1991

Archaeological Investigations at Salterstown, County Londonderry, Northern Ireland

Orloff Garrik Miller

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Abstract
While American historical archaeologists have made significant progress in their investigations of early seventeenth century English colonies in North America, English colonies of the same period occurring elsewhere have been largely ignored. The archaeological investigation of alternative English colonial contexts is a necessary first step towards an anthropological study of comparative colonialism. Salterstown was a seventeenth century English colonial plantation village in Ulster, now buried beneath a dairy farm. Investigations at Salterstown include archival research, oral history interviews and archaeological excavations over three seasons of fieldwork. Research has monitored the degree of transplantation of English material culture into the Ulster plantations. Native Irish late-medieval survivals and the development of syncretic vernacular traditions unique to Ulster have been recorded. Included are detailed discussions of plantation-period economics, settlement pattern, architecture, ceramics, livestock, footwear, lithics, tobacco pipes, glassmaking and other artifact types. Investigations at Salterstown highlight an early English colonial milieu offering an instructive alternative to North American colonial contexts.

Degree Type
Dissertation

Degree Name
Doctor of Philosophy (PhD)

First Advisor
Robert L. Schuyler

Subject Categories
Archaeological Anthropology | Folklore | Geography

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Miller, Orloff Garrik, Ph.D.
University of Pennsylvania, 1991

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ARCHEOLOGICAL INVESTIGATIONS AT
SALTERSTOWN, COUNTY LONDONDERRY,
NORTHERN IRELAND.

Orloff Miller
A DISSERTATION
in
American Civilization

Presented to the Faculties of the University of
Pennsylvania in Partial Fulfillment of the Requirements for
the Degree of Doctor of Philosophy.

1991

__________________________
Supervisor of Dissertation

__________________________
Graduate Group Chairperson
DEDICATION

This work is dedicated to the four strongest people I have ever met; Mary Kielt, Elizabeth McMaster, Alice Miller, and Ruth Benander. I would also like to offer a posthumous toast to Rufus, and his last field season.
ACKNOWLEDGMENTS

I have delayed writing my acknowledgements for this project until the final moments before turning in the final manuscript to the Dean's Offices. The project has been so big, the time it has taken so long, that listing all of the people who helped make it happen feels a bit like thanking everyone I have encountered in my life for the last several years. A daunting prospect. Aeschylus once said, "When a man is willing and eager, the Gods join in". Having watched dumbfounded as so many people moved heaven and earth to help with the Salterstown project, I now believe that Aeschylus was right.

First and foremost I acknowledge my lasting debt to the McMaster family, who now farm the site of Salterstown. The McMasters have not only tolerated the inconveniences of excavation, but have taken an active interest in the project. They have fed tea and cakes to sodden, dirty and disheartened excavators, and helped keep the curious cows at bay.

I would like to thank Nick Brannon of the Department of the Environment for Northern Ireland, Historic Buildings and Monuments Branch, Archaeological Survey. Two season's of field work were sponsored in part by the cooperation of the Archaeology Survey, which donated all equipment and necessary materiel for the project, coordinated housing, and provided significant research funds. The D.O.E. also
provided conservation facilities for the waterlogged wood artifacts recovered from the bottom of the well. But it was not a faceless bureaucracy which accomplished all of this gracious help, it was Anne Hamlin, Tom McErlean, Chris Lynn, Annie Given, Claire Foley, Marie Neill, Malcolm Frye, Declan Hurl, Jim Woodman, and Nick Brannon, all of whom I am honored to call my friends, all of whom happen to have worked for the D.O.E.

I would also like to single out the Worshipful Company of Saddlers of the City of London, whose kind donations to these investigations very nearly match their original total Company expenditures in helping to build Salterstown in the seventeenth century. I thank Kingsley Oliver for his faith in the project, and his scholarly interest in the plantation period.

The 1989 research season for the Salterstown Project included several weeks of documentary research in London. While in London I encountered nothing but smiling cooperation from the following persons and institutions;

The librarians of the Guildhall Library, London
Elizabeth Scudder of City of London Records Office
The Librarian and Ms. Barber of the Lambeth Palace Library
The Library of the British Museum.
Mr. Hall, Beadle of Skinner's Hall, and the Skinner's
Office Cat "Tigger", who both did their best to be helpful.

Col. Seidl and Miss Sutton of the Mercers' Company
Miss Hare of the Goldsmiths' Company, for access to unique versions of the Raven maps.
Mr. Montgomery, Clerk of the Salters Company, and his assistant- Miss Jackie Faulkner
Mr. Brown, education officer of the Draper's Company, who was particularly kind in granting me access to unique original versions of the Raven maps.
Kingsley Oliver, Clerk of the Saddlers' Company

...All graciously allowed access to their often fragile manuscripts and maps. I would also like to thank Jim and Lisa Woodman for putting us up in Oxford under difficult circumstances.

Several figures in the Ulster scholarly community provided key assistance. Barry Hartwell of the Department of Archaeology at Queens University, Belfast kindly provided aerial photographs of the site. M. Baillie and David Brown of the Palaeoecology Centre at Queens University, Belfast provided our Dendrochronology dates. Mr. Woods of the Lough Neagh Freshwater Field Station provided valuable historical data on the local water table. Philip Robinson of the Ulster Folk Museum toured the site and gave us some useful suggestions based on his expertise.
in the history of the material culture of the region. Mr. Patrick Larkin, a local historian, also kindly visited the site and was helpful in his comments. Mr. Gamble of Emerald Isle Books, Belfast provided me with gentle guidance through some of the initially bewildering source material available. I would also like to thank the staff at the Public Records Office, Northern Ireland and the librarians at the Linen Hall Library, Belfast.

In Magherafelt I would like to thank everyone in town; it did not take long before we Americans on the excavation were regularly asked how things were going, our reception was warm and helpful. I would particularly like to thank Joe Cantley, Kevin Murphey, Mrs. McCarty, the man who fixed the AGA, the ladies down at the bakery, and the folks at Gaiger's, Mary's and the Arches. The Keilt family have for several years now made me welcome at the Laurel Villa Guest House; I learned a lot of local history late at night in their kitchen. I wish to thank Pat Hagan for his enthusiastic help, our long rambling walking conversations, and for access to his extensive private collection of local maps. I would also like to thank our friendly neighbors, who provided the 1989 crew with some memorable wake-up calls.

The field crew did all the work. I want to stress here that my crew was composed of volunteers giving their time and expertise on these excavations at Salterstown--and
every one of them paid their own airfare from various points in the U.S., Canada and Germany to Belfast and took an entire summer out of their lives to work for room and board in a muddy pasture—and I'm grateful. Thanks to Kathy Parkhouse, Pamela Crane, Ruth Benander, Renate Bauer, Matt Parkhouse, Peter Morrison, Joshua Fitzgerald, and my father Orloff Miller. I would also like to thank Hazel Moore, Helen Murphy, Ken Sabel, Gavin Barber, Frank Myles, Dermot Kelly and Jim Woodman, who all pitched in at key points in the excavation.

I have become something of an honorary family member of the Brannon household. It is always hardest to thank your family for anything because they never think they need to be thanked— I will restrict myself to happily acknowledging Fiona, Fay, Eve, Mouser, Rufus and Nick for making my life a better place.

Back in the States I thank R. Dyson and Alan Waldt of the University Museum of Archaeology and Anthropology for assistance in my financial planning.

I would like to acknowledge my debt to Brook Blades for his work surveying the London plantation towns of County Londonderry.

Priscilla Benander and the estate of Charlie and Lillian Hursh provided research funds at a critical point in the course of the project.
During artifact analysis I received valuable advice from Kathleen Ryan, Pat McGovern, George Miller, June Swann, Marie Neill, Malcolm Frye, Henry Miller, Silas Hurry, Susan Hanna, Al Saguto, Shannon McPherron, Dermot Moore and Malachy Conway.

John Cotter and Anthony Garvan both provided personal assistance; each gentleman continues by example to guide my work. My dissertation committee included Nick Brannon, Robert Schuyler, Henry Miller, Bernard Wailes and Henry Glassie. Every committee member has made painstaking comments on early drafts of the present work, for which I am grateful.

I thank my colleagues in the Historical Archaeology program at the University of Pennsylvania, all of whom patiently commented on my work, often over a beer which they bought.

Finally I must thank my wife Ruth Benander, who somehow knew that this day would come.
ABSTRACT

ARCHAEOLOGICAL INVESTIGATIONS AT
SALTERSTOWN, COUNTY LONDONDERRY,
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Orloff Miller
Dr. Robert L. Schuyler

While American historical archaeologists have made significant progress in their investigations of early seventeenth century English colonies in North America, English colonies of the same period occurring elsewhere have been largely ignored. The archaeological investigation of alternative English colonial contexts is a necessary first step towards an anthropological study of comparative colonialism. Salterstown was a seventeenth century English colonial plantation village in Ulster, now buried beneath a dairy farm. Investigations at Salterstown include archival research, oral history interviews and archaeological excavations over three seasons of fieldwork. Research has monitored the degree of transplantation of English material culture into the Ulster plantations. Native Irish late-medieval survivals and the development of syncretic vernacular traditions unique to Ulster have been recorded. Included are detailed discussions of plantation-period economics, settlement pattern, architecture, ceramics, livestock, footwear, lithics, tobacco pipes, glassmaking and other artifact types. Investigations at Salterstown
highlight an early English colonial milieu offering an instructive alternative to North American colonial contexts.
TABLE OF CONTENTS

List of Illustrations ........................................... xiv
Frontispiece ...................................................... xxxii

1. Introduction .................................................. 1
   Theoretical and Historiographic Orientation .............. 4
   Cultural Adaptation and Mutual Adaptation to the Colonial Experience .................................. 5
   Varieties of Colonialism ................................... 10
   Stages of Involvement in Colonial Enterprises .......... 14
   Ulster Historiography and Archaeology of the Period .................................................. 22
   Survey of the Grand Events leading up to and including the Second Plantation ................. 26

2. Native and Planter: The cultural landscape of 17th Century County Londonderry ................. 73
   The Pre-Plantation Native Landscape .................... 73
   The Plantation Landscape ................................ 110
   English Structural Forms and Materials ................. 120
   London Company Towns .................................... 129
   The Plantation Economy .................................. 131
   Native Irish Survivals and Syncretic Adaptation in Londonderry .................................... 135

3. Documentary History of the Village of Salterstown .................................................. 156
   Geographic Context: The Land ............................ 156
   The Inhabitants: The First Year ......................... 165
   The Population of the Salters' Proportion, 1614-1641 ... 168
   The Phillips/Hadsor/Raven Survey of 1622 ............... 175
   The Native Irish on the Salter's Proportion .......... 178
   Everyday Life in Salterstown: The Structures ......... 180
   Everyday Life in Salterstown: The Church .......... 182
   Everyday Life in Salterstown: The Economy .......... 187
   The Rebellion of 1641-1656 ................................ 192
   Post-Rebellion Salterstown ................................ 202
   The Economy of the Second Plantation ................. 205
   The Collapse of the Second Plantation ................. 214
   Post-Plantation Salterstown .............................. 215
   Sources for Post-Plantation Tenant History of Salterstown ........................................... 227

4. The Excavations: Description and Discussion of Features, Site LDY 49:1 ......................... 248
   The 1988 Field Season ................................... 248
   Soils and Stratigraphy ................................... 255
   The 1989 Excavations .................................... 258
   Record Keeping and Proveniencing ....................... 259

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<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.</td>
<td>Ceramics</td>
<td>348</td>
</tr>
<tr>
<td></td>
<td>Stonewares</td>
<td>352</td>
</tr>
<tr>
<td></td>
<td>Porcelains</td>
<td>374</td>
</tr>
<tr>
<td></td>
<td>Tin-Glaze</td>
<td>375</td>
</tr>
<tr>
<td></td>
<td>The Earthenwares</td>
<td>384</td>
</tr>
<tr>
<td></td>
<td>Distinctly Irish Wares</td>
<td>438</td>
</tr>
<tr>
<td>6.</td>
<td>Glass</td>
<td>472</td>
</tr>
<tr>
<td></td>
<td>English Glass Industry of the 17th century</td>
<td>472</td>
</tr>
<tr>
<td></td>
<td>Furnace Types</td>
<td>490</td>
</tr>
<tr>
<td></td>
<td>The Salterstown Glass</td>
<td>496</td>
</tr>
<tr>
<td>7.</td>
<td>Faunal Remains</td>
<td>516</td>
</tr>
<tr>
<td>8.</td>
<td>Leather</td>
<td>550</td>
</tr>
<tr>
<td></td>
<td>Marie Neill's Report</td>
<td>552</td>
</tr>
<tr>
<td></td>
<td>Synopsis and Discussion of Neill Report</td>
<td>601</td>
</tr>
<tr>
<td>9.</td>
<td>Lithics</td>
<td>610</td>
</tr>
<tr>
<td></td>
<td>Discussion of Gunflints</td>
<td>617</td>
</tr>
<tr>
<td>10.</td>
<td>Tobacco Pipes</td>
<td>638</td>
</tr>
<tr>
<td>11.</td>
<td>Wood</td>
<td>652</td>
</tr>
<tr>
<td>12.</td>
<td>Small Finds</td>
<td>670</td>
</tr>
<tr>
<td>13.</td>
<td>Salterstown Sleeve Button</td>
<td>684</td>
</tr>
<tr>
<td>14.</td>
<td>Conclusion</td>
<td>708</td>
</tr>
<tr>
<td></td>
<td>Postscript</td>
<td>722</td>
</tr>
<tr>
<td></td>
<td>Appendix A: Extracts from Primary documents</td>
<td>729</td>
</tr>
<tr>
<td></td>
<td>Appendix B: Artifact Catalogue</td>
<td>741</td>
</tr>
<tr>
<td></td>
<td>Appendix C: Faunal Catalogue</td>
<td>826</td>
</tr>
</tbody>
</table>
LIST OF ILLUSTRATIONS

Figure 1  (Page xxxii)
The Raven Map of Salterstown and Magherafelt, 1622. Salterstown is on the right (Carew Mss, Lambeth Palace Library).

Figures 2 & 3 (Page 16)

Figure 4  (Page 29)
"An Irish Banquet" from John Derrick's Image of Ireland, 1581, (O'Brien, 1985:44).

Figure 5  (Page 29)

Figure 6  (Page 88)
The London Companies Proportions in County Londonderry. (Curl, 1986:445), adapted from Moody, 1939?

Figure 7  (Page 101)
Excavated Irish Houses: A & B date from the 17th century, while C & D are late medieval structures.
   a: Thady's Fort, Shannon Airport, Co. Clare (after Rynne).
   b: Liathmore-Mochoemog, Co Tipparary, (after Leask & Macalister).
   c: Caherguillamore, Co. Limerick, (after O'Riordan & Hunt).

Figures 8 & 9  (Page 105)
Two different representations of Irisah "creats".

Figure 8

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Figure 9


Figures 10 & 11 (Page 108)

Figure 10


Figure 11


Figures 12 & 13 (Page 118)

Figure 12


Figure 13

Ethnic distribution of the Planters in Ulster by surname distribution (Robinson, 1984:94).

Figure 14 (Page 121)

Distribution of Planter families during the 2nd plantation period in southeast Co. Londonderry, (Macafee, 1977:44).

Figure 15 (Page 122)


Figures 16 & 17 (Page 125)

Figure 16


Figure 17
Drapers Co. proposed houseplan of 1615 for Moneymore, Co. Londonderry, redrawn from Drapers Co. Records Ma Dr b. 1858. Note two alternative stairwell plans (Gailey, 1984: 186).

Figure 18 (Page 126)

True Half-Timbering, in Drogheda, Co. Louth, pre-1825. Compare the spacing of the timbers with those in the Raven map of Figure 1 (deBreffney and Ffolliatt, 1975: 26).

Figure 19 (Page 128)

Dimensions in Planters' Housing from 1622 Survey (encircled dot indicates house outside of the villages) (Blades, 1981: 49).

Figure 20 (Page 157)


Figure 21 (Page 158)

The ancient baronies incorporated into County Londonderry (Curl, 1986: 441).

Figure 22 (Page 161)

The Salters' Proportion in southeast County Londonderry, with Townlands (Ballydonnell and Ballymultrea are in the lower right adjacent to the Lough) (Curl, 1986: 326).

Figure 23 (Page 207)

Fishing Returns, 1660-1753. Actual values in text (Cutlers' Company Records).

Figure 24 (Page 213)

Halberd, "Sketch of a halberd or spear formerly belonging to one of the Woodrangers on the Salters Estate, now in possession of the Rev'd. L. Dowdall, curate of the Chapel of the Woods", from South Derry Historical Society reprint of the Ordnance Survey Memoir of the Parish of Ardtrea, 1833-36, ed. by Dairmaid O'Doibhlin, p. 88.

Figure 25 (Page 219)

"The Family of Thomas Bateson, Esq." 1762, painted by Philip Hussey (The Ulster Museum).
Figure 26  (Page 222)
Rubbing of Date-stone above the doorway of a farm building attached to the ruin of Salter's Castle, Salterstown. "R.A." stands for Richard Adams, the Salters' tenant at that time.

Figure 27  (Page 225)

Figure 28  (Page 229)
Ballymultrea and Ballydonnell townlands around the ruins of Salters Castle, early 19th century. Estate Maps, untitled and unnumbered watercolor and ink. Lot # Maps of the Salters Irish Estate, Back Folio Shelving, Salters Hall Archive, London. N.B. This tracing combines two original maps.

Figure 29  (Page 230)
The Armstrong Maps from Valuation of the Manor of the Salters, by Wm. Armstrong, 1821-25, unnumbered bound folio, Salters Hall Archive, London. Compare more detailed lot divisions with those of Figure 28.

Figure 30  (Page 250)

Figure 31  (Page 251)

Figure 32  (Page 252)

Figure 33  (Page 254)
Plan View of 1988 test excavations. Salterstown LDY 49:1

Figure 34  (Page 267)
Location of the 1989 excavations within larger site of LDY 49:1, with standing structures as surveyed 1989.
Figure 35  (Page 268)

Figure 36  (Page 273)
The "White Wispies".

Figure 37  (Page 279)
Charcoal/Ash "Kitchen Refuse" deposits 13-14S3-4W: 18-21S4-6E.

Figure 38  (Page 283)

Figure 39  (Page 285)
Plans of Feature 26, The Well 19-21S1-3W

Figure 40  (Page 286)
Profile of Feature 26, The Well, facing South.

Figure 41  (Page 289)
Feature 84, Clay around the well extending in lens due to smearing by plow: for extent of primary deposit see Figure 35.

Figure 42  (Page 303)
Features 1 and 2.  Feature 1 Facing West, 12-13S2E
Feature 2 Facing North 14S3-5E

Figure 43  (Page 304)
Features 3 and 5
Feature 3 Facing South, 13S2E Recut Posthole
Feature 5 Facing NW, Posthole 19S4E

Figure 44  (Page 305)
Features 6 and 7

Figure 45  (Page 306)
Features 12, 13, and 14.
Figure 46 (Page 307)
Features 15, 20, and 80.

Figure 47 (Page 308)
Features 21, 23, and 29

Figure 48 (Page 309)
Features 30 and 31

Figure 49 (Page 310)
Features 34 and 35

Figure 50 (Page 311)
Features 36, 37, and 38

Figure 51 (Page 312)
Features 39 and 43

Figure 52 (Page 313)
Features 45, 46, and 47

Figure 53 (Page 314)
Features 44 and 49

Figure 54 (Page 315)
Features 54 and 56

Figure 55 (Page 316)
Features 10, 57, 60, and 87

Figure 56 (Page 317)
Features 65, 67, and 75

Figure 57 (Page 318)
Features 21, 76, and 77

Figure 58 (Page 319)
Features 78 and 81
Figure 59  (Page 321)
All postholes.

Figure 60  (Page 324)
Post Holes 95-105, depth below main datum.

Figure 61  (Page 325)
Post Holes greater than 105m dbmd.

Figure 62  (Page 326)
Post Holes 105-110 dbmd.

Figure 63  (Page 330)
Post Holes with 33cm difference top to bottom.

Figure 64  (Page 331)
Post Holes with 25cm difference top to bottom.

Figure 65  (Page 333)
Recut Post Holes.

Figure 66  (Page 337)
Overlay of architectural artifacts: Distribution of all Architectural Debris including Nails, Window Glass, Slate, Brick, Daub and Roves.

Figure 67  (Page 342)
A: Kingsmill Tenement II, Virginia
B: Flowerdew Warehouse, Virginia
C: Utopia Leasehold, Virginia

Figure 68  (Page 343)
Timber framing terms: Note "Prick-post" at Gable end (Cummings, 1979: 53).
Figure 69  (Page 344)

Suspended Firehood with Jambwall, Smith's Ordinary, Saint Mary's City (Miller, 1986:72).

Figure 70  (Page 350)

The Salterstown Ceramics

Figure 71  (Page 351)
Salterstown Ceramics List continued.

Figure 72  (Page 353)
Cunningham Rim Typology (Cunningham and Drury, 1985:2).

Figure 73  (Page 354)
Cunningham Vessel Typology (Cunningham and Drury, 1985:3).

Figure 74  (Page 355)
Cunningham Vessel Typology (Cunningham and Drury, 1985:4).

Figure 75  (Page 356)
Cunningham Vessel Typology (Cunningham and Drury, 1985:5).

Figure 76  (Page 357)
Cunningham Vessel Typology (Cunningham and Drury, 1985:6).

Figure 77  (Page 358)
Cunningham Vessel Typology (Cunningham and Drury, 1985:7).

Figure 78  (Page 359)
Cunningham Vessel Typology (Cunningham and Drury, 1985:8).

Figure 79  (Page 360)
Salterstown Stone Wares.

Figure 80  (Page 361)
Salterstown Stone Wares.

Figure 81  (Page 362)
Salterstown Stone Wares.
Figure 82 (Page 363)
Gusset's Stone Ware Chronology (Gusset, 1980:158).

