by Christopher Columbus (Watts 1987, 90). The Spanish interest lay in the large islands of the Western Caribbean, which Columbus encountered in his first voyage, and the American mainland, and so they did not make landfall in the Leeward Islands. Initial confusion over the names of Nevis, St Kitts and other islands bestowed by Columbus was resolved in favour of the current nomenclature by 1525, although Nevis was still known to some as 'Dulcina' in the 17th century (Dyde 2005, 13-16; Appendix 1, various wills).

The Spanish were the first to plant colonies in the Western Caribbean. Their Greater Antilles settlements had their economic basis in sugar and hides during the 16th century. The involvement of the French and English was largely restricted in that century to semi-officially authorised privateers plundering Spanish treasure ships or coastal towns, or the rapid exploitation of resources without the expense and complication of permanent settlement. The foundation of the English settlement in Virginia marked a watershed in attitudes to the region. The arrival in England of the first tobacco crops in 1612

or 1613 (Watts 1987, 135) demonstrated the potential for the economic value of permanent settlement for production of high value crops. With the establishment of stable transatlantic trade routes, largely through the agency of the Dutch who had been trading with the Caribbean since the end of the 16th century, the circumstances were created whereby private enterprise, in the form of companies of merchants with a financial interest in creating permanent settlements, could invest in expeditions aimed at settling new Caribbean colonies with government approval.

The area chosen by the English and French for their colonisation was the relatively isolated Leeward and Windward Islands in the Eastern Caribbean, which lay remote from Spanish possessions and interference (Watts 1987, 136). The north-west European colonisation of the Caribbean islands began in the 1620s, with settlement in St Christopher (St Kitts) and Barbados, the latter uninhabited, the former occupied by several hundred Carib natives.

In 1624 Thomas Warner with 13 others landed on St Kitts to create a permanent English settlement. Warner was familiar with the island from a visit two years earlier during the withdrawal from a failed colony in Guyana on the coast of South America (Watts 1987, 142). Months later a French party under Pierre d'Esbambuc and Urbain de Roissy landed on the same island with 35 men, followed later by 100 more. The French and English agreed to divide the island between them for mutual defence against the indigenous Caribs and Spanish, an arrangement which was to last, with intermittent conflict and continual mistrust, until 1713. The clearance and partition of St Kitts is described in the account by storekeeper John Hilton c. 1675 (see Appendix 1).

The first European settlers to arrive in Nevis in 1628 were English, led by Anthony Hilton, a ship's captain and merchant from Durham, with 'a considerable companie' (Harlow 1925, 14), 150 people from the newly settled neighbouring island of St Kitts. There is no record of whether the settlers comprised men only or included couples or families, only the likelihood that John Bourne, Mr Toby the minister to the parish of Jesus, John Young, Capt. John Huddlestone, Thomas Newman and Jenkyn Lloyd, all mentioned in the second will of John Bourne (see Appendix 1), were amongst them. Within a year the new colonists on both Nevis and St Kitts suffered an attack from the Spanish in 1629, who finding only token resistance, quickly overcame the English defences, burning the newly built houses, destroying crops, and driving off many of the settlers (for John Hilton's account, see Appendix 1). The remaining settlers at St Kitts, who had fled to the interior rather than face deportation to England, began to rebuild. For St Kitts this was merely the first





Figure 1.3. 'Plan de l'Isle de Saint Christophe. Plan de l'Isle Nieves' c. 1630 (Bibliothèque nationale de France GE D- 17178)

of a sequence of attacks which led to the repeated destruction of property and crops through the 17th century. The population of Nevis had been shipped to England, and only in 1630 did the settlers return under John Hilton.

Before the permanent European settlement, occasional visitors described the island. Pirates and privateers from England and Netherlands were familiar with Nevis and St Kitts as they had good supplies of fresh water remote from the Spanish islands (Dyde 2005, 17). Captain John Smith described the island after landing

there in 1607 on his way to establish the colony of Jamestown in Virginia:

'It is all woddy ... in most places the wod groweth close to the water side, at a high water marke, and in some places so thicke of a soft spungy wood like a wilde figge tree, you cannot get through it, but by making your way with hatchets, or fauchions' (Arber 1910, 909; Bridenbaugh and Bridenbaugh 1972, 41).

When the English settlers first arrived in Nevis in 1628, the island was still cloaked in dense forest down to the water's edge. As in St Kitts the new arrivals took advantage of small temporary clearings and shifting garden clearances, *conucos*, created by the native Amerindian population but the initial clearance of land for agriculture was an arduous task. Sir Henry Colt who stopped at Nevis in 1631 described it: 'The rest of the island [apart from the hill] shews to be flat ground but all full of woods' (for Colt's account, see Appendix 1).

In time, the arrival of European settlers led to changes in the vegetation of the two islands. In contrast to the interior of much larger islands, such as Jamaica, where there were large areas of swamp or mountainous land, remote and inaccessible, the island of Nevis was small and presented easy terrain for settlement around the coastal fringe of the large central volcano. A French map of Nevis, drawn in 1630 shortly after the English settlement of the island and a year after the Spanish raid, shows the first steps in the establishment of the incipient colony (BNF GE D- 17178; Figure 1.3). The most prominent feature is a square fortress with projecting corner bastions which protected a series of eight laid-out rectilinear enclosures extending on either side on the lower slope towards the sea. All but one of the newly cleared plantations contained a single building, the one exception being empty. All were concentrated on the western side, facing the parent island of St Kitts, in the vicinity of Fort Charles to the south of the major fort, beside what became the later settlement of Charlestown. As Colt wrote in 1631 'the houses and families of the Ilanders standing farr of one from the other' (Appendix 1).

Within half a century of the initial settlement the island had been extensively cleared and settled. Early descriptions emphasise the extent of clearance for cultivation. For De Rochefort, writing in 1658, the central high mountain of Nevis Peak was 'cover'd with great Trees up to the very top' but he could already see the progress in forest clearance, 'the Plantations are all about the Mountain, beginning from the Sea-side, till you come to the highest part of it' (Davies 1666, 20). Stapleton (22 Nov 1676) reported that Nevis 'contains by computation 320,000 acres, about 7 miles in breadth and 15 miles in length, 2,000 acres patented, the whole Island settled, except the top of the mountain'

(Appendix 1). Sloane made a similar observation during his visit in 1687, 'the ground is cleared almost to the top of the hill, where there remains some Wood, and where are Run-away Negroes that harbour themselves in it' (Sloane 1707, 42). In 1708 Oldmixon described the landscape thus: 'there's but one Mountain, and that is in the midst of it, very high, and cover'd with great Trees to the top. The Plantations are all round the mountain, beginning from the Sea-side, and ending only at the Summit of the Mountain' (1708, 195). By this time, cultivation for sugar occupied all the accessible land.

A century later, in 1775, the surgeon James Rymer emphasised the picturesque quality of the cultivated landscape. 'Taking in planters dwelling houses, their different works, etc. together with the negro huts situated in clusters at some little distance from the masters abode, the prospect of the Island is altogether pleasing and agreeable, being variegated with trees and shrubs and fields of sugar canes, whose several never ceasing vegetations confirm the constant spring' (Rymer 1775, 3-4).

### ***The Economy of Nevis and St Kitts in the 17th Century***

During the first two decades after the initial settlement the farmers grew cash crops for sale, notably indigo, ginger and tobacco, as well as most of their own food. Indigo was popular in the mid 17th century, but after the highly profitable cultivation of sugar was established on Barbados and other Caribbean islands in the mid 1640s, it was increasingly superseded by sugar during the later 17th century (Dunn 1973, 126, 129). On arrival at his father's plantation on St Kitts in 1676, Christopher Jeaffreson modernised what was perceived as an outmoded estate by rapidly switching from indigo to sugar cultivation (Dunn 1973, 126). In 1689 the exports of indigo to England from Nevis amounted to 5954lbs, compared with those from St Kitts which had declined to a mere 785lbs; by contrast the crop remained popular in Jamaica which shipped 132,704lbs (Fortescue 1901, 758-9). Revd William Smith writing of his sojourn in Nevis from 1716 to 1722 (Oliver 1912, 370) recorded that both ginger and indigo which had been prevalent, were no longer in cultivation during his time: 'the Indico Works were then wholly laid aside' (Smith 1745, 206), although plants still grew wild. Indigo processing was described by De Rochefort in the 17th century (Davies 1666, 197), as substantially the same method as described nearly a century later: the bushes - cut up, 'bruised, boiled, and put into a cistern of water in order to extract from it the pure Indico, which will settle at Bottom' (Smith 1745, 206). A small quantity of cotton was also grown on small plots in St Kitts in the early decades of settlement, alongside other commercial crops as well as food crops (Watts 1987, 159).