Figure 83 (Page 364)
Gusset's Stone Ware Chronology (Gusset, 1980:150).

Figure 84 (Page 377)

Figure 85 (Page 378)

Figure 86 (Page 379)

Figure 87 (Page 380)
Salterstown Tin Glaze.

Figure 88 (Page 385)
"Midlands" Black Ware Types (Brears:37 and Gooder, 1984:171-2, in Mulhullond:56).

Figure 89 (Page 386)
Barker's Blackware Types, page 68.

Figure 90 (Page 387)
Barker's Blackware Types, page 69.

Figure 91 (Page 388)
Barker's Blackware Types, page 70.

Figure 92 (Page 389)
Barker's Blackware Types, page 71.

Figure 93 (Page 390)
Barker's Blackware Types, page 72.
Figure 94 (Page 391)
Barker's Blackware Types, page 73.

Figure 95 (Page 392)
Barker's Blackware Types, page 74.

Figure 96 (Page 393)
Barker's Blackware Types, page 75.

Figure 97 (Page 394)
Salterstown Fine Blackware.

Figure 98 (Page 395)
Coarse Blackware Rims.

Figure 99 (Page 398)
Brears' Cistercian Types (Brears:20).

Figure 100 (Page 403)
Salterstown Reduced Greenware.

Figure 101 (Page 409)
Brears' Midlands Yellow Types (Brears:31).

Figure 102 (Page 412)
Salterstown Staffordshire Slip.

Figure 103 (Page 419)
Salterstown Non-Staffordshire, True Metro, Sgraffito #1.

Figure 104 (Page 421)
Salterstown Sgraffito #2 and unidentified Sgraffito.

Figure 105 (Page 422)
Unidentified slipped redwares, North Devon, gravel tempered.
Figure 106 (Page 425)
Grant's North Devon Types (Grant, 1983: 136-7).

Figure 107 (Page 426)
North Devon Rim Types (Watkins, 1960: 56).

Figure 108 (Page 430)
Salterstown "Lancashire" Mottled Manganese.

Figure 109 (Page 435)
Salterstown Red-dot, soft orange, and buff paste.

Figure 110 (Page 436)
Salterstown unidentified redware rim forms.

Figure 111 (Page 440)
Carrickfergus Brownware Types (Mulholland: 38).

Figure 112 (Page 441)
Carrickfergus Brownware Types (Mulholland: 39-42).

Figure 113 (Page 442)
Carrickfergus Brownware Types (Mulholland: 39-42).

Figure 114 (Page 443)
Salterstown Pink Buff and Hard Redware.

Figure 115 (Page 447)
Salterstown Everted Rim ware.

Figure 116 (Page 450)
Salterstown Iberian Storage and "Crucible" wares.

Figure 117 (Page 453)
Salterstown Creamware.

Figure 118 (Page 458-454)
Brears' Pottery Distribution Map (Brears: 16).
Figure 119  (Page 473)

*Waldglass* forms (after Klein and Lloyd:95) and (after Godfrey,1975:plate 2).

Figure 120  (Page 474)


Figure 121  (Page 491)

Four Glass Furnaces:


b) Winged Furnace at Rosedale, Yorkshire from Crossley and Aberg, 1972 in (Godfrey,1975:140).

c) Venetian Furnace from Agricola *De Re Metallica*, in (Charleston,1978:28).

d) Coal Fired Wind Furnace from Diderot's *Encyclopedie* in (Charleston, 1978:31).

Figure 122  (Page 492)

Glass Furnace at Jamestown, Virginia  (Harrington, 1952:12,14).

Figure 123  (Page 498)

Salterstown Free-blown Basal Rims, stemmed and unstemmed.

Figure 124  (Page 499)

Salterstown Free-blown Rims and Handles.

Figure 125  (Page 503)

Medieval Glass Vessel Types (Foy,1989:211,212).

Figure 126  (Page 506)

Salterstown Glass Making Debris.

Figure 127  (Page 508)

Fike's Neck Finishes (Fike,1987:8).
Figure 128  (Page 510)
Case Bottle.

Figure 129  (Page 517)
Pie-chart, number of individual specimens (NISP), faunal.

Figure 130  (Page 530)
Ages of Epiphasial Fusion in Domesticates (Silver,1963:252-3).

Figure 131  (Page 531)
Tooth Eruption Ages for Cattle and Sheep (Silver,1963:262-3).

Figure 132  (Page 532)
Tooth Wear Stages for Cattle (Grant:438).

Figure 133  (Page 533)
Tooth Wear Stages; Sheep and Pigs (Grant:439-40).

Figure 134  (Page 535)
Salterstown Bos, teeth by wear-stage.

Figure 135  (Page 536)
Salterstown Ovis, teeth by wear-stage.

Figure 136  (Page 538)
Henry's Recalculation

Figure 137  (Page 541)

Figure 138  (Page 544)
Comparative Measures of U.K. cattle breeds of the medieval and late-medieval periods.

The "English" measurements are from 16th century Coventry, in Holmes,1981 except for the MetaCarpal measurements, which are taken from 17th century Aldgate, in Armitage,1982. The Scottish figures are from 17th century
Tron Kirk, Chaplin and Barnetson in McQ Holmes, 1975. The Irish figures are a combined range taken from 15th century Greencastle, Co.Down, 13th century Drogheda, Co.Louth, and 13th-e.14th century Limerick (in McCormick, 1984a, b, and unpub.). The Pottinger's Entry figures are from 17th century Belfast, McCormick, 1984a. The Modern figures were taken by the author from a mature Cow, Specimen #28 in the Penn Comparative Faunal Collection.

Figure 139 (Page 551)
Reconstructions of the Salterstown Footwear by M. Neill.

Figure 140 (Page 555)
Salterstown Leather, M. Neill.

Figure 141 (Page 560)
Lasting Techniques, M. Neill.

Figure 142 (Page 570)
Salterstown Leather, M. Neill.

Figure 143 (Page 572)
Salterstown Leather, M. Neill.

Figure 144 (Page 573)
Salterstown Leather, M. Neill.

Figure 145 (Page 576)
Salterstown Leather, M. Neill.

Figure 146 (Page 578)
Salterstown Leather, M. Neill.

Figure 147 (Page 579)
Salterstown Leather, M. Neill.

Figure 148 (Page 581)
Salterstown Leather, M. Neill.

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Figure 149  (Page 583)
Salterstown Leather, M. Neill.

Figure 150  (Page 586)
Salterstown Leather, M. Neill.

Figure 151  (Page 588)
Salterstown Leather, M. Neill.

Figure 152  (Page 592)
Salterstown Leather, M. Neill.

Figure 153  (Page 595)
Salterstown Leather, M. Neill.

Figure 154  (Page 612)
Salterstown Lithics, possible tools with secondary retouch.

Figure 155  (Page 613)
Salterstown Lithics, possible tools without secondary retouch.

Figure 156  (Page 614)
Salterstown Lithics, diagnostic prehistoric tools.

Figure 157  (Page 618)
1813 G.V. Sampson, map of area near Salterstown (PRONI D.174.1/4).

Figure 158  (Page 620)
Manufacturing techniques for gunflints (White,1975:66).

Figure 159  (Page 621)
Types of gunflints (Kent,1983:29).

Figure 160  (Page 629)
Crude Gunspalls from St. John's Site, Saint Mary's City, Maryland (Miller and Keeler,1986:fig. 2).
Figure 161  (Page 632)
Salterstown Crude Spalls.

Figure 162  (Page 633)
Salterstown Gun Chips and Blades.

Figure 163  (Page 641)
Oswald's Simplified General Typology of Clay Tobacco Pipes (Oswald, 1975:39).

Figure 164  (Page 642)
Oswald's Simplified General Typology of Clay Tobacco Pipes (Oswald, 1975:41).

Figure 165  (Page 643)
Salterstown early Heeled-Stem Pipe Bowls.

Figure 166  (Page 644)
Salterstown later Spur Heeled Pipe Bowls.

Figure 167  (Page 648)
Salterstown Pipe Stem Bore Frequencies.

Figure 168  (Page 649)

Figure 169  (Page 654)
Architectural Timbers #14 and #24.

Figure 170  (Page 656)
Architectural Timber #25.

Figure 171  (Page 657)
Salterstown Joinery and Joinery Illustrations from Cummings, 1979:83.

Figure 172  (Page 659)
Salterstown Stratum I Architectural Timbers.
Figure 173  (Page 661)
Salterstown Toy Sword, Oak.

Figure 174  (Page 662)
Oak Latch and Oak Handle.

Figure 175  (Page 664)
Stave-built Oak Bucket.

Figure 176  (Page 665)
Oak Basal Pivot for Rotary Quern, Osier/ Wicker fragments, Oak Spindle Reel.

Figure 177  (Page 668)
A: "The Carpenter" (from Amman and Sachs, 1568:95).

Figure 178  (Page 671)
Salterstown Bone Tableware Handle.

Figure 179  (Page 672)
Analog for Bone Handle (Cunningham and Drury, 1985:59).

Figure 180  (Page 674)
Salterstown, Early Iron Knife Parts.

Figure 181  (Page 675)
Salterstown, Iron Knife Parts and Brass Thimble Fragment.

Figure 182  (Page 677)
Salterstown Buttons.

Figure 183  (Page 679)
Salterstown, Coins and Tokens.

Figure 184  (Page 681)
Salterstown, Buckles, Rivet and Pin.
Figure 185 (Page 685)
Salterstown, Sleeve Button, detail.

Figure 186 (Page 688)
Military Sleeve Button, reproduction, Pluckemin Archaeological Project, New Jersey.

Figure 187 (Page 692)

Figure 188 (Page 693)
Enlargement of South's Button Typology (South, 1964:116).

Figure 189 (Page 695)
Fort Michilimackinac, Excerpt from Button catalog, (Stone, 1974:68).

Figure 190 (Page 698)
Hand Button-mold, (Gehret, 1976).

Figure 191 (Page 742)
Salterstown Provenience Map.
The Raven Map of Salterstown & Magherafelt, 1622.
Salterstown is on the right.
INTRODUCTION

This work is not conceived to be a conventional archaeological site report, although that is the data collection technique and theoretical background in which this author has the most training. Neither is this a conventional history, although the focus will be on the historical founding, development, and repeated demolition and reoccupation of a single tiny village in Northern Ireland, which for the past 250 years has lain beneath the grass of a working dairy farm.

My intentions are to use the data of archaeology and history combined, to answer questions at three different levels of abstraction. Each of these research goals is outlined in turn below.

Just as social anthropologists study individual cultures in order to compare them to one another, so too historical archaeologists compare different cultures of the past. In the early-modern period this task is enlivened by the spread of European colonies into new economic and environmental contexts (and often into contact with different native societies), creating new variations of the mother culture. Salterstown, County Londonderry provides an ideal set of contrasting economic, environmental and indigenous cultural constraints for a comparative study between English colonies in Ireland and those established in America and around the world in the early modern period.
This study outlines explicit criteria by which these colonies may be compared.

Before archaeologists (or anthropologists) can compare different groups, they must establish a range of variation within each group. Very little is currently known of the archaeological record for the plantation period in Northern Ireland. This investigation assesses the degree of transplantation and adaptation of English material culture in 17th century Ulster.

In addition to describing the transplantation of cultural forms, this investigation outlines how the material culture of a very early English colonial settlement changed over time, and changed the landscape within which it was transplanted. A recurring theme throughout this work will be the examination of how the objects which constitute "material culture" function not only as tools or shelter or decoration, but also as markers. Objects mark the boundaries of status, proclaim allegiances between ethnic groups, and thereby foster a sense of belonging and community. Therefore one of the research goals of this investigation has been to explore the eventual development of different yet parallel material assemblages for the English and Irish cultures in contact, and to offer suggestions for what these differences meant to the participants.

On a more detailed level of inquiry, excavations at
Salterstown are providing a test case for the literal accuracy of an important collection of maps made by Thomas Raven in the early years of the Plantation of Ulster. Such a test should prove invaluable to later investigators for the entire region.

The dissertation is organized by an ever-mounting degree of specificity in focus; we start with theoretical considerations and the grand events of 17th century political history, move to an overview of the cultures of the pre-plantation Irish and plantation English, then narrow in on a documentary history of the plantation village of Salterstown, and finally present a detailed report on the excavation of a single homelot within that village, including an extended discussion of a single artifact. Each discussion interlocks with adjacent sections to form mutually reenforcing scales of inquiry, ultimately creating a mosaic picture accounting for the many generations of lives spent at Salterstown since 1614.

This introductory chapter is divided into two parts. The first section is both a theoretical orientation and a review of the historiography of the period. The orientation outlines the priorities of this research and their relation to the larger field of historical (or post-medieval) archaeology, and locates this report within the growing body of literature on comparative colonialism in general.
and the Londonderry plantations in particular. The second section is a synopsis of the "Grand Events" of 17th century Irish history, intended merely as a review for those American readers unfamiliar with the subject. Unavoidably, the survey will highlight the development of tensions between the Irish, English, and to a slightly lesser extent, Scottish peoples who found themselves in Ulster.

Theoretical and Historiographic Orientation: "Grand Theory"

Just as this report is not intended to dwell on the "Grand Events" resulting from the machinations of the powerful few, it is also not a priority of this study to place 17th century Londonderry conclusively within some elaborate meta-historical scheme of cultural evolution. However, it would be irresponsible to ignore the concerns and quarrels of other researchers who have examined the English colonial enterprises of the 17th century. It would be equally irresponsible to turn from my obligation as a social scientist to define the relevance of this research within the context of the larger agendas of my discipline. We must therefore dabble in "Grand Theory", just as we have to dabble in "Grand Events", before we can finally examine

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1 Throughout this work I have tried to be consistent to the historical use of placenames; the City was "Derry" long before the Plantation, and I have retained that older name when referring specifically to the city. The County was an invention of the 17th century, and was at that time named "Londonderry", a name I have again retained when referring to the county or to the plantation enterprises of the London Companies within the county.
the real people and their material world which constitute the primary focus of this report.

Cultural Transplantation and Mutual Adaptation to the Colonial Experience

An anthropological account of colonial contacts cannot merely record the transplantation of one set of culture markers into new contexts, although for the archaeologist this in itself is often hard enough. Any study of colonialism must study the adaptations of both groups to their new circumstances. To paraphrase Albert Memmi, "Colonialism creates both the colonizer and the colonized" (Memmi, 1973; in Stoler, 1989:155).

We have always known that settlers in a colonial situation are not a representative cross-section of the mother culture, producing instead what a geneticist would call "founder's effects" as later adaptations develop from this relatively restricted repertoire. In ethnographies and ethnohistorical monographs it has been noted that colonization often "freezes" indigenous relations of power by imposing less fluid structures on existing native institutions. Colonial societies seem to encourage the invention of norms or "imagined communities" among colonizers seeking a degree of internal hegemony unnecessary back home in the mother culture (Stoler, 1989; Anderson, 1983:15; Wolf, 1982; Hobsbawm and Ranger, 1983; Clammer, 1975).

Boundary maintenance mechanisms (enforced by either
group) create a suite of symbolic markers defining the "other". These markers can take the form of dialects, standards of dress, iconographic jewelry, architecture, race or religion. Ethnohistoric accounts (and modern ethnographies, for that matter), are often a catalogue of markers defining the native as "other", and are all too often our only evidence for the social structure of the colonized in a colonial encounter. Although archaeology can help control for this bias, emically perceived markers of social distance may be far more dramatic than the few nuances of an assemblage archaeologists are likely to have available to distinguish ethnicities.

In Historical Archaeology as a field, we are now developing some expertise in defining the material assemblages and traditions associated with various European ethnicities in colonial North America. But even as we get closer at establishing what it means to have been (for example), 17th century "English American", we have largely ignored what it meant to be 17th century English in the broader sense. In other words, we have yet to establish the range of variation in the material assemblage of the 17th century native European cultures from which our colonists came.

This is not to say that the 17th century English were a single culture. Early-modern regional variations in dialect, material assemblage, and group identity were far
stronger than any overarching sense of Britannic majesty. Nor am I implying that the 17th century English were a static, bounded isolate with a single diagnostic range of materials, traditions or beliefs. Cultural boundaries are permeable, traditions are fluid, and their diagnostics must therefore be characterized by statistical probabilities for particular suites of traits appearing in definable periods.

As part and parcel of this effort to establish the total range of variation, we have to also study alternative colonial contexts to the American experience. In the late 16th and early 17th centuries England founded colonies on four continents. Each colony, whether in the New World, Africa, India, or Russia and Ireland, was the product of unique logistical, environmental, and native-cultural constraints. Yet each colony was also the product of carefully formulated policies of economic development and political control, policies which reflect the intentions and agenda of the Crown and the various Companies which had been granted monopoly rights within the colonies. The same intrusive culture in the same period resulted in very

2 In the seventeenth century we are not dealing with corporations in the modern sense implied by the word "company", but rather a joint-stock investment venture or a more ancient livery company, descended from the medieval trade guilds. County Londonderry was financed by these more conservative London livery companies, while trading settlements in Russia, Africa, India and to a lesser extent, North America were financed by various joint-stock ventures.
different colonial economies, institutions, and settlement patterns.

These unique developments occurred on a regional scale over the course of the colony's history. Therefore any study of cultural adaptation in colonial contexts must be regional in scale and diachronic in scope. There is little to be gained by comparing single houses on different continents representing only the freeze-frame moment of initial settlement. We have to study entire communities rather than surviving high-style homes or fortifications. This means that the present study cannot be used in isolation for comparing colonies. Salterstown must become part of a regional study of 17th century colonial Ulster.

The observations above lead us directly into a discussion of the problems of studying comparative colonialism.

The Problems of Comparative Colonialism

Within the last twenty years within both Anthropology and History there has developed an increased awareness of the politically charged nature of cultural belief systems (Foucault, 1972; Bourdieu, 1977, 1988; Asad, 1973). This awareness has sparked a reexamination of how anthropologists approach a study of "the Other", and the assorted baggage of presumptions such a study can entail. As a result, ethnographic studies have become acutely self-reflexive, treating the study itself as a cultural
phenomenon with aggressive political overtones (Clifford, 1988; Clifford and Marcus, 1986; Myers, 1988). History as a discipline has also been forced to study the mechanisms by which each generation of historians remakes the past according to the often unexamined assumptions of the present (Foucault, 1972; Rabinow, 1984; Hobsbawm and Ranger, 1983). It is therefore no great surprise that colonialism, and the biases of first world researchers in a "post-colonial" era, have become hot topics in academic literature.

Although colonialism is a popular buzz-word in the current anthropological literature, there has not yet emerged a clear consensus on what is meant by that term (Asad, 1973; Stoler, 1989). This is largely due to the theoretical disputes which ultimately determine research strategies, disputes which have effectively preempted any prioritization of research into the archaeology of comparative colonialism. This problem is exacerbated in studies of the early modern period by the coincident rise of "Nationalism", another poorly defined term usually conflating the development of polities with group identities (Anderson, 1983; Canny, 1988, Canny and Pagden, 1987).

These fresh orientations have been coupled with an understandable urge to contribute meaningful, theoretically informed articles to the larger scholarly community—
before the necessary groundwork has been completed. There is no apparent consensus on definitions of terms, prioritization of issues, or necessary research strategies. Researchers are now in danger of "over-concluding" from insufficient evidence in order to illustrate a theoretical position. This is understandable when we consider the general failure within the discipline to define clearly the problems of "doing" comparative studies in the archaeology of colonialism (Dyson, 1985:1-3).

As it is commonly used now, "colonialism" seems to mean anything that the Europeans were doing anywhere in the world besides Europe in the Early-Modern period. Observed events are referred to as the result of "colonial policy" whether any intentional or enforceable policy has been documented or not. Sweeping generalizations have been made about a monolithic "political economy of European colonization"—or worse yet, an inevitable but elusive "incipient market capitalism". Researchers attempting to appear theoretically (read "politically") au courant have begun to use colonial situations as examples of grand theory-in-action without reference to the historically and archaeologically particular data which constitute evidence in our field.

**Varieties of Colonialism**

As a first step towards a rigorous definition of the phenomena we want to study and compare, we have to
recognize that there are several different kinds of colonialism, driven by very different intentions. Colonialism is not necessarily a blind natural process, particularly in the early-modern period. Colonialism was most often the result of conscious, intentionally planned actions. This is not to say that these intentions precisely match what actually occurred on the ground—indeed it is this disjunction between what the colonizing power intended and what actually happened which must be one of our primary foci of study.

I propose subdividing colonial enterprises into four different types, according to the intentions of those doing the colonizing. The first kind of colonialism is Demographic, a simple migration of a population into formerly uninhabited territory as a response to historically particular push or pull factors, such as overpopulation or a migration of game animals. This kind of colonization is not necessarily centrally planned or administered, but may instead be the result of cumulative ad hoc decisions by the settlers themselves.

All other kinds of colonialism assume a native population which is to some degree inconvenienced by intrusive colonials. Such a colony requires organization. In this situation, the term "colonial" is essentially a label for hierarchically arranged relations of power between an indigenous population and an intrusive culture.
A given historical moment was the result of the interaction of a hierarchy of people with potentially conflicting motives. For example, the motives of the Crown may be distinct from those of the on-site administrators, those of the settlers (if any), and those of the indigenous peoples. Each situation had its own unique balance of conflicting motives mediated by the relative possibility of enforcement from above. The historical records created within these hierarchical relations may often be prescriptive, recording a colonial experience that never was rather than describing the real-world problems of policy implementation and enforcement. Archaeology serves as a control for this bias in the surviving administrative documentation.

The usual definition of colonialism is strictly economic. In a situation of Economic Colonialism, one people reorganize the economy of another for their own benefit. Relatively few actual settlers are required beyond those necessary to administer and enforce economic sanctions. For this kind of colonialism the intention of the colonizers is primarily profit, and any other concerns such as uniformity of religion are important only insofar as they contribute to the security of the colonial economy. Most of the discussions I have heard seem to assume that this is the only kind of colonialism, and that reified early modern states were madly competing tooth and nail to organize the first capitalist world economy.
Economic exploitation is not always the primary motive of a colonizing Crown. Political Colonization is the intentional planting of a new population in order to enforce control over a strategically desirable territory, or to neutralize the threat of an uncontrolled but not necessarily desirable territory. In this case, sheer numbers of settlers who can be counted on to participate in and support the cultural hegemony of the colonizing power are of greater importance to the Crown than potential economic profit.

A case can be made for a fourth kind of colonialism which does not involve large scale changes in demography, economy or political boundaries. Ideological Colonialism would be any act of enculturation enforced on an indigenous people by an intrusive group, and may include religious conversion, education, mass media, etc. To the extent that the created environment reflects ideology, physical displacement of populations (into government housing, for example) represents a form of ideological colonialism. Ideological colonialism always seems to accompany successful (long-term, stable) attempts at economic or political colonialism, although it can also work independently of these other forms.

Ideological colonialism can be a campaign of conversion aimed at an indigenous population, such as 18th century Spanish New Mexico or the 18th century French Jesuit
missions of the Mississippi Valley. Ideological colonization may also be a social experiment by the colonists themselves, such as Puritan New England. These are distinct phenomena with very different patterns of development.

Personnel occupying different positions within the colonial hierarchy may have very different intentions; the Crown may want a territory pacified or at least kept from enemy hands, while an on-site administrator will undoubtedly be looking for commercial opportunities, while individual settlers seek merely secure land rights. They may all justify their activities in the name of religious conversion of the natives—all forms of colonialism may be present simultaneously.

Stages of Involvement in the Colonial Enterprise

Just as different groups may enter into a colonizing effort for very different reasons, they may also invest relatively fewer or greater resources into a colony, with profound effects for how the colony develops. D.W. Meinig has defined six stages of colonial commitment; exploration, gathering, barter/plunder, commercial outposts, imperial imposition, and plantation (See Figures 2 & 3, Meinig, 1986:67). Although it is possible for these stages to be historically sequential, it is just as possible for a group to enter at an advanced stage, or to discontinue the enterprise with relatively little invested.
Meinig's stages of commitment are useful to both archaeologists and ethnohistorians. I have outlined below a series of my own predictions for what a researcher may expect to find in each stage.

Both the exploration and gathering stages will be transient occupations leaving little or no archaeological evidence. These stages of initial contact often provide critical ethnohistorical information on native population densities and settlement pattern. In the case of European contact with the peoples of the New World, these earliest travellers accounts come before the devastation of indigenous populations by Old World diseases. The language with which the natives are described is a clue to the process of identity formation already underway.
Meinig's Stages of Colonial Enterprise

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The Barter/Plunder stage is accompanied by a reciprocal introduction to the material culture of the strangers. New goods will travel extremely far within the foreign trade network, simply for their curiosity value.

A Commercial Outpost increases the amount of contact between native and newcomer, and will often produce participant/observer ethnohistorical accounts as colonizers gain self-identity as frontiersmen. There will be a loose network of shipping entrepots. On-site there will be concessions to new environmental conditions, possibly military and/or ecclesiastical architecture, and possibly a smattering of luxury goods. If there is a change in native economic practices to accommodate the new trade opportunities, there may be an erosion of the native polity. This is usually temporarily counteracted by rejecting intrusive religious elements as a method of boundary maintenance, or by getting into a war with the intrusive traders.

Imperial Imposition is by definition the defeat of the native polity, usually a direct result of the second option described above. To enforce such an imposition requires the permanent occupation of strategic territory, usually by installing military architecture. Civil administration usually means there will be monumental architecture, and an urban area in which to maintain an imported elite. Religious orthodoxy may be used as a benchmark for
establishing the hegemony of the intrusive (and now permanent) culture of occupation. The material culture of the colonials will become the "high style", although it will be more conservative, and change more slowly, than the material culture of the mother country.

Plantation is the wholesale demographic influx of settlers into a colony. This requires the retreat of the native population, and results in a shift in settlement pattern and landscape use. Local craftsmen will now imitate the material culture of the mother country to meet the consumer demand of the recently arrived settlers. These craftsmen and settlers will gradually assume a position of dependence within an economic and social hierarchy which favors the mother country at the expense of the colony. The usual mechanisms for maintaining this dependence are trade restrictions and debt.

Taken together, the four kinds of colonialism based on intent and Meinig's six stages of commitment to the colonizing enterprise can account for observed differences between particular colonial enterprises in the early modern period.

For example, 17th and early 18th century French colonies in the New World, although doubtless supported by the French crown, were primarily commercial outposts and Jesuit missions, undertaken with economic and ideological intentions. There were never large numbers of French
settlers, and only the minimal amount of military and political support necessary to maintain trade. When French North America became a theater within the larger Anglo-French struggles of the mid 18th century, the French colonies had neither the administrative expertise or the sheer weight of numbers available to the English plantation-form of the colonies to the south. When French intention changed with increased political competition, the stage of colonial commitment was found inadequate.

As another example, the 16th and 17th century English colonies of North and South America, Africa, India, Russia and Ireland can be clearly distinguished by analyzing the intentions of the English and their relative stage of commitment to particular colonies. England was not the first European power to contact any of the locations named above; English exploration, gathering, and barter/plunder activities were minimal. The activities of the English privateers of the Caribbean may serve as an example of barter/plunder. The "discovery" of a Northeast Passage to Archangel, Russia (1553) is an example of English exploration.

Commercial outposts account for nearly all of the English colonial ventures of the 16th and 17th centuries, including Madras 1639, Bombay 1665, Guinea 1664, and Archangel 1555. Quite often commercial interests met competition from hostile European nations, and political
and commercial intentions would then overlap; short term examples would include Guiana 1604,1609, and the Acadian coast of Maine. Longer term imperial commitments based on commercial interests include the West Indies (Bermuda 1623, St. Kitts 1624, Barbados 1627), New York (nee New Amsterdam 1664), and Pennsylvania (nee New Sweden 1641,1674). Full scale plantation followed commercial success in only a few outposts, notably in the West Indies and along the eastern seaboard of North America (Dates from Wolf, 1982:122, 151, 233; and Meinig,1987:40,74,129,130,163,164).

There are at least two examples of a plantation level of commitment undertaken for ideological intentions; Puritan New England and Catholic Maryland, although both had modest commercial incentives as well.

Throughout the period of expanding English foreign interests outlined above, the Crown of England was committed to a policy of what I have called Political colonization in Ireland. The Crown intended to neutralize the threat of a hostile population and the potential for the occupation of Ireland by hostile powers by displacing the Irish with planted English colonists.

The creation and plantation of County Londonderry was part of the larger ongoing effort to establish an English population in Ulster. The usual method was for the crown to grant territory to an English planter or "undertaker", Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
who would then undertake the colonization of his lands with English settlers. The undertaker enjoyed a broad range of judicial privileges within his estate, while collecting rents and encouraging the mills, markets and industries necessary for the survival of a new community.

Privately administered Ulster plantation estates often fell short of the goals for which they were intended. For a variety of reasons the private undertakers were often under-financed, and therefore unable to fulfill their obligations to the crown. Private plantations often failed to remove the native Irish from the land; or when they were successful in displacing the native Irish, the new colonists were Scots Presbyterians rather than Anglican English farmers.

In 17th century County Londonderry, the crown was driven by explicit intentions both to pacify the countryside and to neutralize a presumed (and justified) threat of enemy occupation by either Catholic France or Spain. Royal policy was to displace the natives with a full scale plantation of English settlers loyal to the Crown and conformist in religion. The degree of Crown intervention and supervision in the Londonderry plantation was extraordinary, and possibly unique for the period. This included the coercion of the largest commercial body in England (the City of London) to take full financial and administrative responsibility, monitored by numerous
official surveys answerable to the Crown. However, the intentions of the Crown did not match those of the personnel at any other stage in the hierarchical administration of the English colonies in Londonderry.

Seen from the top down, seventeenth century County Londonderry is an extreme example of an intentional political colonization, backed up by both imperial imposition and a plantation level of commitment to the colonizing enterprise. Viewed from the perspective of "middle management", Co. Londonderry was a commercial outpost of very modest potential. Further down the social ladder, individual English farmers encountered high rents, no cash crops, and hostile natives—few saw any advantage in moving to Ireland at all. The native population was simply anxious to retain their homes.

Ulster Historiography and Archaeology of the Period

There are several distinct schools influencing the way early modern Irish history is being written. One school, heavily informed by the politically charged work of writers like Pagden and Hobsbawm, is represented best by the work of Nicholas Canny, C. Brady and R. Gillespie. These writers are concerned with the construction and legitimation of the boundaries of group identity between the "Old English" of the Pale, the "New" English of the Plantation, and the Gaelic Irish. This school tends to de-emphasize the role of individual players, or the intentions or self-proclaimed
rationalizations for individual historical actions. These writers are concerned instead with how disparate peoples shaped one another's identities within the context of an inexorable rise of the early-modern State.

A second trend in Irish historiography grows directly out of the discipline of cultural geography, tracking demographic shifts as well as the distribution of various diagnostic cultural forms and traditions across the landscape. This group includes E.E.Evans, P.Robinson, A.Gailey, H.Glassie, J.S.Curl, and most of the archaeology and folklore community, with obvious overlapping interests. This group is most often concerned with the interactions of environment, economy and tradition.

Finally, there is an older generation of political/economic/social historians to which both of the above groups owe a heavy debt. This generation includes T.W.Moody, still the definitive secondary source on the Plantations of Londonderry, E.Estyn Evans, folklorist and cultural geographer extraordinaire, and D.B.Quinn, who published several of the early monographs on comparative colonialism and taught N.Canny.

The degree of native centralization is subject to continued debate—the physical centralization of settlement pattern, the social centralization of effective political control, and the economic centralization of trade goods in circulation are all open issues (McErlain,1983;
Glasscock, 1983; Robinson, 1984; Currie, 1983; Canny and Pagden, 1987; Brady and Gillespie, 1986). These debates are currently the axis of several historiographic squabbles in the literature. Everyone seems to agree that Irish society was rapidly changing in response to both the continued English incursions throughout the Tudor period and a modest increase in trade contacts with continental Europe. This leaves us with a nagging question lying just under the surface of the debate; What was the degree of cultural hegemony within Gaelic society? Were there perhaps several Gaelic cultures (excluding here the old English), distinguishable by regional distribution or social stratification, operating in pre-plantation Ireland?

Unfortunately there is very little to write about the archaeology of the late-medieval and early modern periods in Northern Ireland. This holds true for both the indigenous Gaelic-speaking culture and that of the English planters. This dearth is due in part to the transhumant, extensive settlement pattern of the Irish themselves during this period. It is also due to the tremendous pressures on the local archaeological establishment to mitigate the rapid destruction of far older cultural resources (Barry, 1987).

There is a small but growing body of literature on Ulster material culture in the late-medieval and early-modern period. There are two excavated kiln sites, at
Carrickfergus, in County Antrim and at Downpatrick, in County Down (Pollack and Waterman, 1963; Simpson and Dickson, 1981). There are a handful of possible residential structures which have been excavated, fuelling an ongoing debate on the variation of native structural forms (O'Riordan and Hunt, 1942; Williams and Robinson, 1983; Brannon, 1984; Buchanan, 1973; Gailey, 1984). From these studies there is emerging a baseline for the material assemblage of the pre-plantation Irish from which we will eventually be able to draw meaningful comparisons to later adaptations in the Plantation period.

As it now stands, archaeologists are safest when making straightforward "English/non-English" distinctions within a plantation-period assemblage. We have yet to assess the degree of transplantation of English material culture and economic practice to the Ulster frontier. We know that the English established defensive fortifications along state-of-the-art European models (Brannon, 1986:93-95), supplemented by high-style civilian fortifications displaying a variety of English, Scottish and Irish vernacular details (Jope, 1960; Waterman, 1960; Johnson, 1980; Brannon and Blades, 1980; Brannon, 1985).

There is good evidence for modest worker housing in English urban areas (Robinson, 1983a), as well as an early transplantation of central-chimney hall and parlor houses from the vernacular tradition of southeast England.
(Robinson, 1983b; Robinson, 1979; Blades, 1981). These homes display a certain amount of adaptation to the local availability of building materials (Blades, 1986; Blades, 1981). By the later half of the seventeenth century a mass-walled vernacular houseform was established, based primarily on Scottish traditions (Robinson, 1984; Robinson, 1979). There was a modest investment in water-driven machinery and, more intensively, in various wood-burning industries (Robinson, 1982; Moody, 1939).

As with the indigenous studies, there still remain some basic archaeological questions of domestic economy and assemblage sequences. When a few more residential sites for both groups have been excavated, we can begin to ask questions about the subsequent adaptations of each group to the new and unique society formed by the interactions of their cultures.

Survey of the "Grand Events" leading up to and including the Second Plantation

Politics and high finance are not a big priority of this study. I would prefer to watch how ordinary people came to terms with the landscape, worked out solutions to the disjunction between their inherited material culture and the new environment in which they found themselves, and the cultural interactions which characterized 17th century County Londonderry. However, the context in which ordinary
people live their lives is often dictated by the decisions of the self-proclaimed movers and shakers. The following is a brief review of the Grand Events leading up to and including the Plantation period; including reigns and wars, policies imposed from above, and oft-times avoided from below.

The post-plantation period, after the abandonment of Salterstown as a village per se and therefore technically outside of our immediate concerns, will only be traced at the local level of events on the Salter's Proportion. That discussion is included in the documentary history of Salterstown.

During the 16th century England was at war most of the time, often on several fronts. Whenever resources could be spared from various engagements with enemies from or on the continent, the Elizabethans were trying to maintain and extend English control in Ireland. There were four major Irish rebellions against the English in the 16th century, as well as a myriad of local conflicts.

The first major Rebellion 3 was led by Shane O'Neill (1530-1567) operating out of Ulster, and was written up by

3. When a colony of England engages in war with that power, and loses, the English refer to the incident as a "rebellion". The losers tend to call it a "rising". If the rebels win, the winners call it a "revolution", while the English call it a Great Rebellion and capitalize it. If the English succeed in defeating themselves, the incident is a "glorious revolution". Caveat Emptor.
the contemporary G.R. Elton. The rebellion did not survive the death of its leader. The second rebellion was led by James FitzMaurice FitzGerald, out of Munster, and was crushed in 1572. FitzGerald fled to the continent, where he met with Henry III of France and Don John of Austria, offering the crown of Ireland to each in turn. This did not endear him to the English, who remained concerned throughout the century that Ireland might welcome a foreign sovereign, who would then use the island as a staging area for an invasion of England.

The third rebellion of the 16th century was led by the Earl of Desmond, again working out of Munster. He was joined by Turlough O'Neill of Ulster [See Figure 5]. Desmond had arranged for a mixed force of 600 Spaniards and Italians to help with the fight, a tactic which confirmed the worst fears of the English. In 1580, at Smerwick on the Dingle the rebels faced English artillery, parleyed for surrender, and laid down their arms. Lord Deputy Grey of Wilton then handed orders to a young captain, who proceeded to execute all 600

of the captives. The captain was one Walter Raleigh. The Desmond rebellion limped along for three more years, and was finally halted by general famine in 1583.

The lands of Munster were confiscated by the Crown following the Desmond rebellion, and a plantation was established there by a syndicate which now included Walter Raleigh. The Munster Plantation was in many ways a testing ground for English colonial policies, and mirrors in its demise many of the tragic shortcomings of later plantation enterprises. Of specific interest was the "official" policy requiring settlers to live in defensible villages. This policy was ignored for economic reasons, with tragic consequences in the plantations in Munster in 1598, Virginia in 1622, and Ulster in 1641. At all three plantations the colonists were massacred (in those years, respectively) as a result. Official policies for defense never took into account the economic requirements of actual settlers on site.

The 4th and largest rebellion of 16th century Ireland was led by Hugh O'Neill, Earl of Tyrone (1550-1616), based

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4. There is an interesting story associated with the Desmond rebellion, where the rebel Murrough O'Brien was executed at Limerick by a combination of beheading and quartering. The poet Edward Spencer witnessed the victim's foster-mother take up the severed head and drink the blood, saying that the earth was not worthy to drink it. This may be one of the last references to the ancient Celtic cult-practices associated with severed heads. Spencer suggested further beheadings and quarterings to cure the Irish of this barbarous practice (O'Brien,1985:55).
out of that County. At the Battle of Yellow Ford, in 1598, the Irish experienced their greatest military success of the century over the forces of the Earl of Essex. The Earl was replaced by the truly brilliant officer Charles Blount, Lord Mountjoy. O'Neill and Red Hugh O'Donnell swept south out of Ulster and torched the Munster plantation. In September 1601 4,000 Spanish infantry landed under Don Juan de Aguila. Due to a scheduling problem, O'Neill was unable to join forces with de Aguila before Mountjoy engaged the Spanish at Kinsale. On Christmas day, 1601, Mountjoy defeated the Spanish despite O'Neill's ineffectual attempts to break the siege.

There were several important consequences of the last O'Neill rebellion. Mountjoy was determined to pacify Ireland at the source of resistance, and marched on Ulster, setting up forts and destroying the inauguration stone of the O'Neill's at Tullaghoge. O'Neill and his captains surrendered to the Crown, and their lands were then regranted within English law. The Gaelic elite were now partially integrated into the English system of territorial law, becoming in effect landlords where once they had been chieftains. This apparently did not suit the temperament of the Irish nobility, and on 14 September, 1607, most of the surviving Gaelic elite sailed out of Lough Swilly for the continent, and never returned. This was the famous "Flight of the Earls", a symbolic marker for the final dissolution
of Celtic political autonomy. 5

Within the larger events of Tyrone's rebellion were nested several events key to subsequent local developments in the region which was to become County Londonderry. The O'Cahan were one of the powerful kin-groups traditionally associated with the O'Neills. In 1598 Donnell O'Cahan joined Tyrone's rebellion, and in response Sir Henry Dowcra (an old hand in the British occupied outposts of the North) ravaged the O'Cahan country for the following two years. After the defeat at Kinsale in 1601, O'Cahan switched sides and served Dowcra against Tyrone. This allowed Dowcra to strengthen British-occupied Derry and fortify Dungiven, which commanded the passes into the forests of Glenconkeyne. He was now also able to garrison Coleraine. Trapped in his own forests and unable to resupply himself, the rebel Tyrone was forced to surrender in 1602 (Moody,1939:56).

Under the terms of surrender and regrant, O'Cahan was treated as a tenant of Tyrone, the man he had betrayed and helped defeat. O'Cahan and Tyrone ended up squabbling over their new land claims in English court in 1606 (actually the Irish privy council), presumably to the delight of the English. For services rendered to the Crown, O'Cahan was knighted in 1607. Three months later he was left behind in

a good position for installing himself in the power vacuum left by the Flight of the Earls. The English immediately recognized O'Cahan as a threat; he was arrested in 1608 and transferred to the Tower of London where he remained for the rest of his life (Moody, 1939:57).

With the end of the rebellion the various tiny forts dotting the Northern landscape fell quickly into disrepair, and Derry's garrison was drastically reduced. Yet both Mountjoy and Dowcra were worried that the natives remained dangerous. As early as 1605, the Irish council suggested that the area could only be held if it was replenished, "...with merchants, tradesmen, and artificers from England and Scotland, which must be commanded by authority to come over and compelled to remain and set up their trades and corporations" (in Moody, 1939:60). It is interesting that voluntary colonization was not entertained as a option.

With the Flight of the Earls in 1607, their lands became forfeit to the Crown. These lands became the escheated counties of Ulster, all but one were subsequently planted by private undertakers holding Crown patents. The last county lay in the lands of several of the septs which had been retainers of the O'Neill's (particularly the O'Cahan holdings), and was considered by Mountjoy to be (along with Co. Tyrone) the most dangerous land in all of Ireland.

Unlike the enterprise afoot in Virginia, the King felt
it was necessary to enlist large corporate bodies to administer the settlement and pacification of that last bastion of Celtic autonomy, the rebellious country of Northwest Ulster. Although there was apparently no shortage of private individuals willing to serve as undertakers following the Flight of the Earls, requests for patents for the countryside between Lough Neagh and Lough Foyle were only rarely granted. There were several reasons for this policy; this stretch of countryside was the stronghold from which any subsequent resistance to English plantations would come. The area included two major settlements, at Derry and Coleraine, which required simultaneous developing and fortifying. Pacification and plantation had to be consistent and complete, requiring a more centralized administration (and more convenient Crown supervision) than individual undertakers would afford. It would also require a great deal of money. In April or May of 1609, the Livery Companies of the City of London were approached by the Crown with a scheme for settling the entire County of Coleraine at City expense (Moody, 1939:64).

In May of 1609, the James I's privy council issued the "Motives and Reasons to induce the City of London to undertake plantation in the North of Ireland", a promotional tract designed to lure the Londoners into thinking that they could make a profit in Northern Ireland. Included were items stating that Coleraine and Derry could
be made impregnable "at small charges", and various offers of trade control including "the benefit of all customs on goods imported or exported, as also tonnage and poundage, and the great and small customs, for 21 years". Additionally, the King offered: to buy all fishing rights in the region and bestow them upon Coleraine and Derry, to bestow Admiralty jurisdiction to the Companies for 21 years, to grant the free export of all goods "growing on their own lands", as well as all "the Land Commodities which the North of Ireland affords" (C.S.P.I. 1608-10:207-8, Articles 2,4-7). The "land commodities" referred to are listed in Article 10:

There is wood for pipe staves, hogshead staves, barrel staves, hop staves, clap boards, wainscot, and dying ashes, glass and iron work; copper and iron ore there found abundantly (Ibid. Article 10:209).

In addition to the profits to be had by the individual Companies, the Crown suggested several reasons why the Plantation in Ulster would be of general benefit to the City, and to the Kingdom as a whole:

If multitudes of men were employed proportionally to these commodities, many thousands would be set to work, to the great service of the King, the strength of his Realm, and the advancement of several trades. It might ease the city of an insupportable burthen of persons, which it might conveniently spare, all parts of the city being so surcharged that one tradesman is scarce able to live by another; and it would also be a means to free and preserve the city from infection, and consequently the whole Kingdom, which of necessity must have recourse hither, and being pestered and closed up together can never otherwise or very hardly
avoid infection (Ibid.).