Tobacco was the main cash crop in the early colonial days. The large quantities of tobacco shipped from St Kitts to London resulted in a drop in the price. In 1639 Governor Warner halted production in St Kitts in an attempt to raise prices in England (Dunn 1973, 120), and both the French and English began the search to find alternative staple crops (Higham 1921, 185). Tobacco growing was in rapid decline in Nevis after the introduction of sugar, and after 1677 it disappears as an export crop from records (Higham 1921, 185). The tobacco was of low quality compared with Maryland and Virginia. Its reputation had not improved by the early 18th century when William Smith reported 'our tobacco there is so strong, that few, or no People of Condition smook it' (Smith 1745, 211).

From the above evidence and from existing historical appraisals, notably those by Pares (1950) and Dunn (1973), it is apparent that the economy and population of Nevis underwent significant changes in the 17th century. An economy initially centred on the cultivation of tobacco was by the end of the century firmly based on the production of sugar.

### ***The Move to Sugar Cultivation***

The first colonists and visitors observed that wild sugar cane was present on St Kitts prior to its main development as a cultivated crop. One of Sir Thomas Warner's colleagues, Richard Graecocke, noted that the native vegetation included sugar canes 'not tame, four or five feet high' (cited in Merrill 1958, 45). Sir Henry Colt recorded how he overwintered in 1631 at St Kitts, building a house on an abandoned native Carib plantation, and reported 'wee alsoe seated amongst plantaines and sugar canes yt growes like ye reeds or canes in ye ponds of England, very sweet in taste, but unwholesome' (cited in Merrill 1958, 45).

Sugar and hides were the basis of the 16th-century economy of the Spanish West Indies (Watts 1987, 123). Sugar had been cultivated by the Spanish since the early 16th century in Hispaniola (Greater Antilles), using technology imported from the Mediterranean (Watts 1987, 104), but it became commercially important only with two significant developments: the use of improved mill technology developed in the Canary Islands which used two upright rollers operated by a series of geared wheels, and the importation and use of enslaved black Africans as a labour force (Watts 1987, 113-4).

In the 1640s cultivated sugar was introduced to St Kitts, either from Barbados or from one of the other islands (Bridenbaugh and Bridenbaugh 1972, 81). The introduction of cultivated sugar cane, and the technical expertise to process it, is generally attributed to Sephardic Jews from Brazil, but the planning and financing of the move to sugar has in part been attributed



to investment by the active mercantile community of Charlestown on Nevis (Watts 1987, 224).

European planters found that sugar cane thrived in the fertile soils and tropical climate of Nevis and St Kitts and sugar rapidly became a highly profitable crop, yielding rich rewards for the growers. The first mention of sugar in a Nevis will is that of John Scott, dated 30 August 1648, who records his assets thus, 'my share of the plantations and houses, with all cattle, goats, hogs, turkeys, tobaccos, sugars equally' (Oliver 1916, 106), an indication that sugar cultivation was beginning to represent a serious rival to tobacco. The transition to sugar was swift. By 1655 sugar had replaced tobacco as the most important export crop from Nevis (Dunn 1973, 122). Exports from Nevis in 1677 to 1684 show the changing nature of cash crop cultivation. In 1677, although in serious decline, 5000lbs of tobacco were shipped to England; however, tobacco cultivation ceased after that (Higham 1921, 185). By contrast, in the same year, Nevis and St Kitts shipped 280,000lbs of sugar to New England (Higham 1921, 209). Wills indicate bequests were now made in sugar rather than tobacco. In that year, a report noted that apart from some tobacco grown on the windward side of the island, agricultural land in Nevis was put down to sugar cane (cited in Watts 1987, 224). The island drew ahead of its closer neighbours in promoting sugar cultivation, stimulated by the planning and financing of the Charlestown merchant community. The value of the estates and wealth of the island of Nevis was calculated in 1676 as £384,660, a figure which Stapleton recognised was an underestimate due to planters concealing the number of slaves, who attracted a poll tax. The figures for St Kitts were £67,000, Antigua £67,000, and Montserrat £62,500 (Dunn 1973, 128-9, table 13), demonstrating the pre-eminence of Nevis at that time. From the 1670s sugar was not only the main cash crop but also the chief currency in Nevis, used for all transactions in fines, salaries, levies and contracts (Pares 1950, 34-5). Smith, writing nearly a century later, reported 'we have Money enough for a currency, but pay for most commodities in Muscovado (or Blackish) Sugar, because every body strives to lay up their Riches in London' (Smith 1745, 220). By 1664 there was concern in official circles that food production was suffering as a result of the drive to sugar production (Watts 1987, 224).

The transition to sugar production was dependent on the move from a workforce composed of indentured servants to one consisting predominantly of enslaved Africans. This, it has more recently been argued, was perhaps not such a great change as might be thought – indentured servants lived a life not so far removed from that of the formally enslaved (see especially Beckles 2011). A consequence of this was that Nevis changed from having the largest white population of the Leeward Islands in the 1670s to having a total white

population of 1,118 against 8,380 enslaved Africans in 1756 (Pares 1950, 22). These changes might be evident in the archaeological record of agriculture and industry, and of cultural identity.

### ***Demographic Change from the Late 17th Century***

In the last third of the 17th century the islands saw a considerable expansion of European settlement and sugar production, stimulated by the energetic governor William Stapleton (Dunn 1973, 124-5). Through his marriage into the wealthy Russell family, Stapleton acquired large plantations in all four of the Leeward Islands: Nevis, St Kitts, Antigua and Montserrat (Johnston 1965; Mason 1993). His main residence was in Nevis, at Jennings and Balls Range, in an area now known as Low Ground. Following his appointment, as governor of the Leeward Islands in 1672, the islands saw a dramatic increase in the introduction of slave labour, with over 4000 enslaved Africans imported into the Leeward Islands. The population of enslaved Africans increased more than two-fold, from 3184 in 1672 to 8449 in 1678 (Dunn 1973, 125), and in the latter year the exportation of tobacco was replaced by that of sugar on St Kitts and Nevis. In 1678 Stapleton undertook a census of the Leeward Islands, which recorded a white population of 3521 in Nevis (Oliver 1914, 27-35, 70-81). Dunn's analysis of the census shows the extent to which Nevis was dominated by small farmers and servants. Small farmers with between 0-19 slaves numbered around 1000, middling planters with 20-59 slaves totalled 45, while large estates were few, a mere eight having 60 or more slaves. Servants comprised about 500 of the total population, and the slave population at 3849 had begun to outnumber whites at 3521. By 1678 Nevis was by far the most prosperous of the Leeward Islands, having been the only one to escape the devastation of French invasion in 1666/67. However, Zacek's analysis of Nevis from the 1678 census shows that the island's great wealth had created a more highly stratified society in socio-economic terms than the other Leewards. Rich planters were in a tiny minority, dozens held only a few slaves and more than 150 individuals owned none (2010, 57-9). A considerable proportion of the settlers were recorded as impoverished.

### ***Indentured Servants and Enslaved Africans***

The labour force on the mid 17th-century Nevisian plantations was for the most part white, in contrast to those of St Kitts and Barbados (Watts 1987, 224). The white indentured servants were drawn from three groups, those who bound themselves voluntarily to masters to serve for an agreed term of years in return for their passage and a bounty on termination of their service; those who were criminals released from prison on condition they served as indentured servants in

the colonies; and lastly those who were transported to the colonies as political prisoners (Higham 1921, 166-7). The bounty to be paid in sugar was equivalent approximately to £10, although as sugar prices fluctuated so did its value. An Act of 1672 in Nevis regulated terms of the contract; servants over 16 years old were to serve four years, those under 16 were to serve seven (Higham 1921, 167).