This evocation of the overcrowding, disease and underemployment of 1610 London is concluded with another monetary lure. Not only will Ulster provide commodities for London, but will provide a market for London's products as well; "These colonies may be a means to utter infinite commodities from London to furnish the whole North of Ireland and Isles of Scotland" (Ibid.).

This document bears striking similarities to the Virginia Company's "True and Sincere declaration", a document defending the disastrous early years of that colony, particularly in the perceived overcrowding of London, the advantages of expansion to the greater Kingdom, and the specific commodities sought. Obviously, these enticements do not reflect the Crown's motivations for promoting plantation schemes, otherwise we would be tempted to conclude that the colonial enterprise on both continents was carried out because Londoners really needed more soap... That the Londoners were less than enthusiastic can be deduced by several lines of evidence. The companies were at first only asked to poll their membership for voluntary contributions--this was greeted with hostility by some, while others simply refused to attend the meetings. The reaction of the Company of Barber-Surgeons was instructive--they offered that the mayor donate on their behalf L100 of the L123 owed to them from a
previous loan to the king (Moody, 1939:72). After the City was legally committed to raise £20,000, the Crown began to insist on levying the Companies for funds; all of the Companies were slow to comply. After repeated levies several company officers were thrown in jail until funds appeared. "Thus at the outset the companies on the whole showed no enthusiasm for, and some positive hostility to, investing money in Ireland" (Moody, 1939:72).

Although they were apprehensive, representatives of the Livery Companies met with the Privy Council in July of 1609, and agreed that a deputation should go to Ulster and report on the suitability of the land for plantation by the Londoners. This agreement played directly into the hands of the Crown's council, who instructed their Lord Chichester carefully on what the Londoners should and should not see during their visit. He was specifically ordered to take care that they should have only favorable impressions, that their guides should be able to silence "disturbing rumours" and lead their guests through attractive ways, lodge them in English houses where possible, and demonstrate the profitability of the enterprise. Chichester was further warned that he should let no private interests hinder any desires the viewers might express (Moody, 1939:73; C.S.P.I. 1608-10:266).

Needless to say, the viewers liked what they saw, particularly the woods of Killetra and Loughinsholin, which
had not been entirely part of the original territory as envisioned by Chichester. The Londoners insisted that these woods, as well as lands roundabout Coleraine and Derry be included in the envisaged Plantation. The Londoners' demands required adjusting the boundaries of the original County Coleraine to take in bits of Co.Tyrone, Co. Antrim and Co.Donegal. The result was the creation in the 17th century of the new County Londonderry. On January 28, 1610, Articles of Agreement were signed committing the Companies to the Londonderry Plantation (Moody,1939:77; C.S.P.I. 1608-1610:489).

The Articles of Agreement were read before the Common Council of the City of London (Jan 1610), where it was decided that, in order to administer the City's new commitment effectively, a Company should be created. The Irish Society 6 was to act as the City's overseer to the individual Livery Companies, and was to coordinate the City's activities with the requirements of the Crown, via the Privy Council. The Society was authorized to hold courts, to administer the collection of levies, and to enforce policy (Moody,1939:80-2). In effect the chain of command ran from King to Privy Council to Irish Society to Livery Company to on-site Undertaker or Agent.

6. The Irish Society was at first named "The Society of the Governor and Assistants, London, of the New Plantation in Ulster, within the Realm of Ireland" (Moody,1939:82).
There is a legal nuance here that needs to be addressed. The Articles of Agreement of January 1610 are strictly speaking an agreement specifically between the Londoners and the Crown's Privy Council (C.S.P.I.1608-10:359-62). However, another document called the "Articles of Plantation", or "Conditions to be Observed by British Undertakers in Ulster" was drawn up in April 1610, and was intended as a guide for all the plantations of Ulster, not just the Londonderry plantations (B.M.Landsdowne MS 159, ff.217-23). Both of these documents are revisions of two earlier documents written in Jan.1609; "A Collection of such Orders and Conditions as are to be Observed by the Undertakers upon the Distribution and Plantation of the Escheated lands in Ulster" (in Hill, 1877/1971:78-89), and "A Project for the Division and Plantation of the Escheated lands...in Ulster" (Moody, "Ulster Plantation Papers", Analecta Hibernica, viii; and Hill:90-116). The discrepancies between these documents, and their undefined relationship to one another, proved fertile ground for a running legal battle between the Crown and the City for the following 30 years.

The details of the 27 Articles of Agreement will not be enumerated here 7.

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7. For a detailed synopsis of the original Articles of Agreement and their subsequent amendments, see Curl, 1986:33-36.
but one Article bears mentioning in relation to later
events at Salterstown. Unlike the original offer presented
to the London Companies, the Articles of Agreement
expressly forbid the use of timber for anything but the
necessary purposes of the Plantation—it was not to be
commercialized. (Moody, 1939:79; Phillips MSS, 13-16,
Article 7).

T.W. Moody pointed out that the organization of the
Irish Society was analogous to the governing bodies of 17th
century joint-stock companies such as the East India
Company, the Virginia Company of London, and the
Newfoundland Company (Moody, 1939:83). However, the joint
stock companies were private enterprises which required
voluntary investment and promoted individual profit. The
Irish Society was enforcing mandatory levies on ancient
Guilds, which in turn imposed fine quotas on individual
members for the enforcement of Crown policies
(Moody, 1939:97).

Many of the same individuals were involved in both the
Ulster plantation and various private joint-stock colonial
ventures in the New World. "The incorporators named in the
second Virginia charter (23 May 1609) consisted of 659
individuals and 56 City companies, the latter representing
the 55 companies involved in Ireland and the Gardeners
[Company]" (Moody, 1939:97). The City companies were
voluntarily investing far less into Virginia than they were
required to provide in Ulster. Three years later, when the Virginia Company was again in desperate financial difficulty, none of the City companies chose to invest, although some did buy lottery tickets. In Moody's words;

It is thus highly probable that, had the Irish plantation not involved a heavy drain on their financial resources, the City companies would have borne a much larger part in the Virginia plantation than they actually did (Moody, 1939:98).

The Plantation was undertaken by companies unwilling to take on the job, who had been lured by promises of commodities monopolies and a rigged survey. For the proportions in the southeast section of the county, the most lucrative commodity was timber, which they were not permitted to exploit. The companies were resentful of their heavy-handed treatment by the Crown, and apprehensive about their growing financial commitment.

What followed was a situation where on-site administrators were desperate to make their settlements solvent, and in so doing staunch the financial hemorrhaging of the Londoners (if not turn a tidy profit for themselves; For a detailed analysis of the finances of the Plantation see Moody, 1939:335-9 and his appendix C). If possible this was to be accomplished within the strictures of the Articles of Agreement, but ultimately this proved to be too difficult for most of the Companies. There were tremendous financial incentives for looking the other way when company agents mentioned that the Irish were willing to pay
higher rents than the English could afford, or that pipe-
staves were profitable.

As late as 1622, some companies still had not finished
the requisite number of structures on their proportions to
fulfill their obligations under the Articles of Agreement
(See Phillips-Hadsor survey). As with the colonies in
Virginia, a wide variety of small-scale industries were
attempted from the earliest period of settlement, including
sawmills, glasshouses, soap making, etc.

The individual livery Companies of the City were
grouped into 12 bodies, each responsible for developing 1
of 12 "proportions" created within the county. The Company
proportions were named for the largest company within each
of the 12 bodies, thus the Salters proportion was also the
responsibility of the Woolmen, the Joiners, the Saddlers,
the Cutlers and the Dyers (Curl,1986:320). The Companies
received their proportions by lottery in December of 1613
(Curl,1986:62). The Crown granted letters patent for the
Company holdings in 1615, although these letters were
withheld by the Irish Society until each Company named at
least five residents on-site capable of attending assizes,
court sessions, and performing jury duty. By law and
ancient custom such men had to be freeholders, not under-
tenants. The Companies gradually complied, and received the
Patents to their estates between 1617-19 (Moody,1939:179-
80). The Salters Patent was conveyed 12 Feb.1619
Although the London Companies may not have felt particularly noble about it, as the best financed and most carefully monitored English colonies of the period, their plantations were seen at the time as potential examples for the private undertakers elsewhere in Ulster to emulate. Thomas Blenerhasset, a private undertaker in Fermanagh, was overjoyed that the Londoners were to be involved in Ulster;

Their spacious coffers have the receipts of England's treasure...They have O'Canes country, and whatever Ireland's Eden can afford, and therefore even in respect of their own reputation, they of themselves will preforme this the most honourable action that ever they attempted. Therefore let Coleraine rejoyce, for the heart of England (London herselfe) will no doubt make her more beautifull than many, and furnish Loughfoyle with a goodly fleete (Blenerhasset, 1610, in Moody, 1939:63).

Perhaps because of their high expectations of the well financed Londonderry plantations, it was the private undertakers who first became disillusioned with the actual performance of the Londoners.

Within two years of signing the Articles of Agreement, the Crown and the City were accusing each other of breaches of faith. The Londoners were upset that certain earlier servitors were still occupying Londoner land, and were still exercising patent privileges the Londoners felt they had no right to. The Crown was informed through several far-from-disinterested parties that despite massive claimed disbursements the Londoners had accomplished next to
nothing, and maintained the native population on their lands (Moody, 1939:118). The most effective and persistent critic of the Londoners' performance was Sir Thomas Phillips, a private undertaker displaced by the grants to the Londoners. Although in a sense Phillips is thought a hero by the few interested historians and archaeologists who know of him, particularly for his unflagging attempts to save the Plantation and hold the Londoners to the Articles of Plantation, he is owed tribute by a far wider audience. In 1608 he received an obscure patent for distilling whiskey in the county. The Bushmills distillery traces their company history back to that patent, making Phillips eligible as an international hero to this day.

In 1612 James I commissioned an inquiry into the actual performance of the Londoners; this inquiry became a virtual campaign of surveys at irregular intervals for the following 10 years (Moody, 1939:120). The first official survey of Londonderry was by Lord Carew in 1611 (Carew MSS 630:Fols42-48), in which he confirmed that the Irish Society had sent workmen to begin fortifying Derry and Coleraine. The King's survey of 1613 doubtless was carried out but no records survive (Moody, 1939:159).

The London Companies themselves sent two aldermen into Co. Londonderry for the purpose of policing the companies' on-site appointees. This resulted in the 1613-14 Smithes
and Springham report (surviving in two parts; Carter MS:386-402; Letter Books of the City of London L.B.EE:ff174-177). The report accused the City's chief agents John Rowley and Tristram Beresford of widespread abuses, including cutting trees and selling the timber, misappropriating City funds for their own accounts, and not paying their own workmen. One ingenious ruse of Rowley's was to buy up most of the hauling carts in the area and then charge the City, represented by himself, exorbitant hauling fees for the building projects (Moody, 1939:145-151).

Four surveys were launched between 1614-22, three of which survive for Londonderry. In addition, the City commissioned another survey in 1616 (Proby/Springham), which survives (Moody, 1939:159). Sir Josias Bodley conducted a survey in 1614 (Carter:522-9). Bodley accused the Londoners of gross mismanagement, suggesting that if they had really spent £50,000 as they claimed, at least £20,000 had been misplaced. The only Company proportion outside of the cities of Coleraine and Derry to show any progress was the Salters land (Ibid, in Moody, 1939:161).

During 1614 the individual companies became serious about building on their own proportions. Immediately there was a flurry of letters back to the Companies asking permission to keep the Irish on the land at least temporarily, as the Irish were providing food, labor and
rent money to the on-site undertakers and Company agents. The City petitioned the Privy Council, suggesting that if the Irish were to take an oath of religious conformation, they be allowed to remain. James I personally rejected this suggestion, complaining bitterly that the chief aim of the plantation was to remove the natives, which had not yet happened (Moody, 1939:164). However, no action was taken.

Almost on cue, several of the younger sons and petty nobility of the remaining Irish gentry were caught conspiring to lead a new rebellion, to be centered out of the woods of Loughinsholin, in the new Co. Londonderry. Six of the conspirators were hanged in Derry in July, 1615 (Moody, 1939:166). Aside from the threat of general rebellion, the displaced Irish nobility were also a threat to everyday law and order, carrying out a guerrilla campaign of banditry for which they were called the "wood-kern". Man-hunts were periodically attempted by the Londoners; in the winter of 1616-7 over forty wood-kern were put to death (Moody, 1939:178).

The Irish Society sent commissioners Proby and Springham to survey progress on the plantation the summer of 1616 (Letter Book FF of the City of London; ref. Moody, 1939:169). In November of that same year Bodley carried out another survey for the King (unfortunately this document does not survive). The two reports generally corroborated each other; the graft of the John Rowley/
Beresford administration was now tempered by Beresford alone, who had been retained (Rowley meanwhile established himself as agent for the Draper's Proportion). The Companies had made very little progress on their estates, few settlers aside from the hired workmen were in Ireland, and the cities of Derry and Coleraine were still indefensible (Moody, 1939:174-5).

Bodley's second survey was negative enough that in July 1617 the privy council charged the Irish Society with breach of Agreement-- although there were no legal consequences, this was the first formal charge brought against the City by the Crown (Moody, 1939:178).

The next survey commissioned by the King was lead by Capt. Nicholas Pynnar, official inspector of the fortifications of Ireland. Word got back to the Irish Society that the King had commissioned this survey, and a warning went out to the individual companies regarding perceived deficiencies in their estates. Pynnar's survey of Dec 1618-March 1619 was the most detailed to that date (surviving in two versions; Lambeth Carew MS 613/ Cal Carew MSS:392-423 and in Hill,1877/1971:451-590).

It was Pynnar's survey which showed how completely dependent the English had become on their Irish tenants for high rents. The Irish, not knowing how long they would be allowed to stay, were raising cattle rather than tilling. Pynnar suspected that if it were not for the few Scotsmen
actually tilling the soil, the entire county might starve. Pynnar recognized that the English now needed the Irish to stay, since no English farmer could pay the rents the Irish were paying. He also recognized that allowing the Irish to stay was a direct threat to the security of the entire Plantation (in Moody, 1939:185).

Following receipt of Pynnar's survey, the Solicitor General of the Crown sent the Irish Society a long list of complaints. Again, no formal action was apparently taken, although in Sept, 1619 the King announced that the Ulster undertakers were liable to forfeit their estates. Moody suspected ulterior motives here; "Yet, willing to be merciful, he [the King] would grant them new patents if they would agree to double their rents and to pay certain fines" (Moody, 1939:192). A deputation of undertakers for all of Ulster responded by agreeing to the King's offer only if they were allowed to maintain the Irish on 1/4 of their land. There followed a period of 2 years of legal dithering with no settlement agreed upon.

In 1622 a commission was formed to survey all of the plantations in Ireland, including King's and Queen's Counties, Munster, Ulster, Wexford, Longford and Leitrim. In Londonderry the survey was headed by Richard Hadsor and that old enemy of the Londoners, Sir Thomas Phillips (Survey in B.M., Add.MS.4756, ff.119-123). The survey was executed between August and October, 1622, and fortunately
included the superb maps of Thomas Raven (Raven maps in Lambeth Library Carew MS.634, facsimiles in Phillips MS, Chart, 1928, other versions of originals in Draper's and Goldsmith's archives).

The Phillips/Hadsor survey is the first surviving attempt at complete population statistics for the County. Phillips noted that although the fortifications at Derry and Coleraine were now complete, there were too few men and arms to defend the walls, and too few freeman to maintain civil administration. Several of the early fortifications, built hurriedly to fulfill the Articles of Agreement, were already in decay. The second Bawn on the Salters land, at Magherafelt, was in decay and used only as a pound for cattle (Moody, 1939:199-201).

The Phillips/Hadsor survey was the opening salvo in a duel between the London Companies and Phillips himself, a fight which would last until his death. Phillips sent a barrage of complaints directly to the King. The King would forward these complaints to the Star Chamber, which began a series of legal sanctions against the Londoners, culminating in two confrontations between the City and Crown, one legal in 1635, and one revolutionary in 1641-2.

In 1623 there was a renewed fear of Spanish invasion, and an outbreak of kern activities in Londonderry. The privy council began an inquiry into the defensive preparedness of Ireland, and concluded that the
fortifications at Derry and Coleraine were weak points. This inquiry pointed out that the Plantation was particularly vulnerable because of the resident native population. The Salters were collecting L24/5/0 in rents from 147 Irish tenants. This was the second highest number of Irish on any proportion in the County, the highest being the Drapers, neighboring immediately to the west (C.S.P.I.1615-25:471-2; Moody,1939:218). Moody notes that these figures do not agree with any other sources of the period, whether by the reckoning of the Londoners or Phillips; they should be regarded with a grain of salt.

As a result of the inquiry, the privy council ordered a series of reforms, both in the number of resident natives and the details of fortifications. The City replied that the requirements of the original Articles of Agreement had been fulfilled, and it was uncertain that the City should be liable for stipulations under the more general Articles of Plantation, or any subsequent whims of the Crown (Moody,1939:218-21).

The Londoners complained loudly during subsequent reviews of their performance on the plantations that they had undertaken them against their will. In the "Answer of the Common Council of the City of London to the foregoing Proposition of the Lords of the Privy Council concerning the alleged defects in their Ulster Plantation, June 2, 1624", the City brought their own complaint to a fine
point, and;

"Prayed their Lordships' favourable construction of their proceedings in this Plantation, which they never desired, but took in hand in obedience to His Majesty's pleasure, and to their loss and damage" (C.S.P.I. 1615-25:502).

From then on relations between the City and the Crown deteriorated yet further.

The Crown responded that since the City obviously could not adequately oversee its plantation, it should be required to pay some skilled gentleman who could— and suggested Sir Thomas Phillips! The City refused this thoughtful suggestion outright.

In September 1625, the privy council ordered the Irish government to sequester all rents of the City. Agents of the Crown were frustrated to find that rents were collected and forwarded a bit early that year, and were already in London by the time the sequestration commenced (Moody, 1939:229-30).

A conference between representatives of the City and Crown was held at the Savoy 21 March, 1627. In that conference the City took a stance that they were not bound by the Articles of Plantation, but only by the Articles of Agreement. The Crown (now embodied by Charles I, James having died in March 1625) declared that both retention of the natives on the land and shortcomings in fortification were breaches of recognized obligations. Any further demands by the Crown were a matter of State necessity, and
beyond legal reproach. However, the Crown was heavily in
debt to the City for financing the current wars with Spain
and France, and all charges were dropped (Moody, 1939:131-
36).

A Royal Commission of Inquiry was established 16
August, 1627. The commission reported that the fortification
of the County were incomplete (Phillips MSS: 112-113, 123-
7, 138-9). In response a second sequestration of rents was
attempted in May of 1628. Sir Thomas Phillips was asked to
assist. He reported that his agents were so terrorized by
the British of the County that they applied to him for
personal protection. In July the sequestration was
withdrawn.

According to the Phillips copy of the official report
of the Royal Commission, the Salters now had 76 British
settlers and 181 Irish. One of the Salters' tenants,
unnamed in the report, was accused of despoiling the woods
(Phillips MSS: 138-9, 96-7).

The Star Chamber, under the direction of the attorney-
general, began proceedings against the City in 1630.
Phillips was again dispatched to Londonderry to collect
information. He noted that tenants were now afraid of
punishment if they spoke to him (such tenants were dubbed
"Phillipian"), and compared the tyrannous atmosphere of
Coleraine to the Spanish Inquisition (in Moody, 1939:263).
By 1633 the Star Chamber was ready to prosecute their case,
but the city forestalled them by offering the King, via his privy council, £20,000—no settlement was reached but the suit was suspended. Finally in January 1635 the actual trial began in the Star Chamber.

Moody has suggested that the Star Chamber was not an objective judicial body, but was instead an instrument of policy enforcement and fund raising for a Crown increasingly strapped for cash (Moody, 1939:355-6). Charles I was in debt to loans outstanding from the City of London to the tune of £200,000, or roughly 10x the amount expected from the Londoners for the entire Plantation. Due to several wars with France and Spain, the City was constantly besieged with new requests for money from the Crown. Although they must have resented it, the City was more or less helpless to defend itself from both these requests, and the pending suit in the Star Chamber.

The trial lasted a month, and is better documented than any Star Chamber trial preceding it. The charges were: i, a surreptitious procuring of patents, ii, failure to plant British settlers, in accord with the Articles of Plantation, iii, failure to fortify as agreed, iv, spoilation of the woods of Loughinsholin, and v, failure to assign church lands. The second charge was the most damaging (Moody, 1939:359). The Londoners maintained in court that they were not liable to the general Articles of Plantation, and were not therefore required to displace the
Irish. All previous attempts to do so were to be seen as "an endeavour of obedience, not of contract". Twenty two judges unanimously found the City and the Irish Society guilty of all charges. A fine of £70,000 was suggested, as well as a surrender of all Patents to holdings in Ireland (Moody, 1939:368). A little over a year later, Sir Thomas Phillips died a happy man.

After a year of negotiations, the City made a deal whereby the fine was reduced from £70,000 to £13,000. From that time until the Restoration, the London Companies had little connection with their former lands. The tenantry apparently stayed on the land, although their uncertain tenure must have been uncomfortable. Civil administration carried on with most of the same personnel in place. What continuity there was during this period is owed to the efforts of Lord Deputy Wentworth, who fought for the interests of the settlers against repeated offers to the King by various Scottish adventurers to take over the Londoners' rents for a large annual fine to the King. Wentworth recognized that if the current settlers were displaced by new undertakers then the entire Plantation would have to start again from scratch, although he phrased his complaint as a defence of the Church of England against the rising tide of Presbyterianism in Ulster (Moody, 1939:394).