The status of indentured servants was little better than slaves. They were bought by the planter from the merchant and could be transferred to another master; one well-known servant trader was Mr Cole of Bristol, 'a merchant that deals in slaves and the souls of men' (Beckles 2011, 206-13), possibly Daniel Cole (Appendix 1, will of 1688) or another member of his family. What proved a lucrative trade for merchants led to abuses, and 'spiriting' of unwilling servants in home ports became a theme in popular ballads as well as a powerful disincentive to engage in the life (Higham 1921, 168-9). The dissatisfaction of indentured servants with their lot was demonstrated at an early stage in the settlement of Nevis. During the Spanish attack on the island in 1631, Hilton records how 'our Servants proved treacherous, runn away from us & Swimed aboard & told them where we hid our provisions, & in what case our Islands stood in' (Appendix 1).

With indentures commonly lasting four or five years, the supply of white servants who had served their indenture created a substantial class of smallholders. Higham observes that the more industrious and capable of the indentured servants could obtain positions as overseers or agents on the larger plantations, rent land on the margins of those estates, and crush cane on their landlords' mills, and in time some might acquire their own land. Christopher Jeaffreson on St Kitts wrote 'there are now several examples [...] to my knowledge – men raised from little or nothing to vast estates' (cited in Higham 1921, 178).

The settlement by indentured white servants lasted much longer in Nevis than Barbados due to the inability on the part of the Nevis colonists to afford to import African slaves. Bristol registers for the later 17th century show the destination of indentured servants to 'America'. As Barbados declined, Nevis and later Jamaica became favoured destinations (Dunn 1973, 70-2, table 3). In the decade 1670-79 a total of 379 servants left Bristol for Nevis, down from the 811 of the previous decade, before falling away in the period 1680-86 to only 14. Ireland supplied many of the indentured servants, and at the census of 1678 nearly a quarter of the population in Nevis was Irish (Pares 1950, 8). They were not liked by plantation owners, who suspected their loyalty; their fears over the Irish Roman Catholic interests were realised when many in St Kitts went over to the French in 1689, a betrayal which resulted in the

disarming of Irish settlers in the other Leeward Islands (Pares 1950, 8).

The trade in unwilling servants was suppressed in 1682 by Judge Jefferys in Bristol, and attention turned to an alternative reservoir of suitable labour, the criminal class whose sentences could be commuted to transportation (Pares 1950, 8-9). Plots against the government or king were rife in the later 17th century, providing a class of politically active men, without women, who could be transported for labour, and who did not consist principally of criminals, a rather more welcome sector of the population in the eyes of the existing planters. Ten-year sentences were common, and they formed an important injection of white labour to the islands. Governor Stapleton alone received a hundred of the political prisoners in the mid 1680s (Pares 1950, 9).

The later 17th century saw rapid change in the character of society in Nevis as some small planters and white servants abandoned the islands and the larger planters consolidated their hold not only on the land but also their political power in the council and assembly (Dunn 1973, 131). Smaller plantations were less profitable and with exhaustion of the soil were absorbed into large plantations (Higham 1921, 178). Higham observes that during the Restoration (1660-88), there is no evidence that the formation of large estates and the 'squeezing out' of the small planter had begun, although it was to be a significant feature of the 18th century in the islands. The small men existed side by side with larger planters, and the majority of the former indentured servants remained on the islands, working for hire or for themselves, or becoming small scale planters in their own right (1921, 190). However, as early as 1667 there were complaints that all the available land had been occupied by what were for Nevis relatively large-scale planters, those with estates of 150 to 200 acres (69-81ha), including some from St Kitts who had lost land or property in the French conflict there (Watts 1987, 289). During the latter part of the 17th century, wealthy landowners bought up the small farms and combined them into larger plantations dedicated to producing sugar. The progress of consolidation of estates in the later 17th and 18th centuries has been charted by Watts. At the 1678 census only 13 major landowners held more than 50 slaves, with 37 'middling' planters between 20 and 49, but both groups were vastly outnumbered by the 251 small planters who had fewer than 19 slaves each (Watts 1987, 334, table 8.3). There was little continuity of councillors and members of assembly from the 1660s to 1680s. The unstable population, with a rapid turnover of landowners, was exacerbated by debt due to poor management. Land abandoned by failed planters was either purchased or acquired by foreclosure by the prudent or successful owners, who enlarged their estates at the expense of

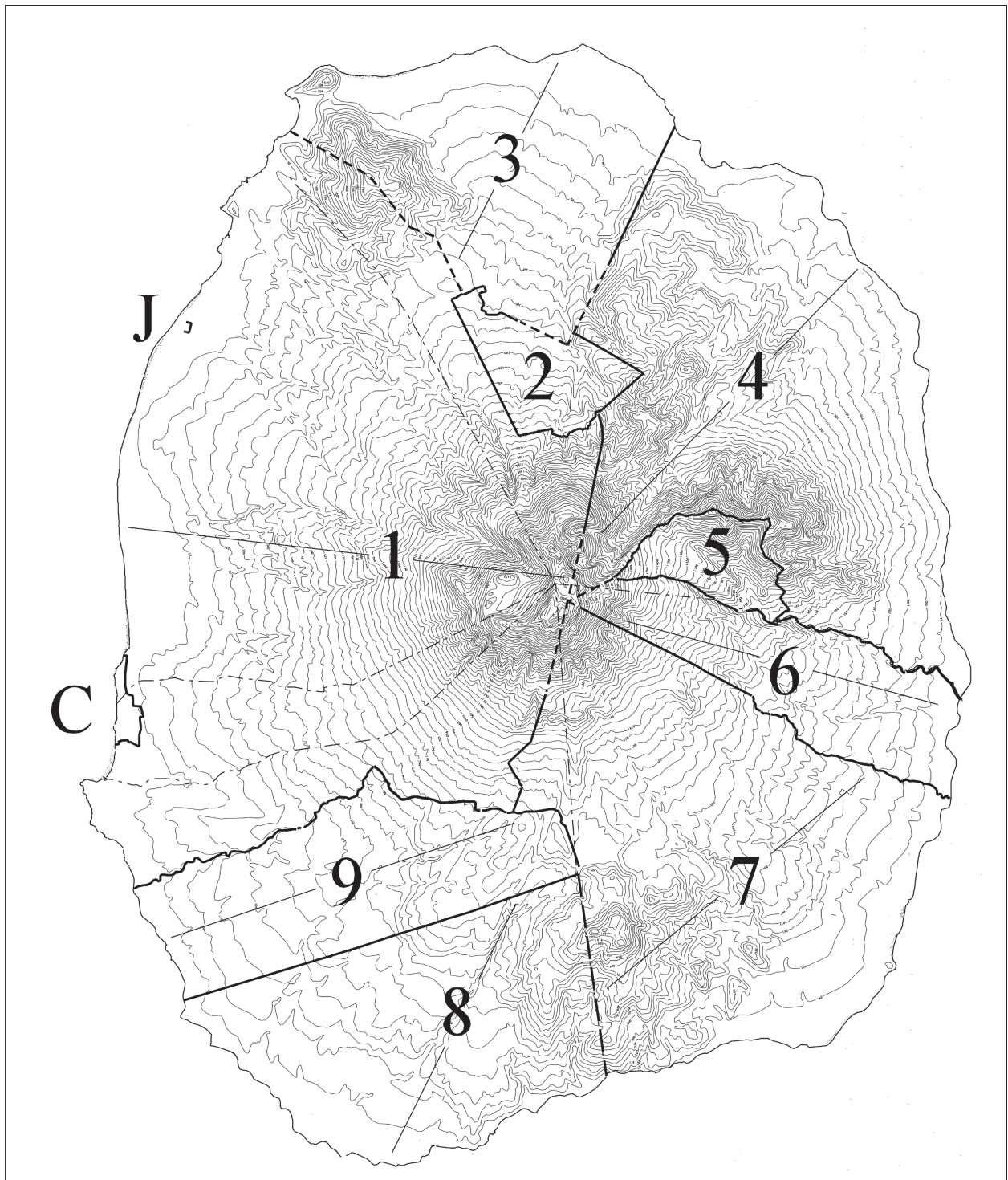


Figure 1.4. *The Divisions of Nevis, reconstructed from documentary sources, air photographs and field survey (Leach 2007, fig. 3).*

the smaller landholders (Watts 1987, 334). As a result of these profound social and economic changes, shortly after the French invasion of 1706, Governor Parke describes the island as being largely divided amongst a few rich men, several of whom live in England and had only one Englishman to look after great numbers of slaves (Headlam 1916, 521; Watts 1987, 334).

To the concern of the Nevis assembly, the supply of indentured servants was in steep decline by the end of the 17th century. By a law of 1701 the assembly sought to attract white servants; indentured servants, men and women aged 16 to 50, were to serve no more than four years and they were to receive 400lbs sugar on completion of their service. The concern was to counterbalance the rapid rise in the black population, which rose to between 12 and 20 black slaves to every



white man. In times of war the government was compelled, for shortage of whites, to arm companies of black slaves and set them between white companies. The insecurity made white planters fear for their lives, especially in times of international conflict when they were afraid the blacks might take the side of their enemies. In the event, in the French attack of 1706, it was the black slaves who organised the defence of the island after the capitulation of the white masters and drove back repeated French assaults until the French left the island (Hubbard 2002, 118).

Data from the censuses of 1678 and 1708 illustrate the reduction of the white population of Nevis to a third, with a reduced number of white owners holding larger estates. The balance of whites against imported black slaves shifted decisively in the late 17th century (Pares 1950, 22). The white population of 3521 against 3860 black in 1678 had changed to 1353 white against 6023 black by 1706; after the French raid of 1706 the white population of 1104 had seen the loss of many slaves down to 3676; by 1756 the 1118 whites, of whom only 394 were adult men, were heavily outnumbered by 8380 blacks (Pares 1950, 22).

The creation of the Royal African Company in 1670 by the British was an attempt to secure the supply of African slaves to work the sugar plantations of the Leeward Islands. The principal source of labour increasingly was the importation of enslaved Africans via the Guinea trade with West Africa (Higham 1921, 206-8). The Company held a legal monopoly on supply and as Nevis was the company's slave market in the Leeward Islands its situation created highly favourable opportunities for the Nevis plantation owners to buy black slaves. Between 1674 and 1686 the Company brought 8000 Africans into the islands (Higham 1921, 57; Merrill 1958, 57). Nevis began to lose its pre-eminent economic position by the end of the 17th century. Nevis had played a key role as the principal slave entrepôt in the Leeward Islands but the ending of the monopoly of the Royal African Company in 1698 opened up the competition (Mason 1993, 108).

The French attack of 1706 was a severe blow to the economic development of the island. The raid on Nevis in March of that year saw the burning of houses and sugar works in an attempt to inflict economic, and symbolic, damage on the island's population (Oldmixon 1708, 217). The detailed insurance claims for Nevis, unlike those for St Kitts, do not survive, but occasional individual estate records preserve the detail. The Stapleton plantation of Jennings and Balls lay in the path of the attackers, and lost 147 out of 183 slaves, and saw the destruction of the main house, sugar works and several acres of cane and ratoons (Mason 1993, 108). Another casualty of the French attack was Azariah Pinney's house at his plantation Charlots (later Sharloes), in St Paul's parish,

where 'one dwelling house of two roomes below and above, boarded, shingled and good timber' was valued at £250. His boiling house, also boarded and shingled, and fittings such as the copper wheel, brasses and new half gudgeon, valued at £150, were destroyed (cited in Hobson 2007, 308; Pares 1950, 49). Pinney also rated the loss of one of his two storehouses in Charlestown at £1441. The final settlements were recorded and in 1711 the government authorised the distribution of £75,000 for the Nevis settlers, after extravagant claims were disallowed and those approved were reduced to two-ninths of the value (Pares 1950, 49; Dunn 1973, 137).

Sugar production in the island was seriously hit by the French attack and was reduced to one-fifth of the level of 1704. The planters' misfortunes were not yet over as in the following year, 1707, a hurricane caused further damage to houses and sugar works (Oldmixon 1708, 218). A major consequence of the French attack was rapid change in the composition of society. The census of 1708 shows that the white population, at 1104, had shrunk to under one-third of its total 30 years earlier, while the black population, largely as a result of the loss of half its slaves to the French, had dropped below its former level at 3570 (Dunn 1973, 140). Re-establishing estates took time and resources, and sugar production took decades to reach its pre-war level (Watts 1987, 289). However, the northern Leeward Islands (Antigua, St Kitts, Nevis and Montserrat) recovered sufficiently to dominate West Indian sugar production in the period 1710-50, overtaking the pre-eminent British sugar island of Barbados (Watts 1987, 232).

### *The Division of the Island*

The wider context of the initial settlement of Nevis may also be seen in the subdivision of the island into discrete estates, a process similar in some respects to the enclosure of open fields and moorland in 17th-century England (see Leech 2007 and 2008 for a fuller discussion). Like other lands settled first in the 17th century, Nevis was probably initially surveyed from the sea, the island being subdivided into some nine 'divisions' radiating out from a central point approximate to the centre of the volcanic Nevis Peak (Figure 1.4). Separate estates formed segments of each division, set parallel or at right angles to the division boundaries. Stapleton/Low Ground was one such estate. Governor Stapleton reported in 1676 that there were 'in Nevis, four parishes or precincts, thirteen divisions, which take their appellations as before from such and such captains', the parishes corresponding with the four churches reported by him (Appendix 1).

The boundaries of the estate centred on Upper Rawlins proved impossible to establish with the evidence gained from documentary and field research, while that at



Figure 1.5. 'Carte de l'Isle de Nevis' by J.-N. Bellin, published 1764, from Petit atlas maritime, Vol. I, no 84 (by courtesy of The University of Liverpool Library, classmark k.3.66)

Fenton Hill has been determined tentatively (Figure 2.4; Figure 3.1).

### The Island Roads

The early clearance and settlement of neighbouring St Kitts had been achieved by cutting a circular path

round the island, 32 miles in length, through the forest, which served as the basis for allocation of lands between French and English settlers. The English took the eight miles to leeward and windward of the centre line, while the French took the eight miles beyond the English, giving them the two ends of the island (Leech 2007, 192). A similar circular road on Nevis possibly



had an early origin in the division of the landscape. The incorporation of the inner, or upper, road in the boundaries of plantations (Figure 1.4), for instance between Fothergill's and Golden Rock plantations, between the Bath and Stoney Grove plantations, and as part of the boundary of the Paradise plantation, indicates it was established at an early date (Leech 2007, 195). It is without doubt the single road existing in Nevis in 1676, which was described in that year by Stapleton as 'the best in all these [Leeward] islands'.

The creation of the path or round-island road enabled the opening up of the landscape to development and cultivation. It can be identified as the lower round road, the 'Round Road' of Burke Iles's map of 1871 (Figure 2.1), and was often referred to in the 18th century as the 'common path' or 'the king's highway'. For instance, in 1766 Fenton's Plantation, probably adjacent to that of Fenton Hill or River Path (see in this volume), c. 15 acres, was 'bounded to the west with the common path or king's highway and to the south with the common path or king's highway known as Jewry's Plain' (Nevis Common Records 1764-7, fol. 504). The road connected the plantations and the nucleated settlements to the main port at Charlestown and lesser harbours providing crucial access to supplies and provisions as well as the all-important access for transporting processed sugar to the port. The road also provided a route for the militia to defend the island against foreign invaders in the proxy European wars, and, in the 18th century, provided a degree of security for the white planters increasingly fearful of their enslaved black workforce (Machling 2012, 287-9).