In March 1639 a commission was formed to inventory and
collect rents due to the Crown from Co.Londonderry. The Commissioners were Sir Ralph Whitfield and Thomas Fotherley, who were engaged in the County from April till October, renegotiating tenancy terms with freeholders, small farmers and small leaseholders. In all cases, rents were increased (Moody, 1939:399-400). Unfortunately the maps and schedules of tenants made by Whitfield and Fotherley do not survive, having burned in the Guildhall fire of 1786 (Ibid.). The rentals from 1639-41 survive, and indicate that rents tripled under the new administration (Ibid.). No doubt these extortionary rents, backed up by Crown troops, were a contributing factor in the Rebellion of 1641, at which time, in the unusually wry phrase of Moody's, "..rent collecting in that province ceased to be a problem for government and planters alike" (Moody, 1639:402).

As an example of deteriorating relations between Charles I and the rest of England, in 1641 the famous Long Parliament not only overturned the findings of the Star Chamber against the City, but abolished the Star Chamber as a legitimate judicial body (Moody, 1939:411-12). Before the Londoners could make good on their newly restored holdings, the greater part of Ulster was in the hands of the Irish rebels. The Great Rebellion had begun.

It was to be 16 years before the Londoners were reinstated in Ulster by Cromwell. During that time, the Co. Londonderry was the scene of repeated horrors perpetrated
by both sides in a very evil war; most of the war in this region remains undocumented.

The Great Rebellion began October 22/23 1641, and within 48 hours most of Ulster was under Rebel control. Moneymore fell to the O'Hagans, Mountjoy was taken by the O'Quinn's; on the 4th of November Sir Phelim O'Neill was acclaimed Commander-in-Chief of the Irish Army of Ulster. Nearly 1000 of O'Neill's troops occupied the county (Curl, 1986:91-2).

In all of Ulster only Belfast, Carrickfergus, Enniskillen, Coleraine and the city of Derry were able to provide refuge for the English settlers. Settlers from the shores of Lough Neagh flocked to Coleraine, where overcrowding, disease and famine combined to make a desperate situation by the winter of 1641-2. Over 100 people a week were dying (Ibid.).

In an effort to combat the rebellion, Charles I passed the "Adventurers' Act" (March, 1642), whereby men making a donation of cash or service to the English army would be provided with land forfeited by the Irish rebels.

In April General Robert Monro landed at Carrickfergus with an army of Lowland Scotsmen. The siege of Drogheda was raised in March, and Newry was retaken from the Irish in May. A second group of Scots, the "Laggan Corps", defeated the Irish at Lisburn in Co. Antrim, then joined Monro. The Laggan corps was responsible for retaking much of western
Ulster in the following year. Owen Roe O'Neill returned from exile, and was acclaimed General of the Ulster army (of the Irish). He was defeated the following year at Clones.

In August of 1642 the English Civil War started, complicating the story a bit. Parliament, the disenchanted Londoners, and the Scots were all allied against the King. All of the above were fighting the Irish. Most of the Ulster settlers who had been loyal to the English now sided with Parliament, leaving few Royalists in the North. In 1646 Charles I was captured in Newark, he was executed in 1649. In that year Cromwell was appointed Commander in Chief of Parliamentary forces in Ireland. Cromwell landed in August 1649, and won two sieges against the key cities of Drogheda and Wexford, after which the garrisons of each were massacred. Between 1650-52 the Royalist resistance in Ireland collapsed. By the spring of 1653 Sir Phelim O'Neill had been executed and the Irish armies had surrendered (Above discussion from Curl,1986:91-3).

The Gross Survey, Civil Survey and Down Survey were all commissioned in order to distribute land to those who under the Adventurer' Act had contributed to the cause of the Parliament (Simington,1937:III). In 1653 most of Clare and Connaught were set aside for all the Irish who were to be displaced by the Adventurers. Mandatory transplantation commenced immediately thereafter, while all Catholic
priests were required by law to leave the country, a doomed policy if ever there was one. Cromwell became Lord Protector in December of 1653, and died in 1658. In March of 1656, Cromwell granted Letters Patent to the Irish Society for their former holdings in Londonderry; these were conveyed back to the individual Companies in 1658 (Curl, 1986:95). In 1660 Charles II was made King (although he had been crowned in 1651, under Cromwell his Kingly qualities were pretty much ignored).

The structure of British government came full circle in this period, finally ending up where it began, lending a gloss of continuity to the story which belies important alterations in the consciousness of the peoples living in Ireland. Physical damage to the landscape was cataclysmic;

During the Commonwealth period Ulster suffered a great depression: misery, lawlessness, debased coinage, lack of marketing facilities, physical damage to buildings, crops and livestock, and a decimated and demoralized population rendered much of County Londonderry worthless (Curl:97).

The second plantation began inauspiciously. All sides had committed and been victims of atrocities Unimagined 20 years before. Puritan zealotry and the Counter Reformation met head on. Political and religious boundary lines, visible before, were now drawn in blood.

Under Charles II, the Irish Society was again regranted their charter for the plantations in Londonderry. Letters Patent were issued in April of 1662, and in June of the following year the patents were conveyed to the individual
Companies (Curl, 1985:96). The Act of Settlement and the Act of Explanation (passed in the early 1660's) were both attempts by the Crown to settle conflicting land claims between Cromwellian adventurers, Royalists, and Catholic Irish. The Irish were now allowed to remain on 1/3 of all adventurers' lands. Included in the Act of Settlement was a new tax, based on the number of hearths in a land holding (Curl:96). This tax encouraged the use of chimneyless open hearths among the poorer tenants.

The Londoners were unable to invest significant amounts in rebuilding their plantations in Ireland, due largely to the effects of the London Plague of 1665, and the Great Fire of 1666. The Irish Society had lost the right to monies from Customs and shipping, further reducing available cash. In 1668 the city of Derry was burned in a devastating fire. Individual company agents were responsible for rebuilding and luring tenants back to the land, often at their own expense. Increasingly, these tenants were Scots, either fresh from Scotland or remaining from service during the wars.

Prices for both corn and cattle, the staple cash crops of the farmers, were depressed, making the timber of Killetra, Glenconkeyne and Loughinsholin once again the major source of real money in the region. Most of the wood was used first for its tanning bark, and then as either barrel staves or fuel for iron smelters set up on the
Vintner's and Salter's lands (see below). In 1679 a new Quay was built at Coleraine specifically to handle exports of timber, still technically an illegal activity. By 1685 the destruction of the woods was so serious that the Irish Society finally required clauses in Company leases for their protection (Curl:97-8).

The Navigation Act of 1671 prohibited the importation of goods from any of the [other] English colonies into Ireland. This Act crippled the Irish economy still further, and prices began to rise.

King Charles tried in good faith to relax the religious tensions of his realm by a "declaration of indulgence" (1672) which modified the Cromwellian penal laws against Catholics. He also acknowledged the Presbyterians as a legitimate faith. Parliament was furious, and responded by passing the "Test Act", requiring all civil administrators to take Anglican sacraments. Catholic priests were again banished, schools and mass-houses closed down. In 1681 Archbishop Oliver Plunkett was executed for conspiracy to overthrow English Protestantism in Ireland. Religious tensions remained high for the rest of the century, as Catholicism was forced underground.

In February 1685, Charles II died, and the Catholic James II took the throne. This created instant panic among Protestants both at home and in Ireland. Irish Catholics were now in control of the armies of Ireland, priests were
paid by the government, and sheriffs were now all Catholic. There was talk of redefining the Act of Settlement to give half of all Protestant land to its previous Catholic claimants. Many Protestant officers expatriated themselves to join the armies of William of Orange in the Netherlands (Curl:99).

In 1688 the Queen gave birth to the son of James II, who was to become known as King James III to the Jacobites, or the "Old Pretender" to Protestants. With the Stuart line assured, the King's popularity among Protestants plummeted. By Fall 1688 it was obvious that the King was about to be deposed; he ordered loyal Irish troops to England, an absolutely disastrous public relations move. William of Orange landed at Devon in November. James II ran to France, where Louis XIV had declared war on the Dutch Republic. England, Ireland, the Dutch Republic, and France were now engaged in a new round of warfare. The dynastic struggle for the Crown of England would be fought on Irish soil.

A word or two should be inserted here on the 17th century dynastic relations between the Dutch and the English Crowns. During Cromwell's Commonwealth, Charles II was in exile in Holland. His sister married the Dutch Stadholder William. Their son was William of Orange, who married Mary, daughter of James II. William of Orange was to become King of both the Netherlands and England, which explains why late 17th century Dutch and English ceramics
and glass are decorated with the same Orange iconography.

Catholic Ireland was used as a staging area for James II's attempt to return to power. Ulster Protestants of course supported the "Glorious Revolution" of William of Orange, and have been known as "Orangemen" ever since.

Catholic (Jacobite) forces under Tyrconnell ordered the Protestant (Williamite/Orange) troops under Mountjoy to withdraw their garrison from the City of Derry. Tyrconnell's field officer MacDonnell, Earl of Antrim, advanced on Derry in December. Thirteen of the apprentice boys of the city of Derry closed the gates on Lord Antrim's advancing troops (December 6, 1688).

Both the Jacobite and Williamite armies were forced to live off the land, creating instant hardship throughout rural Ulster. In March 1689 James II landed at Kinsale with French military advisors, and joined forces with Tyrconnell. Meanwhile, Derry was reenforced by the Protestants, and a Jacobite attack on Coleraine was repulsed. In April Coleraine was evacuated; most of the Protestant countryside fled to Derry. On April 18th, the siege of Derry began (Curl:100). The siege lasted until the 31st of July, when William's ships the Mountjoy and Phoenix were able to force a Jacobite withdrawal. The Jacobite army retreated in haste, burning, looting and deserting as they went.

On the 13th August Williamite troops under Marshal
Schomberg landed at Bangor Bay. After early successes at Belfast and Carrickfergus, this force was neutralized by disease and winter. The following year saw increased international involvement, as 7,000 French troops landed in Cork for the Jacobites and 7,000 Danish mercenaries landed in Belfast Lough for the Williamites. William himself landed at Carrickfergus the 14th of June, 1690, with 15,000 troops and 300 ships. The two opposing armies met at the River Boyne June 30, and engaged on July the first. William won a decisive victory at the Battle of the Boyne. Although William failed to destroy the main van of the Jacobite army, James singlehandedly managed to break the spirit of his own men by again fleeing to France.

The only Jacobite force to maintain resistance was lead by Commander Patrick Sarsfield, who managed to regroup at Limerick. Williamite forces laid siege to Limerick unsuccessfully throughout August, after which time William himself went back to England. There followed a period where the Jacobites fought an effective guerrilla war, avoiding pitched battles in favor of sabotage and skirmish. In 1691 the French reentered the Irish theater, led by the General Marquis de Saint-Ruth. Saint-Ruth met the Williamite army in pitched battle at Aughrim Hill, near Athlone, 12th of July 1691. Saint-Ruth got his head shot off and the Jacobites were mowed down. The Twelfth of July is still an important Orange holiday in Ulster. Ironically, due to
calender reforms "The Twelfth" celebrates the Battle of the Boyne rather than the final victory at Aughrim Hill.

The end of the war came with the Treaty of Limerick in October. Under the terms of the treaty, Irish resistance fighters were allowed to retire to France, an offer accepted by Sarsfield and his followers. These troops and cavalry distinguished themselves in France as the "Wild Geese".

In 1691 the first of a long series of Penal Laws was introduced by Parliament, contravening the guarantees of Catholic civil rights specified in the Treaty of Limerick.

The closing years of the 17th century, and the beginning of the 18th, were a period of rebuilding and consolidating losses in Co. Londonderry. As Curl has pointed out, the Williamite wars taught two great lessons; the Catholics were now second-class citizens in what they considered their own country, and the Ulster Protestants could not depend on timely help from England if threatened. The result was two mutually antagonistic camps, both characterized by a siege mentality (Curl:105).
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The Pre-Plantation Native Landscape

The following is intended as an introductory survey providing a point of departure, a baseline from which the changes wrought by the plantations can be studied.

The native Irish culture of early 17th century Ulster is difficult to subdivide into conventional categories of analysis. Politics, economics, kinship, class, territorial divisions, field systems and architectural form interlock into a symbiotic whole—a culture so obviously integrated as to be the envy of latter-day anthropologists grappling with sub-cultural boundary definitions in complex modern societies. Saying this, I am now obligated not to drastically oversimplify the Ulstermen of the late-Medieval/ early Modern period.

Although my primary purpose is to outline Irish society immediately upon the eve of the Plantations, that society displayed such remarkable continuity with its ancient past that any discussion of Irish social forms of the 17th century will quickly fling the reader bodily back into the 15th, the 13th, the 10th century and beyond. The minute you attempt the seemingly simple task of orienting yourself within the local geographical landscape around Salterstown,
the townland names you encounter will in all probability pre-date the Norman invasion.

The Irish practiced a mixed agriculture heavily dependent on transhumant pastoralism. Land tenure was based on kinship; lands were held collectively and transferred within the larger kin-group called the sept. Within the sept, land was further subdivided by three or 4-generation patrilineal kin groups called derbfhine ("clann" in Fox, 1978), and redistributed by a kind of partitive inheritance now called gavelkind.

Land divisions were hierarchically ordered, each level subdivided by quarters into the next set of units down the scale. Thus, in 17th century Co. Londonderry the smallest division was the sessiagh, four sessiagh equalling a balliboe (associated with the English term "townland").

1 "Gavelkind" originally applied to a Kentish system of inheritance whereby all sons got equal shares. This is slightly different from the Gaelic periodic redistribution of sept lands among all of its members (Robinson, 1984:34).

2 As used here, sessiagh is the name of a unit of land division. However, in Co. Fermanagh there are several townlands with the proper name "Sessiagh", reflecting a variation (or a confusion) in local tradition (Glassie, 1982). Robinson, 1976 equates sessiaghs with one-third of a balliboe. In the 1622 Phillips survey a "sessock" was considered to be the twelfth part of a quarter, while a "tryan" was a third of a quarter. Some quarters in Co. Londonderry are composed of only three balliboes. As always, local variations provide either the "exception that proves the rule" or frustrating anomalies, depending on how seriously you want to take your generalizations. It may be that the system was breaking down in the 17th century when it became fossilized as English administrative units.
four balliboes equalling a **quarter** [caethramha], and four quarters equalling a **ballybetagh** (translated by the English as "ballibettote"). (McErlean, 1983:317-318). Although the 16ths structure of this system of land division is more or less consistent throughout Ireland, the names describing the subdivisions vary by region. This system was most disrupted in the regions within and around the feudal Norman pale, strongly hinting at a pre-Norman origin for the townland system 3.

Documentary evidence of the complete sixteenths hierarchy is unavailable as we go back in time from the 17th century, although those examples we do have imply the relative continuity of the ballybetagh and ballyboe levels within the hierarchy. Parish records from the Downpatrick Cathedral which date from the founding by de Courcy in the 13th century show over sixty per cent correspondence to modern townland names (without checking for translated names). In the same area, pre-Norman land grants to the Cistercians at Newry show that over half the denominations named correspond to modern townlands (McErlean:332). Modern townland names also occur on the spare leaves of the Book of Kells— they are thought to be Irish charters copied there in the 12th century (Proudfoot, 1977:98). Note that, once again, both of these charters are apparently

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3. For a detailed discussion of the local variations within the townland system see McErlean, 1983:317-320.
announcing dominion over pre-existing divisions. J. Hurst has made this same argument for much of the South, noting that the Anglo-Normans probably took over previously bounded property, as those manorial subdivisions documented as *vilae* or *vills* are usually identifiable modern townlands (Hurst, 1986:146).

The townland system does not represent standard measures of land area, although many of the Elizabethan and later Plantation documents imply that approximately sixty plantation acres correspond to a balliboe (Phillips, 1622). After some debate in the literature, it is now widely accepted that the townland is a measure of potential economic output (Andrews, 1970:179, McErlean, 1983, Robinson, 1976; for dissenting opinion see Hughes, 1970).

Glassie noticed that in Co. Fermanagh the townland boundaries tend to follow lowland topography, with the townland centers on high ground, yielding a mix of all kinds of land for each townland (Glassie, 1982:345). Some townlands in Co. Tyrone are fragmented into two sections of upland pasture and lowland arable. These townlands share a common root-word name with the suffixes "owtra" or "eightra" indicating topography (Robinson, 1984:35). Within the Salter's Proportion are townlands of the same root name with suffixes "beg" (little) and "more" (big), probably indicating an original upland/lowland division.
Phillip Robinson has taken a rather daring jump in assuming that if balliboes were a standard economic unit, then they theoretically supported a standard population density. The number of balliboes per unit of area (say, ten square miles) indicates the population density for the same area—the smaller the balliboes, the more fertile the land (in crops and/or cattle), and the more dense the population.\footnote{This would be true only if there were no other variables to population distribution except land quality. In the absence of evidence for centralized villages in Gaelic Ulster, this may very well be the case.} Using several 16th century accounts, Robinson estimates the average population density at approximately two households per balliboe, not including a possibly unlisted "unfree" class of occupants (Robinson, 1984: 27).

Robinson is quick to point out that balliboe size is really a measure of ancient Irish perceptions of land quality, yet when balliboe size differences are superimposed over a map of 19th century land values for Co. Tyrone, the correlation is unmistakable. Obviously perceptions of land quality had not changed much over time (Robinson, 1976: 63).

Although I personally favor the "economic output" model of townland function, I agree with Proudfoot that since it would be foolish to assume a pan-Irish uniformity of pattern for any time period, it is probable that townland functions varied considerably by region and through time (Proudfoot, 1977: 97). The economic output model may prove
useful in guiding more specific future research, and underlies my own discussion.

The Tudor English used the townland system for land assessment for their policies of surrender/transfer and regrant, thereby integrating the townland divisions into English real estate law, and fossilizing what may have been fluid boundaries into a permanent form reflecting the freeze-frame moment of a 16th or early 17th century survey.

English administrators of the 17th century, while making a great show of "shiring" their new dominions, seem to have rationalized indigenous land divisions into their own larger administrative units. J.H. Andrews posits that the administrative utility of counties was recognized early in the Elizabethan period, and notes that divisions were made most commonly by "...defining new territories entirely in terms of old ones" (Andrews, 1970:183). Andrews also notes that;

If ready made divisions failed to present themselves, as happened in Sidney's shiring of Connacht, the normal practice (though nowhere explicitly described as such) was to form new units by addition or subtraction of the minimum number of pre-existing constituents, so that a province would be altered by transferring one or more whole counties, and a county by transferring the next smallest unit, namely the barony or its native equivalent (ibid:183).

In this manner Perrot shired Ulster in 1585. In Co.Londonderry, Chichester fought the arbitrary geometric splitting of lands suggested in the "Project for the Plantation" (Moody, 1939:35). When the London companies sent
Rowley as on-site supervisor, he recommended that baronies (5) be divided into four parts, then every fourth part divided into three parts (hence the anomalous divisions in Londonderry);

...for the better satisfying of the Companies of London to assign everyone their proportion, for thereby they will be willing to disburse the several payments, and to perform their buildings...having a respect for the goodness or barrenness of the soil, to the nearness of the town and the largeness of the balliboes (Rowley in Curl, 1986:56).

It should be noted that on the eve of Plantation the English survey of Ulster was tabulated in "ballibetoes" (1608), while post-Plantation allotments (1613) and surveys (1622) were in ballibetagh and balliboe names within the Salters Proportion.6 Thus the indigenous townlands of Ulster passed into English administration undisturbed.

Both the kinship structure and the land divisions were integrated with the hierarchies of political office and "class". Class is a misleading word in the Irish context, since very few people were anything but pastoral farmers--class distinctions were defined by privileges associated

5. The barony is the largest division below the county, and may correspond roughly to the indigenous Tricha Ced, a combination of ballybetagh into fluid territories representing the extent of effective control for individual chiefs.

6. The 1608 Ulster survey is reprinted in Analecta Hibernica #3:308. The 1613 lists come from the "Schedules of the Lands of Ulster allotted to the London Livery Companies", in Analecta Hibernica #8:151. The 1622 Survey is published in D.A.Chart, Londonderry and the London Companies, 1922.
with professional office. At the lowest level were the servants of the farmers, the "unfree" of Brehon law. Glasscock notes that in the Pale the classes of free farmers and unfree farmers were merged as early as the 14th century (Glasscock, 1983:145). It is unknown to what extent the class of "unfree" survived in the Gaelic areas.

The leaders of the septs were chosen from either those most directly descended within the dominant derbfhine lineage of free farmers, or those thought to be the best able to lead. Successors were appointed before the demise of the ruler, and were known as "tanists". This system of succession by "tanistry" extended to all levels of Irish chieftainship, and helps to explain the rather fluid transfer of power within the system.7

The balliboe is the unit of land division associated with the sept "level" of social organization. Within the sept, land was further subdivided by 4-generation patrilineal kin groups called derbfhine ("clann" in Fox), and redistributed by partitive inheritance (Buchanan:613).

7 In reviewing an earlier draft of this paper, Dr. Wailes noted that quite often the Tanist did not succeed, and the position may have sometimes worked as a "sop" to a disgruntled contender for power, whether an individual or a rival sept (somewhat like American vice-presidential politics). Dr. Glassie made an analogy between the position of the Tanist and current land transfer practices in Co. Fermanagh; "they always say the land goes to the oldest male and, in reality, it does less than half the time because of perceptions of talent, skill, and desire" (Both personal communication, 1987, 1988).
Before the seventeenth century, rights over this hereditary land were shared equally among the adult members of the 4-generation group and, with the passage of each generation, reallocation occurred (Jones, 1986:153).

The periodic redistribution of land by kin group forms the basis of the long, narrow strips of fields known in Ireland as rundale.

The four-generation agnatic lineage underlying both the rundale system of land inheritance and the institution of the tanist in political administration is thought to have "...originally constituted the primary legal, social and economic unit among all the Indo-European peoples" (Binchy, 1943 quoted in Jones, 1986:153).

Scholars of rundale find it analogous to systems of kin-based land division in Scotland (runrig), Scandinavia (aarkast), England (gavelkind) and Brittany (terres chaudes) (Fox:125). Under all of these land tenure systems, land ownership rests collectively with the extended family; no one person can sell or otherwise dispose of his share. These systems are apparently known collectively as "zadruga", after the Eastern European equivalent (MacFarlane, 1978:18-26).

Many writers have noted that under this system if population increased then land holdings must get smaller. Robin Fox has demonstrated how a community of islanders still practicing this rundale system of the redistribution of agricultural holdings got around this problem by valuing
land acquired through marriage, thereby relieving one's siblings of the responsibility of dividing the land with you \(^8\) (Fox, 1978:124).

Balliboes often carry the name of the dominant derbfhine within the sept—for example along the southwest shores of Lough Neagh the O'Donnellys controlled Ballydonnelly, while the O'Hagans and O'Quinns controlled Ballyhagan and Ballyquin (McErlean:329). Individual derbfhine holdings seem to correspond to the sessiagh divisions, although our data for this comes primarily from 19th century "clachan" names such as Murphystown, Co.Down (Buchanan, et al. 1959).

The ballibetaghs (from baile biatiach: "victualler's or hospitaller's land") were controlled by the septs providing officers to the regional chiefs (Robinson, 1976:60). The office (not the individual) was associated with a parcel of land referred to as the lucht tiqhe, which was exempt from redistribution by gavelkind and tribute payments. Certain professional classes also held land associated with their offices which was exempt from tribute—the brehons, bards and historians, inheritors of a Druidism made safe for Christianity (McErlean:329). In later times the community mill and parish church were located on Lucht Tighe land (Jones, G.R.J., 1986:156).

\(^8\) Out-migration provided another stabilizing mechanism for the Tory Islanders.
In 17th century Ulster the O'Devlins were traditionally recruited as wood-kern for The O'Neill; the O'Hagans were stewards, the O'Quinns sheriffs, and the O'Donnellys held the coveted office of marshall--responsible for collecting the O'Neill's tribute. The marshall was entitled to keep a percentage of the take (McErlean:329). Such opportunities for wealth doubtless increased the power of individual office holders while reenforcing the power of the sept to which he belonged. 9

Above these leaders was a peripatetic uirrithe who ruled entire "countries", roughly coextensive with 17th century baronies. Traditionally this ruler toured the countryside living off the obligatory hospitality of lesser chiefs (and thereby curbing any tendency towards undue accumulations of rival wealth or power).

The uirrithe of the 17th century could with better-than-average historical documentation claim dynastic continuity extending back over 1000 years--the longest lived aristocracy in Europe. Before 331 A.D. the lands of Ulster west of Lough Neagh were held by Clann-Rudhraighe. In 331, the "Three Collas", nephews of Cormac McArt, defeated the Clann-Rudhraighe in the battle of Achadh-Leirthdheirg at

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9 Robinson says that all of the sept leaders (not just the marshals) collected rent within their septs, keeping 25% for themselves (Robinson,1976:67). If this is so, then the sept leaders in later times may have been responsible for converting goods in kind into cash for tribute payments. The degree of monetarization in Elizabethan Ulster is an open issue.
Farney, Co. Monaghan. They killed King Fergus Fogha and his three sons, and burned Emania (Eamhuin) near Armagh, effectively conquering western Ulster.

The new Clann-Colla had two branches, the Fir Li and the Ui Tuirtre. The Ui Tuirtre were seated at Dungannon and in Loughinsholin---the O'Lynn branch lending their name to the Barony. In 557 A.D., hired mercenaries known as the Cinel-Conaill and the Cinel-Eoghain (the Ui-Neill of the North) won a major battle at Moindoire-lothair, near Moneymore, receiving a large district west of the Lough. The Ui-Neill (or O'Neill) retained effective control of the territory from the Atlantic to the River Blackwater, and from the Bann to the Foyle, from 557 until the Flight of the Earls in the 17th century---over 1000 years (Munn,1925:1-2).

The Ui Neill had by the 17th century secured effective control over a far larger territory than the traditional "countries". The uirrithe controlled fluid territorial boundaries composed of smaller whole units. Generations of chiefs could dispute over their effective range of tribute control without disturbing the underlying land divisions for hundreds of years. Thus the townland system reflected in its own hierarchy the territorial referencing of a strongly hierarchical society.

History has proven the townland system to be more stable than any of the institutions from which it arose or by which it was enforced. The kin-associated tenurial system
is all but gone. Polities have most certainly come and gone. The population since the 17th century more than doubled, then fell by half, and is now again on the rise. I suppose one could make the case that Ireland still survives by mixed farming, but look at the change of context! Yet Irish people continue to identify themselves by their townland.

The Church maintained a key, if not central position in this social arrangement. It was not until the 12th century that Irish Church administration was geographically divided into diocese and parishes as elsewhere in the medieval world. On the surface, it appears that the "parish" is yet another land division to juggle, yet on closer inspection the parish structure seems to have provided another institutional framework for preserving the ancient townland system. According to the Inquisition of 1609, the Irish Catholic parishes were (and are) defined in ballybetagh (McErlean, 332). This parish system has been in place and stable since the 12th century.

Individual ecclesiastical centers predate the diocesan administrative system. The important ecclesiastical center at Maghera was plundered by the Vikings in 831, who then proceeded on to Armagh, traversing the parish of Ballinderry (wherein lies Salterstown) in the process. The Vikings maintained a fleet on Lough Neagh for the following
100 years, and built an as-yet unidentified fort somewhere along its shore (McGuckin, 1981:86).

Ecclesiastical foundations were responsible for their own property holdings. These Church holdings were known as termon lands, or Glebe lands. Church activities on termon lands mirrored the land use elsewhere. An arenagh collected rents which went exclusively to the Church. Well placed local sons sought high office within the Church hierarchy. However, the Church was different in several key respects; since no chiefs claimed termon lands as their own, these areas served as buffer zones between rivals, and termon lands reserved the right of sanctuary for fugitives (Robinson, 1984:24). I suspect that the exercise of this right was a highly selective process.

Robinson estimates that 20% of the total area of western Ulster was under ecclesiastical control in the early 17th century (Robinson, 1984:24). On the Salter's Proportion there were two small Glebe lands, one within the Ballinderry parish where Salterstown was situated. This Glebe land was located on the north bank of the Ballinderry river where it flows into the Lough. This is less than 3 miles south of Salterstown (map in Curl, 445, See Figure 6).

Ballinderry parish first appears in the historical record between 1302 and 1306 in a list of Armagh parishes. It was then known as Drumglu'cassi, and was at that time assessed at the total value of 1/2 mark, owing a tithe of
8p (10). This made Ballinderry the third poorest parish in the archdiocese of Armagh (McGuckin, 1981:86-87).

The ballybetagh corresponding to the Ballinderry parish was traditionally associated with the erenagh family of McGuckins, a position held by that family since at least 1406 (McGuckin, 1981:88). According to McGuckin:

'Erenagh lands had originally been given by temporal lords to the founders of churches, who, in turn, bestowed the lands on certain septs or families in return for specified rents and duties, the obligation to maintain the local church and a duty to provide hospitality. By the Middle Ages, the Primate of Armagh was the recipient of the rents and duties of the erenaghs, who held title to their lands and could not be removed. The erenagh lands were inherited within the sept by tanistry with the most qualified man... succeeding to the position of erenagh (McGuckin, 1981:88).

Another interesting obligation of the erenagh was to pay bloodshed fines for those within the parish who had

10. I am at the mercy of those who know Gaelic for this identification of Drumtiglu'cassi with Ballinderry.
Figure 6

committed violence (Ibid. 90). It was common in the 15th-
17th centuries for the erenaghs and clerics of the northern
forests to be well in arrears on their accounts to the
archdiocese.

Rents were paid on days traditional to the Celtic
calendar (Samtaine and Beltaine), although the Church saw
fit to rename May 1st as the Feast of Saints Philip and
James, while October 31 was transmuted into All Hallows Day
(Ibid.). This is a pretty piece of syncretism.

By the 17th century secular lands were hotly disputed
among several septs representing cadet branches of the
O'Neill's and their retainers. The dominant sept was led by
a descendent of the O'Neill's of Killetra, named Felim
Gruamdha macNeill Charraigh, who was more commonly known as
Phelemy Grom. He retained lands on the Tyrone side of the
parish during the period of the initial Plantation

The immediate area around what was to become Salterstown
was not occupied, or even explored, by the English until
very late in the Elizabethan period. There is no evidence
that the Earl of Sussex ever penetrated as far as the
Ballinderry parish in his repeated marches on western
Ulster in the 1550's and 1560's (McGuckin, 1981:94). It was
not until Tyrone's Rebellion that Mountjoy from the south
and Chichester from the Lough were able to mount successful
campaigns on the mountains and forests of the
Londonderry/Tyrone border country. Chichester in particular probably crossed the Ballinderry Parish during his raid inland in from the Lough in 1601. As late as 1608, a justifiably nervous English sheriff of County Tyrone reported that over 200 well-armed Irishmen could be mustered within 24 hours from the woods of Loughinsholin upon the whim of the O'Neill family (McGuckin, 1981:95).

The socio-political hierarchy outlined above was reflected in the movement of goods through the economy. There were apparently few if any markets for the local or regional circulation of farm surplus. Native production was on the peasant scale, in the strictest sense of that term—production was geared to meet two essential needs, subsistence and tribute payments. In Elizabethan times, the English noted that the people of the Irish countryside were unmercifully exploited by their chiefs; they were subject to rents in food (later in cash, see Graham, 1970:205), compulsory hospitality, and the billeting of mercenaries—with the townlands functioning as assessment units.

The absence of markets does not mean that there was no surplus, or that the balliboe was a closed economic system. Robinson has suggested that craft specializations like iron-making, wood-turning, coopering, and quarrying quern-stones required itinerant marketing.

The production of surplus agricultural produce was necessary to provide payment for rents, replacement implements and vessels, but also to support substantial numbers of economically unproductive persons such as the
brehons, the bards and the "galloglass" mercenaries (Robinson, 1984:37).

Rents were not insubstantial. The O'Neill collected 4s/yr. on every milk cow in his country, amounting to £3,733/yr. (or 9.5 cows per balliboe). It is not known when this cash payment was instituted, but it is thought to be a late 16th century development. Traditionally the chiefs (as well as everyone else) measured their wealth in cattle, and provided a valuable stockpile of animals which were lent out to farmers in times of need, strengthening a mutual economic tie.

Sir Toby Caulfield prepared a list of the O'Neill's rents due from the time of the flight of the Earls in 1607 to Hallowtide, 1610. 11 The Earl was owed 300 barrels of oats, 120 barrels of oatmeal, 20 field cocks of wheat, 6 field cocks of oats, 15 ricks of oats, an unspecified amount of barley, and some 300 sheep (in Robinson, 1984:32). As a more specific example, the O'Neill claimed annually from the O'Devlins "...20 wholemeal loaves in the spring from each half-quarter, and a meader of butter with each loaf" (McErlean:328).

Rents in kind to the chiefs may serve as "protection" for the peasantry, but what were the chiefs doing with it? Some was doubtless redistributed to warriors and immediate

11 The citation is unclear about the actual period the rent was meant to cover, whether a single year or cumulative "back rent".
entourage, however there is evidence that much of the surplus production of Ulster was siphoned by the chiefs into an export trade for luxury goods. The O'Donnell of Donegal was exporting herring and salmon to ports in Europe for wine, and was known in Europe as the "Fish King" (Robinson, 1984:38). The export trade was primarily with Spain, France and Scotland, in salmon, horses, hides, and linen yarn (the primary export industry). In return, the Irish imported wine, clothing and munitions (Moody, 1939:46).

One method of reconstructing trade links is by examining the origin of ceramics. Pre-Norman Ireland was largely aceramic, except for "Souterrain" wares. The Normans presumably brought with them trade contacts responsible for the ceramics from coastal France, Southeast England, and the English west coast which were to dominate the 12th-14th century assemblages. Of the English ceramics, those from Cheshire, Chester and Bristol tend to dominate the Irish sites. By the 16th and early 17th centuries, Rhenish, Dutch and French Saintonge wares were more common than they had been previously in Ireland, although all were still rare (Barry, 1987:96-99).

The economy of early 17th century Ulster is startlingly developed; there was in place an elite-administered system of cash and goods-in-kind taxation supplying an import-export trade with three other countries. There were in
place the craft specializations and the surplus agrarian production necessary to sustain such trade. I suspect (without documented citations) that there must have been at the very least informal periodic markets. There were greater numbers of Irish clustered around local centers of importance than were evident in the countryside. The abbeys, chief's castles and English forts such as Carrickfergus appear to be likely candidates for specialized craft production and periodic market activity.

Household, farm and remote pasture provided the focus for the majority of the Irish. It is a distortion to dwell on the international trade contacts of the chiefs if the trade goods never really had an impact on the lives of the rest of the population. Elizabethan observers repeatedly expressed surprise that the Irish did not live in towns, indeed, did not live anywhere year long.

The degree to which the Irish lived in nucleated clusters is subject to debate. The 17th century population/land ratio allowed for a very scattered distribution--it seems likely that Robinson's estimate of about two households (read "derbfhine") per balliboe is accurate (see above).

Several descriptions of early 17th century Irish agricultural practices survive, the following being one of the most complete:
They use short ploughs amongst the mere Irish and draw their yokes by the horsetails which suddenly breaks their plough horses, and wears them clean out in a trice so they are never serviceable again. They burn their oats standing upon the stalk or reeds in the fields, and thereby lose the straw which might serve for many good uses. Where wood is plentiful they hedge in all their corn with stakes and bushes and pull them down in winter...And for the grazing which reaps more profit than the tillage, most of that nation embrace it...(in O'Brien, 1923:33)

Robinson argues that since observers referred to Irish farms as "champione land" rather than enclosed, we should not infer some kind of enclosure system of lands held in severalty. Rather, the hedges referred to above were probably temporary cattle guards around growing crops (Robinson, 1984:34).

The diet consisted mainly of "white meats"—cheese, butter and milk, with "white corn"—oatmeal, supplemented by occasional beef, fish, pork and mutton (Moody, 1939:45).

There is no record of barns for grain storage in the Irish tradition, grain was gathered and measured in graincocks and ricks, and stored in barrels and "raskins" (a firkin-sized hollowed log container). Pre-Plantation corn-kilns were little more than small pits with radial flues (Barry, 1987:104). The Irish apparently did not place a high priority on cutting hay from meadowlands, and the subsequent lack of winter fodder required the annual
harvesting of most calves after the summer's milk production (Robinson, 1984:32; Lucas, 1973:71).  

Sheep and flax provided the primary textiles. The sheep were shorn twice a year. The spinning, dyeing and weaving of both wool and flax was done in the individual household (Robinson: 36). Woolen cloth production was carried out on a larger scale at the Cistercian houses (Barry, 1987:103). The staple garment of the "mere" (pure) Irish was a long, course-woven woolen mantle. It was to them;

...as to a hedgehog his skin, or to the snail her shell, for a garment by day and a house by night; it maketh them with the continual use of it, more apt and able to live and lie out in bogs and woods... (Cal S.P.I. 1588-92 in Moody, 1939:46).

Under the mantle a loose linen tunic and close breeches were worn by some men, while a long linen gown was worn by the women. Many seem to have worn only the mantle (ibid.).

The Irish practiced neither enclosed private farming nor the classic English manorial open-field agriculture with nucleated settlements and three-course rotation. Instead the Irish practiced a form of open-field cultivation known in Ireland as "rundale" (See kinship and landholding discussion above). The 17th century version of this system evidently consisted of a fairly isolated household

12 This fall harvest of immature bullocks potentially provides an archaeologically accessible faunal indicator of Irish agricultural practices. The English evidently used the cattle for draught and beef as well as dairy, yielding a different faunal record (Lucas, 1973:71); See Faunal chapter.
settlement of one derbfhíne continuously planting a non-rotated infield which was heavily manured. A larger outfield of lesser quality was partially tilled or left to the cattle in the winter months. The arable was divided among the derbfhíne into plots and strips scattered throughout both infield and outfield. These strips were subject to periodic reallocation according to the principals of gavelkind (Buchanan, et al. 1956:115; Currie, 1983:73; McCourt, 1954). These isolated derbfhíne clusters provided the nucleus of kin-relations and agrarian structures around which the historically known "clachans" developed. A clachan settlement may be considered the structural corollary of the derbfhíne kin-group 13.

The most colorful aspect of Irish agriculture, or at least the aspect which attracted the most comment from the English, was the practice of "booleying" or "creaghting". This was the wholesale movement of entire kin-groups with all of their livestock into upland summer pastures. Traditionally the flocks left on or near Beltain (May 1st) and returned to winter quarters on Hallow's Eve (Oct.31st). This practice seems to have really unnerved the English administrators accustomed to a less mobile

13 These 17th century "proto-clachans" differ only in density of population from the clachans of folklore journals. Only a rise in population or a dramatic decrease in the availability of land would be necessary for these settlements to "become" clachan. Both processes occurred with a vengeance.
population. In 1608 Sir A. Chichester wrote with comic frustration that he demanded that the Ulster Irish..."be drawn from their course of running up and down the country with their cattle which they term "creaghtinge", and are to settle themselves..." (Cal.S.P.I.1608-10:65). According to some accounts, entire septs might migrate along with their cattle. The creaghting lifestyle was often used to strategic military advantage (Robinson,1984:35). I suspect that some small percentage of the population must have remained in winter quarters if for no other reason than to tend and harvest the crop, although figures are unavailable for who went and who stayed behind.

Evidence for actual structures associated with the 17th century Irish is scanty, although there are just enough tantalizing clues to provide for a lively debate. To provide a structure for a somewhat chaotic field, I follow in outline the work of Alan Gailey (Gailey:1984) 14.

14 Studies in Irish vernacular architecture began with the work of a Swedish ethnologist, Campbell, and was carried on by the geographer E.Estyn Evans and O'Danachair. Early work focused on house form classifications by chimney/hearth placement. Evans founded a dynasty of students including; Desmond McCourt (who shifted the focus of analysis to roof-timbering systems), Ronald Buchanan (who worked out the settlement evolution and economic organization of the Lecale Pen.), Gailey himself, and Philip Robinson, one of the last of Evans' students. In his list of students of Irish vernacular architecture Gailey includes Henry Glassie, who is held responsible for shifting attention away from the houseforms towards a study of the social processes responsible for design change. I will be drawing on ideas from all of these gentlemen except Dr. Campbell.
In pre-Plantation Ireland there had been two coexisting traditions of structural form dating back to the neolithic; round post-hole structures and square post-hole structures (Gailey:15). In the 5-8th century early Christian period circular wattle-and-daub structures are the most common archaeological structure, although rectangular passage-entry houses are referred to in the 8th century Crith Gablach legal text (ibid.:19).

It has become a common assumption in the literature that round structures with light timber framing, wattle-and-daub walls and a thatched roof are associated with booleying; such a structure is now (following Robinson) referred to as a "creat" (Robinson,1984:29). There is no consensus on how to refer to the alternative tradition of rectangular and subrectangular structures, primarily since the structural details of wall materials and roofing systems are variable enough to elude neat catagories.

Several late medieval peasant dwellings have been excavated to date. The 1940's excavation at Caherguillamore, Co Limerick by O'Riordain and Hunt, the 1984 "Tildarg" excavation by Nick Brannon in Co. Antrim, and the 1983 Glenmakeeran excavation in Co.Antrim by Williams and Robinson each reveal a tradition of mass-walled construction at an early date [See Figure 7a-d]. At Glenmakeeran a 10.2 X 5.2m sod-walled structure was discovered with a central hearth and opposing entrances. At
The excavators for all three of these sites interpreted the mass-walled structures as upland booleying sites, indicating that classifying building types (i.e. "creats") by traditional function may be misleading [See Figure 7].

At Clough and Lismahon, in Co. Down, and at Cloncurry in Co. Kildare excavations have revealed timber-framed oval wattle-and-daub structures with open fireplaces, which date

15 In form and interior detail these houses bear a remarkable resemblance to structures dating from the 13th century in Cornwall at Houndstor and Hutholes (Beresford, et al.).
from the 13-14th centuries. Again, cruck construction has been suggested for the roofing (Buchanan, 1973:150).

Two standing 17th century peasant structures have been recorded; Liathmore-Mochoemog in Co. Tipperary and "Thady's Fort" outside of Shannon airport in Co. Clare [See Figure 7]. Thady's Fort is a stone structure 13.4 X 6.2 (compare with above) with walls that were originally probably only .8m high with upper courses of sod. Liathmore-Mochoemog has walls .5m thick, and measures 12.2 X 5.6m, with opposing entrys and an axially centered hearth (Gailey, 1984:20). Both structures indicate a mass-wall tradition among the 17th century Irish, while dimensions, entry positions and hearth placement argue for continuity with an older tradition.
Excavated Irish Houses: A & B date from the 17th century, while C & D are late medieval structures.

a: Thady's Fort, Shannon Airport, Co. Clare (after Rynne).

b: Liathmore-Mochoemog, Co. Tipparary, (after Leask & Macalister).

c: Caherguillamore, Co. Limerick, (after O'Riordan & Hunt).

The 16th and 17th century documentary and pictorial evidence for native Irish housing is problematic, despite (perhaps because of...) several descriptions and some beautiful illustrations. Subsequent writers have politely squabbled over distinctions between housing tradition by class, seasonality, roofing system, wall materials, form, and the language used in the documents to describe them. After reviewing the evidence, I believe that there were two basic forms (round and [sub]rectangular) and a variety of wall materials and roofing systems appropriate to each. This said, I doubt that further distinctions (by regional tradition or whatnot) will be possible without archaeological corroboration, given the vagaries of our current data.