This lower road, which hugged the shore as far as the topography allowed, appears to have had a primarily strategic military importance, linking the coastal batteries and forts, and enabling the island militia to respond to sea-borne attack. The repair of the 'round paths' of the island were repeatedly the subject of Acts of Assembly in the first years of the 18th century, when the threat from the French encouraged the governor and residents of Nevis to repair the defences and construct new fortifications (Machling 2012, 287-9). An Act in 1680 required all the common paths to be at least 18 feet wide (TNA CO 154/2/32, 8 May 1680). A mid 18th-century French plan (Bellin 1758; Figure 1.5) shows a network of smaller tracks linking individual plantations with the king's highway. Within each estate, field tracks divided estates into roughly equal-sized cane fields, for ease of transportation and access to fields during the time-critical periods of the cane harvest. The lower round road and (above it on the south and west sides of the island) the 'upper round road' of Burke Iles's map, were also social highways, connecting planters to one another for mutual defence and social interaction, and were vital to the economic operation of plantation life.

### ***Impermanent Architecture and the Tobacco Economy***

Archaeologists and architectural historians have proposed that in 17th-century North America the tobacco economy was linked to the adoption by settlers of buildings of earthfast construction, an impermanent architecture which minimised investment in buildings, while awaiting a quick return from a cash crop (Carson *et al.* 1981). Searching for the evidence of impermanent architecture, either through archaeology or the observation of surviving buildings, it was thought might reveal this phenomenon in the context of the economy of the Caribbean in the 17th century. Earthfast buildings have now been located at the Hermitage, Mountravers and Fenton Hill plantations, at the urban site of Crosse's Alley, Charlestown, all on Nevis, and at Nags Head, at the southern extremity of St Kitts. They are discussed more fully below (Leech 2006a; 2006b; and below pp. 35-55 and pp. 58-64).

### ***The Sugar Industry***

Similarly, either through archaeology or the observation of surviving buildings, it was considered that a better understanding of the early development of the sugar industry might be secured. Meniketti (2006) and others have argued for an industrial revolution in the production of sugar in the Caribbean between the 17th and the 19th centuries, with sugar mills being driven successively by cattle, wind and then by steam.

The sugar plantation as it developed first in Barbados and soon after in other West Indian islands was based on the Pernambuco model. Using cane production techniques imported from Madeira in the later 16th century, plantations in Brazil took on an efficient and organised form which maximised productivity and profitability. The self-sufficient plantation had at its centre the cane-crushing mill and the planter's house, with regular cane fields surrounded by tropical forest which supplied timber for fuel and buildings, with provision plots and scattered houses for the slaves (Watts 1987, 179-84).

The Pernambuco model was transferred to Barbados by entrepreneurial English planters who drew on the knowledge of Dutch intermediaries to introduce three-roller mills and coppers from Pernambuco itself. By 1644 the innovative Barbados planter James Drax had processed his first sugar crop, and sugar cultivation was rapidly adopted in Barbados by cotton and tobacco producers. The development of production was aided by Sephardic Jews recently expelled from newly Catholic-controlled Brazil who were familiar with the sugar technology. The Pernambuco model was adapted to local conditions in Barbados, as the efficiency of scale achieved in Brazil was modified to



Figure 1.6. Detail from William Hack's 1687 map 'The west end of Nevis; & part of St Christopher' (copyright The British Library Board, Sloane MS 45.74).

accommodate the smaller, more intensively settled landscape of Barbados. Forest clearance was well advanced to maximise productive land and plantation sizes were much smaller than the vast 600ha estates found in Brazil. Estates were consolidated by buying up the small plots of cotton growers, partly developed or unprofitable. The model was widely adopted in modified form across the Caribbean in both British and French islands.

The physical infrastructure of the plantation works took a standardised form across the English sugar-producing islands, and in Nevis and St Kitts this was no different, although modified and adapted to suit the local topography. Descriptions of the technical aspects of sugar production are numerous from the mid 17th century onwards (e.g. Ligon 1657; Davies 1666) and will be discussed later. However, the physical requirements of sugar production imposed constraints on the layout of the component parts.

#### Animal Mills

The animal mill usually took the form of a raised circular platform, sometimes surrounded by a stone wall, around

which walked cattle or other draught animals (horses, mules, and donkeys) harnessed to a horizontal beam which drove the cane-grinding mechanism located in the centre. There were usually three vertical rollers set within a massive wooden frame. Contemporary illustrations show that some were protected from the weather by an open-sided roof, while others, especially by the 19th century, were fully enclosed structures. The cane juice was fed from the rollers to the boiling house by gravity, hence the mill needed to be at the most elevated location in the sequence. Animal mills were relatively slow and cumbersome. Keeping livestock in good condition was difficult, feed was in short supply, and replacements for worn out or diseased animals represented a continual drain on resources. By the early 18th century horses were common in the Leeward Islands, cattle less so, but most horses were imported from England or New England (Smith 1745, 220-1; Watts 1987, 407).

Alternative sources of power were used although the lack of suitable rivers on Nevis meant that water power could only infrequently be used. Water mills appear



at St Kitts only at Wingfield and Cayon (Hicks 2007; *Parliamentary Papers* 1843, 29).

### Windmills

Windmills on Barbados, built on the north-western European model, were first employed as an alternative source of power as early as 1647, but their use developed rapidly during the later 17th century with no fewer than 400 recorded on that island by 1676 (Watts 1987, 411-8). The planters of Nevis and St Kitts lagged behind the innovative planters of Barbados. However, two windmills are shown on William Hack's schematic map of the western end of Nevis which is dated 1687, along with other buildings which appear to represent plantation houses (BL Sloane MS 45.74; Figure 1.6). Unlike the wooden post-mills shown on the 1673 map of the neighbouring island of Montserrat (Pulsipher 1987), the early Nevis examples appear to be stone tower mills. This type was derived from English brick or stone mills, and by the 18th century they were to develop a highly standardised form, a characteristic of those surveyed in St Kitts and other islands in the Leewards (Figure 1.7).

The animal mill at Upper Rawlins takes the form of a flat-topped curvilinear platform, of oval plan, with a revetment wall on the downward side to retain the earth fill. Unlike many longer-lived plantations, including the neighbouring Rawlins plantation further downslope which had a stone windmill, the plantation owner did not convert to wind power. There are some parallels with the plantation at Fenton Hill, which also failed to convert to wind or steam power.

### Boiling House and Curing House

The process of sugar manufacturing in the 17th and 18th centuries is recorded in both contemporary historical accounts and illustrations. Although some technical improvements were made over time, the basic process remained largely unchanged through the period.

For the mid 17th century De Rochefort records the process of sugar making (in Davies's translation, 1666, 195). The cane is crushed between two rollers, and the fresh juice 'falls into a great Cistern whence it is convey'd through long pipes or channels into the vessels appointed for the boiling of it'. The largest sugar works had six coppers actually made of that metal, unlike later when they were iron. The first three were clarifiers in which the cane juice was heated gently and a 'temper' or strong lye (mixture of ashes and water) added to purify the juice, and impurities removed with a 'great brass skimmer'. It was strained and passed through a series of three basins of a different metal, about a foot and a half in depth, where the heat was greater and then continually stirred, with the addition



Figure 1.7. Coconut Walk windmill, Nevis (photograph: Robert Philpott, 2009)

of oil to reduce the tendency to boil over; then once it thickens 'it is dispos'd into vessels of wood or earth, and so carry'd into the Curing-house'. Smaller producers could make good sugar with one or two coppers and a small mill-like press worked by two or three men or a horse (Davies 1666, 196). Heat is the main clarifying agent in sugar production as the rising air bubbles trap suspended particles and impurities and bring them to the surface; heat also serves to thicken the liquid sugar. Lime or 'lye', imported by cask from Bristol, was added to purify the sugar, as James Grainger relates in his poem, 'The Sugar-Cane', emphasising too the importance of repeated skimming to remove impurities (Grainger 1764).