To my knowledge, no one has discovered evidence for a mass-walled circular Irish house, except for the early-medieval "clochan" monastic beehive cells. It is therefore probably safe to assume that the tradition of circular "creats" relied exclusively on timber posts with wattle-and-daub walls. I think it is also safe to assume that a circular form would not lend itself to the use of cruck trusses. Radial rafters with wattle (through-purlins?) supporting turf "scrod" and thatch seems the most likely

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roofing technique. Luke Gernon observed just such a system in 17th century Co. Limerick:

The baser cottages are built of underwood, called wattle, and covered some with thatch and some with green sedge, of a round forme and without chimneys, and to my imaginacon resemble so many hives of bees, around a country farm (In Graham,1970:200).

Such a hut sounds remarkably similar to the early Christian post-hole structures excavated throughout Ireland.

Efforts to pin the use of creats to one particular class of Irish society or to a particular seasonal use are still inconclusive. Robinson stated in 1976 that the creats were used primarily as temporary shelter while booleying, but may have been used on a semi-permanent basis by the poorest poor (Robinson,1976:65). In 1979 Robinson noted that according to an account from Augher in Tyrone, Lt.General O'Neill as well as commoners used creats. Use of creats by members of the elite is corroborated by Fynes Moryson's account of 1617. In O'Mellons's war journal of 1641-47, creats are associated with military transhumance (Robinson,1979:3). Although chiefs may have used creats during guerrilla campaigns, it had probably been over one hundred years since chiefs had resorted to creats as a regular shelter, as witnessed by the chief's castles (usually derived from Scottish tower houses) scattered about the countryside.

16 If the circular creats were mass-walled then a timber corbelling system with a daub or sod covering analogous to a Navajo hogan would be possible.
Several contemporary sources indicate that the Irish had some form of temporary housing. In 1574 David Wolf referred to these huts as tents, while another source referring to Augher in east Co. Tyrone said that huts built by these people could be put up within an hour (Gailey, 1984:21). Gailey interprets these sources as referring to creats, and makes a recurrent distinction throughout his work between the "normal native house" and the "seasonally occupied creat" (ibid.). In 1987 I visited the site of the Deerpark excavations at Glenarm, Co. Antrim, where several of the excavators had begun to build a reconstruction of a circular wattle house during their lunch breaks. Based on this experiment, and allowing for their inexperience, I have trouble believing that a post and wattle hut can be erected in less than two full days, materials collection not included.17

From the pictorial evidence there appear to be at least two different kinds of circular hut available. Compare the map of 16th century Carrickfergus with c.1600 Armagh [Figures 8 & 9] (from Gailey:23). As Gailey noted, the Carrickfergus huts are "without suggestion of eaves or

17 Materials presented a problem for the excavators' experiment, despite some nearby woodland. This bears directly on arguments that creats were primarily an upland pasturage dwelling (Williams and Robinson, 1983:37), where materials would be harder to come by. Again, Dr. Glassie had some valuable comments, noting that during his fieldwork in Co. Fermanagh, as many as 50 people would turn out for a house raising—perhaps a wattle hut could have been built quite fast given enough people.
Two different representations of Irish "creats".


walls", possibly covered with thatch to the ground. These huts look suspiciously like the hay rooks still made in haying season in rural Ireland today (Glassie, 1982:5). The Armagh hut illustration clearly indicates wattle walls with a domed roof. The latter is by far the more common representation.

English observers used a variety of labels for Irish housing. In the 1618 survey of Armagh, 70 out of 120 structures are referred to as creets; of those 70, 31 are little creetes, 19 are creetes, 4 are coupled creetes, and one is a long coupled creete. Fifty of the structures are referred to in the survey as houses; 14 forked houses, 2 stone houses and 29 "copled" houses (Gailey, 1984:198).

From this survey it appears that the distinction between "creetes" and houses was not by roofing system, since either could use couples (could round creets use couples?). There is an interesting distinction drawn between couples and forks as well. In 1617 Fynes Moryson describes the dwellings of the natives as "cabins wattled and covered with turf" (ibid.), implying that the English may have been using "cabin" and "creet" interchangeably. The 1622 Phillips Survey provides superb detail for the houses of the London Companies' planters, including the dimensions of each individual dwelling. It is a very frustrating experience to read description after description of English homes to find at the bottom of the list "...no other houses,
only four or five cabbons" or "neare 10 cabbons" with no dimensions offered (PRONI T.1576). Gailey has suggested that by the 18th century the distinction between house and cabin was used only to distinguish inferior from superior shelter (ibid.) 18.

It is obvious that the English tacitly understood the difference between an Irish structure and an English one, and required no further discussion among themselves. It is possible that the labels used for describing housing had more to do with the self-referencing of group identity than it had to do with differences of structural detail.

The English were unanimous in their wonder that the Irish did not subdivide their living space. One late 17th century observer noted (either with tongue in cheek or remarkable insight), that "they delight not in variety of rooms" (ibid.:4). But the lack of room divisions was not the essential defining characteristic of an Irish cabin, for several accounts tell of Englishmen subdividing their Irish cabins into rooms.

Plantation comments on Irish rectangular houses usually refer to mass-walled thatched cabins. However, non-mass walled houses with coupled or forked roofing timbers did exist, implying rectangular timber housing [See Figure 10]. There are scattered references to strong timbers prepared

18 Dr. Glassie noted that in the American usage, cabin simply means "one-room". Unfortunately, the Irish situation is not that clear cut.
Figure 10


Figure 11

prior to building an Irish "house". Timber house, Irish house, Irish coupled house and coupled house are all common terms (Gailey:23). Since there was no tradition of timber wall-plates, crucks were probably necessary for these structures (Robinson, 1979:6-8).

Based on the available evidence, the mass-wall seems to have been the more popular rectangular house. There is a strong similarity between the known 17th century houses at Liathmore-Mochoemog and Thady's Fort, the c.1600 map of a dismantled Irish cruck house [See Figure 11] (Gailey, 1984:25), and the 12-14th century Tildarg House from the Brannon excavation.

Irish roofing systems for the period have been subject to debate. Most authors agree that crucks were used for the mass-walled structures. Gailey notes that distinctions between full or partially raised blades, or between continuous or scarfed blades probably reflects the availability of materials rather than the distribution of carpentry traditions (Gailey:88).

Nearly every dwelling on the Plantations was destroyed in the Rebellion of 1641 or its aftermath. When the next wave of settlement commenced nearly fifteen years later, both the English and the Irish were using mass-walled construction almost exclusively (Gailey:44, Robinson, 1979:2, Robinson, 1984:29). The Irish timber
framed, wattleO house (whether round or rectangular) was a casualty of the Plantation.

The Plantation Landscape

During the Tudor period defeated Irish rebels were treated to a policy of "surrender and regrant", whereby after surrendering themselves and their lands to the Crown, the Crown would regrant the land back to them. This policy established grounds for the absorption of the Gaelic chiefs into the English legal system. A central problem with this policy was determining the amount of land regranted. If the chief's entire traditional tribute area was included, the effect of regrant was to tremendously increase the effective power and authority of a "defeated" chief, for he now owned land which had previously been held collectively.19 Subsidiary chiefs were reduced to the status of tenants, while native populations had their lands forfeited first to the caprice of the lords, and then to the Crown of England if the lord's misadventures resulted in confiscation. In 1607, following the Flight of the Earls, this is precisely what happened to nearly all of Ulster. It is possible that the Crown claimed more land on the basis of "traditional authority" than was ever actually the case—even in areas where no surrender and regrant had

19 The O'Neill benefited repeatedly from this process—they were practically lining up to get defeated by the British.
occurred (Discussion from Moody, 1939: Chap. 1, and Robinson, 1984: 40).

The Crown's motivations for confiscation were not primarily economic, for the more commercially profitable land of Antrim and Down were excluded (Robinson, 1984: 43). Instead, the Crown wanted to quell Ulster, neutralizing the long-feared threat of an international Papist stronghold in Ireland (see "Grand Events" above). Confiscation and Plantation provided a way to reward services at no expense to the Crown, while providing an escape-valve for a perceived surplus in the English population.

Ulster was considered the wildest area of a wild land, and with a backward glance at the lessons of Munster, it was decided early on that the Ulster planters should be required to create villages and work the land with British labor—for their own safety. It was recognized that private funds would be insufficient for the financing of large areas of new villages, so the Crown convinced the Livery Companies of the City of London to finance the planting of an entire county to be named in their honor. In this respect the urban development of 17th century Co. Londonderry is not typical of the other Ulster plantations, for it was only in Co. Londonderry that the Plantation village with bawn became typical (Robinson, 1984: 82). By 1614, individual London Companies had representatives on site, beginning to survey and build.
Several of the policies of the Crown were directed specifically at changing the ways of the native Irish. Lord Deputy Chichester wanted to force the Irish to live in towns and build houses "like those of the Palle"..."not Cabbyns after their wonted manner" (Robinson, 1984:150). Brook Blades has made a case that, "..architectural form was considered to be a fundamental means of maintaining English cultural values" (Blades, 1981:39). In addition, the original Plantation scheme called for the Irish to use tillage and husbandry after the manner of the English Pale (Robinson: 64). This alteration was specifically aimed at outlawing the practice of booleying or "Creaghting", which was formally outlawed in all of Ulster quite early in the Plantation effort (C.S.P.I.1615-1625:442). The practice of harnessing the plough to the horses' tails became a fineable offence (In 1612 Ulster collected L870 in fines at 10s/plow, at a savings of at least 1,740 horses' tails [Lucas, 1973:74]).

In 1628, after repeated efforts to discourage the Planters from allowing the Irish to remain on the land, Lord Deputy Falkland conceded that one quarter of an undertaker's estates could be settled with Irish, provided that they were made to wear English clothes, live in villages, send their children to school and learn English (Moody, 1938:63).
It was not the machinations of the Crown which finally removed the Irish from most of the land in Londonderry. They had lost legal title to it with the Flight of the Earls, but economic circumstances worked in favor of their remaining through much of the early 17th century. As early as 1611, Carew pointed out that the Companies were slow to remove paying tenants;

...their agents receive the rents...in the Barony of Loughinsholin [S.E.Co.Londonderry] and seek not to remove them which makes the said natives conceive that they shall not be displanted (Carew in Hill, 1877:572).

The Pynnar Survey of 1619 was ambivalent about the Irish tenants, it was said that their "presence is not wholly undesirable", because of the...

..."greater rents, paid to them [the undertakers] by Irish tenants who graze. If the Irish pack away with their cattle, the British must either forsake their dwellings or endure [endure?] great distress on the sudden, yet the cohabitation of the Irish is dangerous (in Robinson, 1984:101).

In a letter to the Ironmonger's Company, Canning, their agent in Ulster, asked quite carefully, "I desire to be fully instructed upon what conditions and covenants I may safelie sett parte of your lands to the natives..". In the same paragraph he notes that, "..if the Natives doe departe off ye citties lands, the prices will doubtless fall" (Ironmongers:19). The 1622 Phillips survey of the London plantations were more blunt;

They doe generallie retaine the Natives on their Lands, who have noe Estates but from yeare to yeare, at such rack't Rents, as Brittaines are not able to give for the
same, the said Natives liveing dispersedly, & not in Towne Reeds (PRONI, T.1576).

It should be pointed out that the Phillips survey was intended to assess the work of the London Companies for the King, whereas the previous citation from Canning was more or less an "internal memo" within the Ironmongers.

The great Plantation historian T.W. Moody explains that the immediate eviction of the Irish in 1610 would have suspended tillage, creating a dearth for the newcomers—therefore the eviction was suspended until the following May 1st. After a season or two on the site, the Planters began to see the Irish as valuable food-producers, day labor, and above all, rent payers;

...the British undertakers preferred to let their land to natives rather than to British colonists, as the former could pay higher rents than the latter and could not acquire any legal interest in the lands they held (Moody, 1938:62).

In May of 1611 Davies told Salisbury that the natives were more willing to leave than the undertakers were to part with them (ibid.). The evictions were again postponed till 1612. In October of 1618 the Crown passed an ordinance whereby each Irish tenant would be fined 10s if they were

20 It is interesting that throughout this comic cycle of postponed evictions, the English always gave May 1st as a deadline—the day the Irish booleying season started, and the "New Years" (Beltaine) of the traditional Celtic calender. This is not syncretic accommodation on the part of the London administrators, but is simply a reminder that the ancient Celts left behind a few old habits among the English. May first is still the traditional New Years day of the English business calender.
not gone by the next May-day. The Drapers and Fishmongers willingly paid the fines for their tenants (ibid). Finally in 1628 the Lord Deputy doubled the undertakers' rents and conceded that the Irish could legally settle one quarter of each undertaker's lands—and that they were to remove themselves from the other three quarters by May-day 1629. There is no evidence that they were subsequently moved from these "Irish quarters" during the Plantation (Moody, 1938:62).

Demographic Change

The Phillips citation above indicates that the Irish were not settled into the villages set up on the Company proportions in 1622. Tracing where the Irish were settled and their population size is difficult for the earlier 17th century. The English population is recorded by Company proportion in surveys from 1611, 1613, 1619 and 1622, and in two surviving Muster Rolls from 1618 (Moody says this muster dates from 1618-21) and 1630-31. 21

The 1622 survey is the earliest to include the number of Irish families on each estate. For the post-Rebellion

21 Survey of 1611 (Cal.Carew MSS1603-1624:68-9,75-9,220-51):
Muster of 1618 (Cal.S.P.Ire.1615-1625:220-228):
Muster of c.1630 (PRONI,D.1759/3c/1-2[Cos.Down, Antrim and Londonderry]).
period there are several surviving surveys, including the "Petty" survey, which was commissioned in 1653 by the Cromwellians for the purpose of redividing the land to pay off their promises to volunteer troops. This survey is subdivided into the Down Survey (vol.17 covered Donegal and Londonderry), the Gross Survey, and the Civil Survey. The Barony maps for the Down Survey were subsequently captured by pirates, and now reside at the Bibliotheque Nationale, in Paris. In addition to the Petty survey, there are surviving hearth-money rolls (1663), Poll tax fragments (1660), and a "census" (c.1659) (22). These later documents indicate some Irish surnames among the inhabitants of the plantation villages.

Using these data, Robinson notes that the total English population of Ulster increased six-fold in the seven years between 1611 and 1618, and then leveled off for the following 12 years from 1619-1630-'31. The most rapid expansion occurred in the years 1618 and 1619 (Robinson,1984:96-97). The tenant population was apparently quite mobile; the total population was quite stable between 1619 and 1622, yet the distribution of population changed dramatically (ibid:95). This period of intra-migration

22 The Down Survey of 1653 (including Gross Survey and Civil Survey; known collectively as Petty Survey), in PRONI v.17 and Simington,vol.3. Barony Maps of Down Survey Hibernia Regnum facsimile through O.S. of 1908. Hearth money rolls of 1663 (PRONI,T.307); Poll Tax fragment 1660 (PRONI T.1365/3); Census of c.1659 (Pender,S. A Census of Ireland,circa 1659 [Dublin,1939]).
occurs in the years immediately following the biggest population influx.

When settlement distributions are compared with 19th century land values there is a good correlation—the poor quality land failed to attract and/or retain significant numbers of colonists, except in the areas immediately adjacent to the port cities of Coleraine and Londonderry (Ibid.). For those periods where the data are available, it appears that in the early-17th century the British and the Irish occupied roughly equal amounts of the best land, although there were almost no British on the worst land and many Irish [See Figures 12 & 13] (ibid:97).

Following the "Irish quarters" legislation of 1628, Inquisitions were held to determine which townlands were best suited for the Irish. Predictably, this was the poorest and most isolated land, and was usually already leased to Irish families. To the extent that the British were successful in replanting the Irish onto these townlands, the population density for these areas must have increased dramatically (providing the land shortage and density increase necessary to produce clachans from isolated derbfhine holdings?). Robinson has demonstrated that given the available evidence, it appears that the settlement segregation institutionalized by the legislation of 1628 was stable at least through the 1660's and possibly beyond. In general, the English got the lowlands with their
Ethnic distribution of planters in Ulster, by official allocation and the distribution of surnames.
roads and markets, while the Irish got the uplands with their pasturelands (ibid:102). 23

A word should be injected here about the Scottish migration into Ulster during the 17th century. The Scots had been a strong presence in Antrim and Down in the 16th century. In the 17th century they spread into Armagh, Tyrone and Donegal, moving either from the East around Lough Neagh or using Londonderry as a port-of-entry into the rich "Laggan" area of Lough Foyle. Many settled on the undertaker's lands of Co.Tyrone, eventually migrating over the course of the 17th century onto the Londoner's land [See Figures 12 & 13].

Within the city of Londonderry the Scots outnumbered the English as early as 1637. There is good reason to believe that the Scots farmers outnumbered English farmers in the later pre-Rebellion Plantations. Over the course of the next 40 years the county-wide population shifted from primarily Irish and English to Irish and Scots living on English land (Robinson:113; for the definitive work on the Scottish in Ulster see Perceval-Maxwell). (see Figure 12).

The period of "unrest" (The Rebellion of 1641 and the Cromwellian reoccupation) from 1641-1654 was only a temporary setback to Plantation settlement in terms of

23 In Co.Londonderry the leaseholders and freeholders were never required to segregate the Irish onto separate townlands. To what extent this process occurred without legislative mandate is discussed by McCourt,1953, and Macafee,1977.
population, although many of the earliest Company towns were obliterated and never reoccupied. This reenforced the trend in Londonderry for the English to be distributed in a belt of settlement cores which had previously established market privileges and could support craft specializations. This rationalization took place despite an increase in the English population between 1631 and 1659. This increase may be misleading if seen in isolation, for even in 1659 the Planters only accounted for 31% of the total population of southeast Co. Londonderry (discussion from Macafee, 1977: 73-74 [See Figures 14 & 15]).

**English Structural Form and Materials**

For the purposes of this discussion I will not be addressing the architectural variations represented by the "high style" of the urban English administrators or the wealthier private planters. I will also ignore for this discussion the various forms of fortifications used in the Plantation period, including the characteristic bawns of the plantation villages. The high-style structures have been examined at length by Jope, 1960 (who also examined several bawns); deBreffny and FFolliott, 1975; and Curl, 1986. Limited archaeology has been conducted on these structures as well (see Brannon, 1983; Brannon, 1984; Brannon, 1986 and Waterman, 1960).

The homes of the planters and their non-Irish tenants were seen at the time as being distinct from Irish housing.
Figure 14

Distribution of Planter families during the 2nd plantation period in southeast Co. Londonderry, (Macafee, 1977:44).
Figure 15


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Both indigenous forms and the intrusive housing types were to change through mutual contact and adaptation.

In Co. Londonderry, the Raven maps of 1622 have been used to reconstruct the regional variations in materials used in the first wave of Company construction (see maps). Stone was the primary building material in the northwest, while oak timber "cagework" (timber framed) construction was prevalent in the wooded southeast. Settlers in the wooded areas preferred wood shingles or thatch roofing materials, while those of the open lands preferred slate roofs or thatch, with a couple of examples of pantiles [See Figure 16].

It is possible that at least two different timbering systems were in use in Londonderry. The Raven maps indicate the conventional system of widely spaced timber framing with a variety of diagonal braces and collar/kingpost combinations displayed on the exposed gable ends. These variations from house to house differ in detail for the same houses for two different sets of surviving Raven maps, and may not represent actual on-site structural differences. The other timbering system is documented in a carpenter's contract in the records of the Draper's estate, which calls for the house..."To be all halfe timbered seven ynches studd and six ynches space and 5 ynches thick" (Draper's Records in Robinson, 1984:140). A drawing of such
a half-timbered structure survives from Drogheda, Co. Louth [See Figure 18].

The typical English house, whether of timber or stone, was one and a half or two and a half stories tall with a gabled roof and two dormer windows. Most homes were equipped with a variety of asymmetrically placed clerestory windows. The Raven drawings usually seem to place the doorway along the long wall in line with a central chimney, although
Figures 16 & 17

Figure 16

House walling materials recorded in Plantation surveys. Note concentration of timber houses NW of Lough Neagh.

Drapers Co. proposed houseplan of 1615 for Moneymore, Co-Londonderry, redrawn from Drapers Co. Records Ma.Dr.b.1858. Note two alternative stairwell plans (Gailey, 1984:186).

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True Half-Timbering, in Drogheda, Co. Louth, pre-1825. Compare the spacing of the timbers with those in the Raven map of Figure 1 (deBreffney and Ffolliatt, 1975:26).
gable-chimneys do occur. This fits well with the only surviving contemporary plan-view of a Plantation home, from the Draper's Records. This plan indicates a central hearth creating a baffle-entry, with a stairway on the opposite side of the hearth effectively dividing the ground floor into a hall and parlor (Draper's Co. Records, Ma.Dr.,b.1858)[See Figure 17]. Blades has graphed the variation in dimensions for all recorded Plantation structures (Blades,1981:49 [See Figure 19]).

The diagnostics for English housing in pre-Rebellion 17th century Ulster are as follows; built fireplaces of brick, often with a built-in bread oven, butt-purlin roofing systems, timber cage-work, probably with timber ground-sills mounted on stone, slates or wood-shingles, gabled roofs, internal room divisions, lofts, and relatively extensive use of glass (Robinson,1984:144). Coupled roofs, thatch and cruck trusses were common to both the English and Irish traditions.

Most of the timber-framed dwellings were torched in 1641, although a few remained in early 19th-century Ballyscullion Parish, and in the row housing constructed for workers in Coleraine (Gailey,1984:44; and Robinson,1983a). Both the English and the Irish were building almost exclusively with mass-walling in the post-Rebellion period.
Figure 19

Dimensions in Planters' Housing from 1622 Survey (encircled dot indicates house outside of the villages) (Blades, 1981:49).
London Company Towns

According to the original Articles of Plantation:

Every of the said Undertakers shall draw their tenants to build houses for themselves and their families, not scattering, but together, neere the principall house or bawne, as well as for their mutuall defence and strength, as for making of Villages and Townships (cited in Robinson, 1984:151).

From the start, nucleated settlements were encouraged for security and for trade.