Du Tertre's famous illustration of sugar making (1667, 122; Figure 1.8) shows the animal mill, driven by oxen, standing upslope of the boiling train and consisting of three vertical rollers that receive their rotary power from the central one. The crushed juice is conveyed by a gutter to a rectangular tank in the boiling house. A pipe set above the base of the tank leads to the first and largest of the four coppers in the train. Each copper or *chaudière* [lit. boiler] is heated by an individual *fourneau* or oven. The boiling train has a hipped roof supported on timber posts at the four corners of the structure. A low wall is present but the sides are open.

As regards the layout of the boiling and curing house, Richard Ligon illustrates examples of the 'ingenio' or



Figure 1.8. A mid 17th-century view of sugar making (Du Tertre 1667, II ,122)

sugar works and the principles on which the sugar works were laid out:

'First then, it is fit to set down, what manner of place is to be chosen, to set this Sugar-work, or Ingenio, upon; and it must be the brow of a small hill, that hath within the compasse of eighty foot, twelve foot descent, viz. from the grinding place, which is the highest ground, and stands upon a flat, to the Still house, and that by these descents: From the grinding place to the boyling house, four foot and a halfe, from thence to the fire-room, seven foot and a halfe; and some little descent to the Still house. And the reason of these descents are these; the top of the Cistern, into which the first liquor runs, is, and must be, somewhat lower than the Pipe that conveys it, and that is a little under ground. Then, the liquor which runs from that Cistern must vent it selfe at the bottom, otherwise it cannot run all out; and that Cistern is two foot and a halfe deep: and so, running upon a little descent, to the clarifying Copper, which is a foot and a halfe above the flowre of the Boyling house, (and so is the whole Frame, where all the Coppers stand); it must of necessity fall out, that the flowre of the Boyling house must be below the flowre of the Mill house, four foot and a halfe. Then admit the largest Copper be a foot and a halfe deep, the bottom of the Copper will be lower than the flowre of the Boyling-house, by a foot; the bottom of the Furnaces must be three foot below the Coppers; and the holes under the Furnaces, into which the ashes

fall, is three foot below the bottom of the Furnaces: A little more fall is required to the Still-house, and so the account is made up. Upon what place the Sugar-work is to be set, I have drawn two Plots, that expresse more than language can do, to which I refer you' (Ligon 1657, 86-7).

### **The Boiling Train**

Ligon (1657) describes the usual mid 17th-century practice from his experience in Barbados between 1647 and 1650 where the series of metal basins, known as coppers, were individually heated in a system known as the Spanish train. He described the boiling train as follows 'The Frame where the Coppers stand, which is raised above the flowre or levell of the room, about a foot and a halfe, and is made of Dutch Bricks, which they call Klinkers, and plaister of Paris' (Ligon 1657, plan opp. p. 84). Klinker bricks are hard-fired yellow bricks found commonly in Dutch colonial contexts in the 17th and 18th centuries (Noël Hume 1969, 83) and occur in small numbers at Nevisian sites such as Crosse's Alley in Charlestown and the Mountravers plantation.

De Rochefort (trans. Davies 1666, 195), writing in the mid 17th century, reported that, in his day, the largest sugar works had six coppers, but the smallest producers might make use of one or two. The coppers diminished in size, with the largest receiving the fresh cane juice, and the volume of liquid reduced by boiling along the sequence. Du Tertre illustrates four coppers in the boiling train



(Figure 1.8), which seems to have been a standard pattern in the earlier sugar works. The Jamaica boiling train had a series of graded metal vessels, diminishing in size through the process, heated by a single fire. The *Encyclopédie* of Diderot (1762), probably illustrated from an example in Haiti, shows the train with the fire set under the smallest, the last in the sequence, the hot gases were drawn through the flue under the five pans by updraught from the chimney, although the latter is not illustrated (Needham *et al.* 1996, 363). In time the number of coppers increased to five or six, and Meniketti notes that ‘all boiling facilities surveyed that date later than 1750 had at least six, and this came to be a reliable secondary chronological indicator’ (2006, 62). Diderot also illustrates the clarifying tank which receives the cane juice with a pipe set above the base of the tank which led to the first copper.

By the late 17th century modifications were introduced to increase the efficiency of the boiling train by the conversion to a classic Jamaica train where all the coppers were heated with a single fire and flue, with the smallest final copper closest to the fire. Structurally, the conversion to a Jamaica train involves blocking off all the stokeholes or hearths except one, which is the final basin, known as the ‘teache’, in which the sugar is closest to crystallisation and requires the greatest heat. The introduction of the Jamaica train to Barbados by 1657 and St Kitts by 1658 is said by one authority to have derived from Dutch practice in Brazil, as a result of the Dutch occupation of northern Brazil from 1630-1654 (Needham *et al.* 1996, 410). Watts attributes the innovation of the Jamaica train, despite the name, to Barbados in the 1680s or 1690s (1987, 399, 406, figure 9.5). The introduction of the Jamaica train was a response to a growing shortage of fuel due to deforestation, but it also ensured greater efficiency of labour in reducing the number of hearths to tend. Another related innovation to reduce the demand for timber was the introduction of the use of bagasse, the dried cane waste, as a fuel. One practical consideration was noted by Revd William Smith (1745, 309), resident in Nevis 1716-22, who observed that ‘the holes under our sugar-coppers are all on the western-side of our Boiling-houses’, to capture the prevailing trade wind.

The sugar process required the raw cane juice to be channelled from the mill to the boiling house, where it flowed into a clarifier, a large metal pan. Lime and ashes were added to the juice and it was heated to remove impurities. The juice was then ladled into the first of a series of ‘coppers’ (although in fact usually made of iron), which were heated to drive off the moisture. The juice was heated and was ladled successively down the line of coppers as it thickened and reduced in volume. The impurities rose to the surface forming scum which was removed with ‘scummers’ or skimmers.

In the last and smallest copper of the train, when the syrupy sugar was close to crystallising, it was ladled into a cooling cistern. Making sugar was a highly specialised process. It was critical to know the precise moment when the sugar was ready to set. A highly skilled slave known as the boiler would test the sugar with his elbow or by rubbing the hot sticky syrup between the fingers. His was one of the most important jobs on the plantation and a skilled boiler was a valuable slave. After the French raid of 1706 Ann Hackett, a plantation owner in St Kitts, made an insurance claim for the large sum of £60 for the loss of her slave called Jack, ‘a good boyler and clayer of sugar’ (TNA CO 243/2 fo. 603, 1708).

### *Curing the Sugar*

From the cooling cistern, once the sugar had granulated and cooled, it was transferred to large wooden hogsheads. The casks were set in the upper floor of the curing house, and the syrupy molasses drained slowly out through holes pierced in the base, leaving behind golden-brown muscovado sugar.

Although most English islands including the Leewards used wooden hogsheads to cure the sugar (Watts 1987, 262), the Barbadian practice followed the French method which was to cure the sugar in earthenware pots, or sugar moulds, to produce high quality clayed sugar. In the late 18th century, Bryan Edwards described the process, using ‘conical pots or pans, called by the French *formes*, with the points downwards, having a hole about half an inch in diameter at the bottom, for the molasses to drain through, but which at first is closed with a plug’ (Edwards 1793, 227). About 12 hours after the hot sugar is poured in, it becomes a solid mass, and the ‘pot [is] placed over a large jar, intending to receive the syrup or melasses that drains from it’ and the plug is removed. After the molasses have drained out, a layer of clay is spread on the sugar and moistened with water. The fine clay particles slowly seep through taking more of the molasses, leaving behind a whiter and purer sugar. The process took longer, up to four months, but the resultant sugar was more valuable, although it attracted a far higher import duty in England.

In the late 17th century, attempts were made by Nevis plantation owners to emulate the Barbadian method to produce highly refined white sugar. The Nevis planter turned London merchant William Freeman described in his letters how he experimented with new techniques in the late 1670s. He had heard about the innovation of boiling molasses in lead cisterns which was the method employed in Barbados, and cooling it in earthen pots and drips, and planters claying their own sugar at the estate, and introduced them at his plantations (Hancock 2000, 25, n. 58). Freeman’s letters recorded the supply of clay moulds for his plantations in Nevis through 1678 to 1680 (Hancock 2000), and clay pots and drips were

still being imported to the island until at least 1687 (TNA CO 157/1). Another substantial planter Sir John Bawdon attempted to produce white sugar in the 1680s but, despite importing a skilled refiner from Barbados, the project failed, although a small quantity had subsequently been produced for home consumption or gifts (Oldmixon 1708, 197).

The main obstacle to the production of 'clayed' or refined white sugar on the plantations was economic rather than technical. The mercantilist system strongly discouraged manufacturing by the colonies, which included sugar processing, shipping only raw materials to England (Andrews and Andrews 1921, 99, n.). Most of the production from the sugar islands was exported as lightly processed brown muscovado. High taxes on importation of refined sugar were intended to discourage planters from refining their own, to protect home refiners, and to stimulate increased production in the ports (Dunn 1973, 206). From 1651 clayed or semi-refined sugar was taxed at 5s per hundredweight against 1s 6d for raw muscovado, a rate which was doubled in 1675 until the expiry of the tax in 1693 (Watts 1987, 263-4).

The muscovado was itself a valuable commodity, often being shipped to Europe for further refining. Rum and molasses were shipped in small quantities from the West Indies to New England by 1650. By 1670 these by-products became commercially lucrative (Bridenbaugh and Bridenbaugh 1972, 296) and larger plantations had a distillery expressly for making rum which was distilled from molasses. The cost of building a distillery was comparable to that of constructing a boiling or curing house so only the larger plantations had them.

### *Shipping the Sugar*

After curing, the sugar was packed into hogsheads for storage at the plantation to await despatch to England. In the 17th century smaller planters sold their sugar to factors or ships' captains in the islands (Dunn 1973, 208). Some large planters attempted to avoid the onerous charges imposed by the middlemen, by shipping their own sugar and trading directly with commission agents in England. Surviving documents for the mid 18th century show the operation of companies such as the large family houses of Mills or Messrs Wilkinson and Gaviller in London who served as commission agents for numerous planters in the Leeward Islands (Mills Letter Books, Museum of London Docklands 2006.178; Pares 1950). The proceeds of sales were held in an account by the agent and used to offset the costs of goods shipped to the planter, or could be drawn on for bills of credit (Dunn 1973, 208).

The sugar was shipped in small consignments and often a single vessel carried cargoes for several planters. This

not only kept the price high by avoiding overloading the market with a single planter's produce but also spread the ever-present risk of loss on the voyage (Dunn 1973, 208-9).

The laws of the Leeward Islands by 1672 recognised five 'lawful shipping places', Bath Bay, Ould Road, Morton's Bay, New Windward (probably New River, according to Machling) and Indian Castle (TNA CO 154/1/114; Machling 2012, 128). At the beginning of the 18th century there were two official ports, Morton's Bay (Jamestown) and Charlestown, at which customs dues were payable. An Act of the Nevis Assembly in 1704/5 added an official shipping place at Port George, Indian Castle Bay, on the south-eastern coast but customs dues were to be paid at Charlestown (TNA CO 185/2, 49). The island also had lesser ports, at Newcastle on the north coast and Cades Bay to the west (Meniketti 2015, 153-4). Port facilities were rudimentary and even the main port Charlestown lacked a formal landing place in the form of a pier until as late as the mid 19th century (Dyde 2005, 96). Many estates shipped their sugar to vessels moored off the coast close to the plantation, avoiding the cumbersome task of transporting sugar overland. The sugar was packed in casks, usually hogsheads, and conveyed to vessels at anchor in the open road on small local craft known in Nevis as sugar-droghers. The Pinney archives record high expenditure on carriage of sugar by these vessels, amounting in 1800 to 20s per hogshead (Pares 1950, 224-5). Sugar was loaded at a number of embarkation points around the coast, often in places protected by batteries or forts (Machling 2012, 56-7). Thus, at St Kitts Thomas Mills sent a shallop to Deep Bay, on the northern tip of the island, to collect sugars for a client, while loading slaves on the same vessel at the main port in Basseterre (Thomas Mills Letter Book, 19 Mar 1753, Museum of London Docklands 2006.178/1). The informal character of these embarkation points is illustrated by the title page of Thomas Jefferys's *The West Indian Atlas* (1780; Figure 1.9). The idealised picturesque scene depicts the shore in an unnamed bay in the Caribbean, where under the eye of three slaves and an overseer three casks of sugar and a turtle await dispatch, the latter intended no doubt as the exotic centrepiece of a turtle feast in England (cf. Mandelkern 2013). The cargo awaits loading into an empty rowing boat while two sailing ships ride at anchor in the bay.

At times, access to the coast for loading sugar could be disputed. Along with the king's highway, the common paths were public roads but a network of field tracks existed within and between plantations where rights of way were less clearly defined. An Act of the Nevis Assembly in 1701 had recognised the need to define and maintain roads for the public good, and allowed private paths to be altered or turned into public roads, on payment of agreed compensation to the landowner ('An Act for the more easy repairing of Highways',



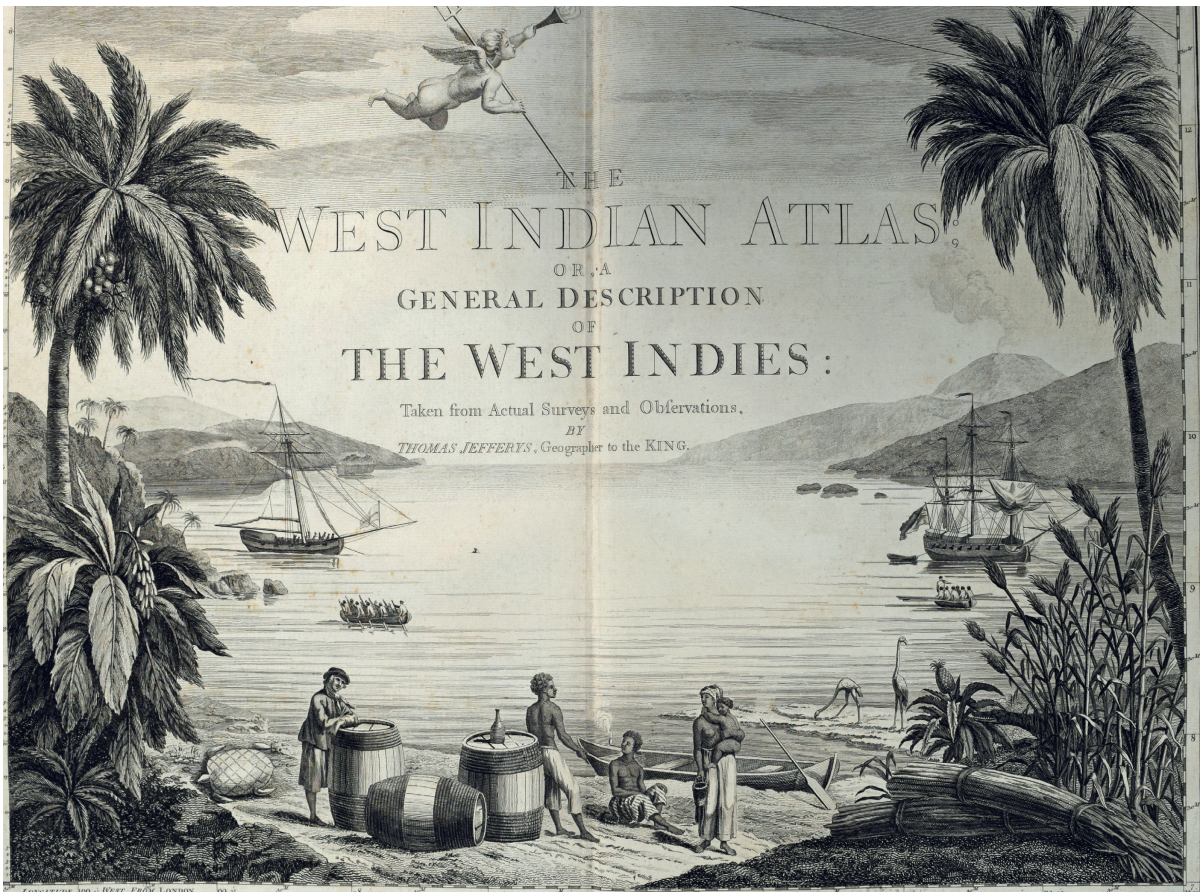


Figure 1.9. Title page of Thomas Jefferys's *The West Indian Atlas* (1780) showing an informal loading place for sugar, at an unnamed Caribbean location (copyright The National Archives CO 700/West Indies21)

1701, TNA CO 185/2, 40-1). Disputes could still arise. In neighbouring St Kitts, Thomas Mills complains to John Mills that a Mr Mollineux had been persuaded 'to demand a path through your pen to the Bay with his sugars and claims it as his right' (Thomas Mills Letter Book, 3 Mar 1753, Museum of London Docklands 2006.178/1).

### Cisterns

Securing a consistent water supply was a challenge to the planters, as drought was an intermittent but unpredictable problem. The consequences could be severe. A drought lasting from early December 1725 to July 1726 led to a lack of provisions for the enslaved workforce, death of livestock and failure of much of the sugar crop (Meniketti 2006, 55). In 1682 William Freeman lamented that a great hurricane and drought had resulted in poor sugar quality (Hancock 2002, 280).

The practice of collecting rain water in storage cisterns fed from gutters carried from the house roofs was widespread in the Leeward Islands, born of experience of the periodic water shortages which visited the islands. Ligon refers to the practice in Barbados in the mid 17th century, 'water they save likewise from their

houses, by gutters at the eves, which carrie it down to cisterns' (Ligon 1657, 29). The 1687 Hack map of part of Nevis and St Kitts includes in its description (apparently referring to St Kitts) 'the fresh water on this island is not very good, it is so hot, that you can scarce keep your hand in it. The inhabitants save raine water & keep it in cisterns built up with stones for their necessary occasions' (BL Sloane 45.74). Sir Hans Sloane, who visited Nevis in 1687, reported 'they have neither Springs nor Rivers, but have what Water they make use of from Cisterns receiving the Rain-Water' (Sloane 1707, 42). Sloane's brief visit did not allow him to gain the degree of familiarity of the island which Revd William Smith had in the early 18th century. Smith (1745, 220) noted that 'we usually drink cistern water' when not near the supplies of fresh water available from Bath River, New River or Newcastle River.

The cisterns were vulnerable to damage in earthquakes. The impact of a particularly severe earthquake in 1690 was recorded by John Oldmixon '...tis usual almost at every House in this island to have a large Cistern, to contain the Rain Water, of about 9 or 10 Foot deep, and 15 or 20 Foot Diameter; several of which, with the Violence of the Earthquake, threw out the Water 8 or 10 Foot high' (Oldmixon 1708, 215). Revd Smith reported



how an earth tremor in Nevis in 1717 lasted two and half minutes and ‘shook the whole house, causing it to crack loudly’ though apart from cracking cisterns and boiling house walls on the island it caused no major damage (Smith 1745, 61-2).

Cisterns were a vital part of plantation infrastructure and have been present at all the estate centres recorded archaeologically. By the 1770s Rymer reported ‘There are some estates which are supplied with rain water only. The water is received and contained in cisterns, which being considerably under the common surface, and having arched roofs, the contained water is very cool’ (Rymer 1775, 4-5). Many Nevisian sites have a circular cistern set largely below ground and plastered internally, with a low circular wall above the ground surface. An example at the Hermitage demonstrates the survival of the domed cap (Figure 1.10). Beside the Hermitage cistern is another structure, the drip filter (Figure 1.11), also described by Rymer ‘They also improve [the water] by allowing it to pass thro’ a filtering stone into a jar made on purpose, where the filtrated water becomes very pure and cool’ (1775, 4-5).

### **Urban Settlement**

The majority of the cultivable land was taken up with sugar plantations by the later 17th century, with few nucleated settlements, only two of which could be termed urban. In his description of the island in 1676 Governor Stapleton reports, ‘In Nevis, five places for trade, but two considerable; Charles Town, where are good dwellings and storehouses, built with the country timber, not exceeding 60 feet long and 20 broad, story and a half, the “Hurri-Canes” having taught the people to build low. Morton Bay, where are but few houses, because ships ride at Charles Town and send their long boats to Morton Bay for lading’ (Stapleton 11 Nov 1676; Appendix 1). By 1684 Morton’s Bay had been renamed Jamestown, in honour of James II (Machling 2012, 105). The character of the urban environment at Charlestown and Jamestown is indicated by Stapleton’s description. The towns were dominated by merchants with their townhouses and storehouses; the latter were essential for secure storage of their sugar crop awaiting transportation to England, as well as the reception depot for goods and provisions imported to Nevis from



Figure 1.10. Hermitage plantation, Nevis: cistern (photograph: Robert Philpott, 2013)

England or New England. A brief physical survey of Charlestown in 2004 and map evidence shows a series of large rectangular plots, of broadly regular size, like medieval urban plots in English towns, arranged along two principal streets parallel to the waterfront. Major merchants such as Joseph Jory, Azariah Pinney, and William Stapleton had their townhouses and storehouses there. By the turn of the 18th century, the settlements classed officially as towns included Newcastle. In 1700 an Act of the Nevis Assembly was passed to prevent fire as the ‘several towns’ in the island had suffered many fires. The towns specified were Charlestown and Jamestown, but Newcastle was now added, presumably being one of Stapleton’s five places for trade (‘An Act for suppressing Thatcht Houses; and erecting Brick or Stone Chimnies in all Towns’, TNA CO 185/2, 1700, 24-5).

Wills and other documents of the 17th century (for which see Appendix 1) underline the close links between Nevis and the trading seaport city of Bristol (discussed further in Chapter 4). It was anticipated that archaeological fieldwork would reveal more of these links, already noted in the context of the excavations undertaken in Crosse’s Alley, Charlestown (Leech 2004, 157-64; 2014, 357-8).

### **The Research Projects**

Two projects form the focus of this volume, Upper Rawlins and Fenton Hill. Upper Rawlins was surveyed and selectively excavated as a plantation superficially similar to that depicted by Du Tertre in 1667. A ruin at Fenton Hill was identified as a former dwelling house of



*Figure 1.11. Hermitage: drip filter with reused 18th-century Montelupo olive oil jar inside to catch water (photograph: Robert Philpott, 2013)*

earthfast construction, with adjacent sugar processing installations, all then surveyed and selectively excavated to understand further the context of impermanent architecture in the early settlement of Nevis.

Another site, at Jennings Range/Low Ground, the home of the Governor William Stapleton, was identified through documentary and cartographic research by

Roger Leech followed up by fieldwork to locate the estate centre. Surface collection of artefacts in advance of development produced some late 17th- and 18th-century material, which indicates a significant presence during Stapleton's lifetime and beyond. Having identified the approximate location of the substantial house shown in elevation on the Hack map (Figure 1.6), it was disappointing not to identify the house site through archaeological fieldwork. Nevertheless, it was confirmed that plantation remains, including cisterns, exist at the location identified from documentary sources to be the upper plantation works of the Stapleton estate. Future fieldwork in this area could well provide further information about the Stapleton house, its adjacent gardens and plantation works. This site will be the subject of publication in a future volume.

Further volumes in the current series will explore themes touched on in this first report. They include the results of excavations on two urban sites at Charlestown (Crosse's Alley) and Jamestown, including both the structural evidence and the finds assemblages, and a detailed consideration of the earthfast or post-in-the-ground buildings which are exemplified by Structure A at Fenton Hill in the light of the investigation of buildings of similar construction at Mountravers. A preliminary discussion has focussed upon the Hermitage and Fenton Hill, advancing the proposition that the inspiration for this style of building came as much from the indigenous cultures of the New World as from long remembered earlier techniques of building in Europe (Leech 2006a).

Future volumes will also present the work on archaeological field surveys in both Nevis and St Kitts which have investigated the buildings at the heart of sugar estates and mapped the plantation landscape layout and development. Another theme is the growing evidence for sugar-refining ceramics known from fieldwork identified through the Nevis Heritage Project, to establish the chronology, source and scale of local production.