Individual companies sent their own commissioners to Londonderry c.1614 to plan the sites of company towns. Several were built on the sites of former centers of Irish power, notably ecclesiastical sites and strongholds of the Irish chiefs. The subsequent pattern of development of these planned communities was affected more by economic and environmental constraints than by the original intentions of the planners. Robinson and Blades have both commented that the English planners' legacy is most visible, not in the distribution of surviving settlements, but in their internal morphology (Robinson, 1984:169; Blades, 1986).

Despite the intention to plant settlers only in villages, the majority of colonists lived scattered over the leased land. Often the number of families living on an estate was larger than the population of that estate's village. Some villages were apparently abandoned even as the population figures for that estate continued to expand. This was particularly true during the period of greatest influx of colonists between 1618-1620 (Robinson, 1984:169).
Leases and freeholds were granted as consolidated holdings by townland units, often miles from the company settlement. If a settler arriving on one of the Londonderry plantations was primarily a farmer, there was little incentive to remain for long within the planned Company village. By 1622 most freeholders had only 60 acres, instead of the Undertaker's required 120 acre allotments. Despite original Plantation intentions to the contrary, only 5% of the plantation population occupied holdings of 120 acres or more. Beneath the 60 acre freeholders were the "undertenants" (approx. 40 acres leased), and the "cottagers"/"subtenants" (10-20 acres leased). These groups combined with the landless constituted 70% of the population in Co. Londonderry (ibid: 184).

A skilled craftsman would benefit from town living, particularly towns with a grant of market privileges and a through road connecting to more than one other village. The acquisition and jealous defence of grants to hold weekly markets was a competitive endeavour. Market towns were rarely more than 8 miles apart, with a legal right to prohibit all unauthorized sales within a 4 mile radius. The eventual size of pre-Rebellion Plantation towns is related to the number of farms using the town as a market center (ibid.: 167). These were the towns which survived the Rebellion period to become the modern communities of Co. Londonderry. This is precisely why the Salter's company
The town of Magherafelt is today growing and prosperous, while the site of Salterstown is now a farm. Magherafelt was sited at a crossroads and obtained market privileges at an early date; Salterstown had neither of these advantages.

The Plantation Economy

Those Plantation towns which survived the rebellion were those which were best situated to respond to the economic innovation of a market economy. There are a series of questions which remain unanswered about this induced economy. Was the market economy the product of a newly available system of regional distribution, increased public access to currency, or production intensification (or some other variable)? Was agricultural production intensified? If so, were new (presumably English) agrarian techniques introduced, or was the indigenous system improved? What impact did early attempts at manufacturing have on this economy?

Robinson argues for a conscious attempt by the British to maximize agricultural surpluses, by shifting from dairy to beef production and introducing "better tools, techniques, and livestock breeds and more efficient processing industries" (ibid:178). Lucas refers to English horse-collars in use as early as 1613 (Lucas,1972:75), but the practice of ploughing by the tail continued for some time, if we judge by the fines for that practice. Lucas believes that the English plough was not introduced to

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Ulster until the 18th century, and then only sporadically (Lucas, 1973:152). The English did make more use of the ox as a draught animal, at least partially replacing the Irish "garron" working horse. However, the garrons were still so sought after that they were listed as an important export. At least three authors have noted that the Irish field system of **rundale** survived well into the 19th century in Co. Londonderry (Evans, 1973; Currie, 1983; and McCourt, 1953). I suspect that as long as the Irish were paying their rent, they were not under any reforming landlord pressure to increase their yields, particularly if they were living in dispersed farms and the landlord was back in town.

Under the terms of the Articles of Plantation, no export duties were imposed on Londonderry from 1610-1617. It appears that exports in grain, butter, cattle and hides to Scotland increased during this period. When heavy Scottish import duties were imposed on this trade from 1618-1622, a black market began to flourish. The illicit trade with Scotland continued to be a problem until at least 1637, when Surveyor-General Charles Moncke reported on the customs from Ulster (PRONI T.615/3). Most of the bootleg shipping with Scotland was going through Antrim and Down (Robinson, 1984:175).

Moncke's report indicated that Ulster in 1637 was exporting hides, cattle, beef, horses, sheepskins, tallow,
butter and cheese (all indicating a heavy emphasis on pastoralism), as well as linen yarn, oats, oatmeal, barley, malt (indicating some agricultural surplus), and fish, timber, and iron ore (indicating limited primary extraction industries). Ulster in 1637 was importing clothing, tools, foodstuffs, ironmongery, hardware, coal and salt (ibid:177). The surviving correspondence from the period indicates that most transactions were carried out in cash, indicating a rapid monetarization of the economy. However, there are recorded cases of exchange by goods in kind. Robinson tells the story of one Robert Russell, agent at Moneymore, who ran a brewery out of that settlement. Instead of paying the workmen their wages in money he had "forced" them to accept payment in ale, and declined to employ anyone who would not accept his beer. As Robinson puts it, "It is hardly surprising that in 1618 there was a partial collapse of the unfinished manor house due to bad workmanship" (Robinson, 1983b:60). Throughout the early period, the Company agents suffered from a chronic cash shortage. Many workmen were forced to accept goods in kind or wait their turn in a growing backlog of lawsuits against the Companies for non-payment. There is some evidence that in the 1670's there was a coinage shortage, which the iron smelters responded to by minting tokens for local circulation (McCracken, 1957:125).
Many of the Undertakers were quick to profit from the operation and control of grist mills, at least 60 were built in Ulster. Leases frequently bound the tenants to use the undertaker's mill. Horse-driven turnstile mills, windmills and watermills were recorded—the watermills being the most desirable and the most common. The vertical "trundle" watermills represented a definite technological improvement over the earlier horizontal "Danish" mills of the pre-Plantation period (Draper's records cited in Robinson, 1984:146-7). Other industrial structures provided by the planters included "tuck" mills for fulling wool, malt houses and kilns for grain, saw-mills, glassworks, and smithies (ibid:147).

Eileen McCracken has made a study of what may have been the most capital-intensive manufacturing enterprise attempted in Plantation Ulster—iron smelting. Sir T.Ridgeway estimated the start-up cost for an ironworks at a minimum of £3,000 in 1610. English miners, furnace-workers and forge hands were imported, the Irish being taken as "unsuitable". The forges required massive amounts of timber for their charcoal fires; one estimate for 1607 was 1 and 2/7ths of a ton of charcoal to smelt 2 and a half tons of ore—then another 1 and 5/7ths of a ton of charcoal to yield a single ton of wrought iron from the cast iron (McCracken, 1957:125).
The Ulster iron was considered to be inferior to its Swedish and Spanish competition, and eventually it became hard to find a market for the Ulster product. Eleven ironworks were destroyed in the rebellion of 1641, although several others had discontinued operations before that time (McCracken:125).

Robinson has commented on the artificially large proportion of skilled craftsmen on site in the early period. In 1611 Coleraine boasted 41 carpenters, 28 sawyers, 11 bricklayers, 20 brick and tile makers, 11 masons, 11 slaters, 2 plasterers, and 5 lime-burners. That's 89 skilled workers out of a total population of 273. Fifty-two years later, according to a random sample of 62 of the 1663 Hearth Money Rolls, there were at that time only 5 carpenters, 3 slaters, and 1 glazer (Robinson, 1984: 181). This may help to account for the decline in timber cage-work in the later period, and almost certainly contributed to the "vernacularization" (a clumsy word) of the later Ulster Plantations 24

Native Irish Survivals and Syncretic Adaptation in Londonderry

Unaltered "survivals" of native structures are difficult to prove. In the mid-19th century many "clachan"

24. The apparent decline in timber framing in Londonderry was no doubt partially the result of a circa 1613 ban on the use of timber framing in urban Coleraine, due to presumed risk of fire (Moody, 1939:170).
settlements included occupied houses with no chimneys (Gailey, 1984:119). 25 These clachans were probably the settlement-structural correlary of the native derbfine kin group. There are surviving photographs of sub-rectangular houses built entirely of sod (ibid:46). Twentieth century architectural surveyors have recorded several interior partition-walls made from plastered over wattle-and-daub (ibid:43) 26.

Perhaps the best example of a structural "survival" is the modern passage-entry byre (recorded in Glassie, 1982:347). Opposed entries are specified in the 8th century Crith Gablach (Gailey, 1984:19), are found on medieval excavations, and are recorded with stone-flagged entrances and dung-drains in the early modern period (Gailey, 1984:144). These characteristics are reflected in the excavations of the 19th century clachan of Murphystown (Buchanan, et al., 1956:118).

A stronger and possibly more interesting case can be made for the syncretic alteration of both Irish and English houseforms into new forms unique to Ulster. It has already been noted that the period of rebuilding immediately after

25 The lack of a chimney makes it difficult for an archaeologist to determine the building's function. Gailey notes that even for those early Irish homes with wattle chimneys suspended from above, there may be no surviving structural evidence beyond an ash scatter (Gailey, 1984:115).

26 Dr. Glassie notes that such partitions could derive from the vernacular tradition of the English and the Scots just as easily as from the Irish.
the turmoil of the 1640's and 1650's saw the almost exclusive use of mass-walling materials—certainly by the English and Scots and probably by the Irish as well. There is a documentary vacuum for the period in which this transition occurred. However, several 17th century farmhouses survive (or have been recorded) which may exemplify the range of variation and changes in the English mass-walled tradition during the period.

The Carrickreagh house from Fermanagh is quite similar to original Plantation housing. It has two stories, a central hearth and baffle entryway, with stairs along the opposite wall on the far side of the hearth. Oak internal beams carry the second floor and the chimney canopy (Gailey, 1984:176). There is a striking similarity between this house and the plan-views surviving in the Draper's records if 1615 [See Figure 17].

A cruck-coupled farmhouse built sometime between 1670-1690's was found near Liffock, in Co.Londonderry. The house is mass-walled, with the crucks embedded within the stone walls. The walls themselves are of uncoursed stone masonry, sand and rubble filled, with occasional "bonding" stones laid across the entire thickness of the wall for stability. The masonry was thought by the investigators to resemble that of Cumberland/Westmorland. There is a distinct "batter" or outward flair at the base of the walls, usually associated with defensive architecture. The house has a
trapezoidal footprint (24.5'x66.5') and was obviously laid out by eye. There is no foundation. The house has a central cross-passage, an was apparently originally laid out in the hall/parlor/buttery room divisions traditional in late medieval England (McCourt and Evans, 1972:49-52).

J.D. Johnston, in a paper describing the ethnic markers for architectural styles and construction techniques associated with plantation fortifications, ascribes "random rubble masonry" to a strictly Irish tradition found consistently before 1616 (Johnston, 1980:83). If this observation is generalizable to domestic architecture, it may mean that Irish masonry techniques were responsible for the Liffock house much later in the 17th century. I am more inclined to think that rubble masonry was also used in north-west England, and therefore is not a diagnostic ethnic marker for domestic architecture.

Johnston's essential point was that architectural style may indicate the ethnicity of the contractor, while construction technique may indicate the alternative ethnicity of the actual construction workers (Johnston, 1980:86). This point is worth bearing in mind for future studies of the standing remains at Salterstown.

The Lismacloskey House from Toomebridge, west Co.Antrim, was built in 1717 and now resides at the Ulster Folk and Transport Museum. Unlike the Carrickreagh house, the hearth is in the original gable-end, while the entry is direct.
into this room. Again the upper floor is carried on oak beams. Upper story fenestration is set close up under the eaves, in a manner similar to the Raven drawings (Gailey, 1984:192). The roof is carried by purlins butted into the principal rafters, a system shared by the Company buildings in 17th century Coleraine (Robinson, 1983a:134).

Robinson notes that the baffle-entry provided by a central hearth was often replaced in the vernacular tradition by a gable-hearth with a thin partition or "Jamb-wall" providing the same baffle function. These two analogous forms are now co-extensive with the area of original English settlement, while "direct-entry" forms survived longest in the areas of Scottish and Irish settlement (Robinson, 1983:49; see also Glassie, 1982).

Plantation building techniques which were subsequently incorporated into the vernacular repertoire include; slate roofs, built hearths with chimneys permitting two-story construction, load-bearing mass walls, and the use of gabled roofs (Robinson, 49).

One of the most obvious expressions of continuity on the Irish landscape is the system of townland divisions, by which strangers in a pub still identify themselves. According to Robinson;

Patents for plantation land grants were made out by listing the Irish territorial denominations to be included, rather than by defining boundaries. In this way the ballyboes and their Irish names were given legal status and became fossilized as townlands (Robinson, 1984:85).
A full 65% of all modern townlands reflect the Plantation divisions—those unidentified were in the mountains uninhabited by the planters (ibid.). This secular continuity is reflected in Church lands and parish divisions as well, for on the eve of the Plantation the Protestant Bishops claimed all termon lands for themselves, and these too have remained.

For a time, the Irish lords continued to exercise power. As their traditional territorial control was disrupted, and with it their seasonal rounds of enforced hospitality, some turned to extorting "protection money" from the native farmers—often promising protection from the very chief who traditionally controlled the area (Graham, 1970:205). Thus the minor chiefs exploited the power vacuum left by the Flight of the Earls, while integrating themselves into the new cash economy.

The swordsmen and kern of Ulster were repeatedly targeted for expulsion, many were shipped to the continent as mercenaries. Yet a number were evidently never caught, and maintained a truly outlaw lifestyle for at least the 40 years of the early plantation (Moody, 1938:60). In March of 1624 at least two parties of 30-40 wood-kern were well armed and at large in Co. Tyrone and Co. Londonderry (C.S.P.I. 1615-1625: 472).

These "kern" seemed to play multiple roles. They were the heirs of a displaced social order, and as such
ruthlessly enforced a deteriorating ethnic hegemony. This may sound overstated, yet in an Ironmongers report of 1614:

...there are yett Irish out in rebellion in their wooddes and some tymes light upon passengers and Robb them and somtymes light into the houses and doo many villanyes, the last weeke they tooke an Irish man as he was keeping cattell in the wooddes upon the Mercers proporcon, and hanged him wth a with in a tree, and tis thought for no other cause but that his Mr. being an Irishman had conformed himself and came too the Church (Ironmongers:20-21).

This is an early example of the Irish killing the Irish in an act of sectarian terrorism.

It has been suggested that the wood kern also fit the role of "social bandits", where a social bandit is defined as:

..a hero, a champion, a man whose enemies are the same as the peasants', whose activities correct injustice, control oppression and exploitation, and perhaps even maintain alive the ideal of emancipation and independence (Hobsbawm,in Crawford,1982:25).

Such social bandits are seen as prevalent where traditional rural peasant cultures are reluctantly retreating before a modern economic system. Obviously, if the kern are not just picking on the British, but extorting from the Irish as well, they may not have been viewed as heroes. But it would be foolish to underestimate the power of the kern. To do so would be to make the same mistake as the settlers of 1641.

The social order imposed on the Irish countryside was similar in many respects to the Gaelic order. "Just as the hierarchy of plantation land divisions...was a reflection of pre-plantation land divisions, so the plantation social..."
structure mirrored that of pre-plantation Irish society" (Robinson, 1984:89). In place of the Chief of a country there was now the Undertaker of a barony, often occupying the same castle as his counterpart/predecessor. The ordinary undertaker corresponded to the sept leader, while the peasantry remained the peasantry. The biggest differences for the farmers were that there were now more of the elite, there was less land to produce rent from, and no native provision for its inheritance.

It is unclear how well the planters enforced the English notions of property rights among their Irish tenants. Falkland's reissue of patents in 1628 stipulated that townlands were available to natives for no more than 21 years or 3 lives (Moody, 1938:63). Yet in the Sperrin Mountains, the 19th century clachan families of Knox and Leslie at Cavanreagh had held their leases at least as early as 1745 (McCourt, 1953:78). Robin Fox recorded a system of gavelkind partible inheritance still in operation on Tory Island as late as the 1950-60's (Fox: 1978).

The structural corollary to that smallest unit of kin-community, the derbfhine, is the clachan. The clachan is therefore the fundamental unit of settlement in the pre-Plantation townland system, and in the form of isolated family clusters is probably quite ancient (see Evans, 1973:53-62; Aalen, 1970:214).
Robinson has estimated the pre-Plantation population density of Ulster to be approximately 2-3 families per ballyboe (the distribution of these families within a ballyboe is unknown, but derbfhine homesteads are assumed). The 1660 Poll Tax shows that the Irish pushed into the marginal uplands now averaged 5 families per balliboe, with as many as 11 families per balliboe recorded (Robinson, 1984:66). In this period there was probably not an increase in total native population but an increase in native population density due to a land shortage.

The average size of a clachan cluster has been recorded as 3.5 houses, from as far back as 1780. Surprisingly, this figure did not change much despite dramatic increases in the number of people housed within these clusters in the population boom of the early 19th century (although there are reports of larger clachans as well). Two lines of evidence indicate that the 19th century clachans developed from earlier, smaller clusters rather than developing independently as "pioneer" settlements. Excavations at the 19th century clachan of Murphystown indicate that the existing structures were built over an older core settlement (Buchanan, et al, 1959:132). In the 19th century enclosures following the famine, a landlord report to the London Companies stressed that he was removing houses, where they were in "cabins formed round the original farmhouse" (McCourt, 1953:75).
The survival of rundale farming into 19th century Co. Londonderry is well attested in the 19th century Ordnance Survey Memoirs, in interviews with 20th century descendants, and in the surviving fossil fragments of the fields themselves. One exasperated agent for the Skinners wrote in 1836 that much of the land ".was still badly cultivated and a great deal of it occupied in the mischievous and almost exploded [form] called rundale" (in McCourt:71). A surveyor was sent in by the Draper's in 1817 to "unravel the intricacies in which tenants, branched from different families respectively, had involved their holdings in common" (in McCourt:79).

Rundale survived longest in the upper valleys farthest from the improving Company landlords. Individual Companies were more or less tolerant of native practice, although most had initiated the process of enclosure by the post-famine 1850's. For a detailed discussion of 19th century changes in field patterns for Co.Londonderry, see Currie, Dissertation, 1983.

In the 19th century, rent was paid jointly by the entire multi-family clachan, each surname-group paying its share to the dominant family which gave the clachan its name (ibid:76;and Buchanan,et al,1956:118). In 20th century interviews, people remember best the fights which often broke out between the farmers working adjacent open-field strips, either because a neighbor's cows trespassed over
the crop, or because the wind blew harvested sheaves onto the neighbor's strip (McCourt:71,73). Thus continued the ancient hierarchical society of land-holding kin groups, fighting for territorial control.
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Synopsis

During the sixteenth century there were several Anglo-Irish conflicts as the English attempted to extend their territorial control. With the Flight of the Earls in 1607, the English effectively annexed Ulster. The Crown enlisted the aid of the London Companies in financing the plantation of an entire county within Ulster, using potential profit as a lure.

Rather than displace the native Irish, on-site administrators found it more convenient to extract rent, labor and foodstuffs from the native population. Native/Planter relations deteriorated, leading to the Great Rebellion of 1641, in which many plantation settlements were destroyed.

The second Plantation began in the late 1650's, growing more slowly than the first due to wary investors.
English administrators left in place the native Irish system of townland divisions, providing a useful and serendipitous continuity in names and geographical units between the pre-Plantation and post-Plantation landscape.

Pre-plantation native Irish economic production was characterized by peasant-scale subsistence and tribute-payments. Before the English economic restructuring there was in Ireland an elite-administered system of cash and goods-in-kind taxation supporting an import/export trade with the continent.
We now turn from a general discussion of early-modern Irish history to a detailed examination of a single English colonial village. The life-cycle of the village of Salterstown reflects these larger events; but beneath the surface of repeated plantations and demolitions, there lie the tools, toys and refuse of real people. The people of Salterstown created a unique world at the interface between cultures in conflict. It will be my job to present that world as completely as the evidence will allow.
Geographic Context: The Land

Salterstown is located by many geographic terms, each overlaying or crosscutting another shade of fossilized meanings, whether from earlier ecclesiastical, familial, political, or economic land divisions. The following discussion places Salterstown within ever-smaller and more local geographic contexts.

Salterstown lies in County Londonderry, a County created during the early 17th century from the rearrangement of lands from older counties. County Londonderry contains all or parts of the ancient Baronies of Coleraine, Keenaght, Loughinsholin, and Tirkeeran (Annagh) (Munn, 1925:1) [See Figures 20 & 21].

The Barony of Loughinsholin was a wooded territory reputedly named for the crannog (lake-fortress) of Lochinnis-O’Lynn.¹ (Maitland, 1916:2). Loughinsholin lies on the western shores of Lough Neagh, south of the woods of Glenconkeen and north of the County Tyrone border ². The Sperrin Mountains (Slieve Gallion in particular) and the Lough form the boundaries on the East and West.

¹. Lochinnis-O’Lynn was still occupied in 1609 when viewed by the deputation of 4 Londoners reconnoitering their prospective lands. The crannog was reoccupied by Shane O’Hagan in the Rebellion of 1641 (Maitland:2).

²) The woods of Glenconkene and Killetragh are traditionally divided by the Moyola River. The forests of Killetra lie within Loughinsholin (Munn, 1925:3).
The ancient baronies incorporated into County Londonderry (Curl, 1986: 441).
Loughinsholin was the traditional land of several of the chief families nominally subordinate to the O'Neill in pre-Plantation times.

Salterstown is a part of the Salters Proportion, also known as lot number 10 in the lottery by which the newly formed County Londonderry was divided into twelve parcels in 1613 (Moody Analect.Hib., 1938, and in 1939:152) [See Figure 6]. The Salter's built two towns within their proportion, Salterstown and Magherafelt. Of the two, only Magherafelt survives as a town.

The Salters proportion crosses far older ecclesiastical land divisions, containing all or parts of the parishes of Ballyscullion, Desert Martin, Magherafelt, Artrea, Desertlin, Kilcronaghan, and Ballinderry. Salterstown itself was and is part of the Ballinderry parish, and was formerly also part of the parish of Tamlaght. The Ballinderry parish straddles the river of that same name, which divides County Londonderry and County Tyrone just south of Salterstown.

Although the proportion crossex ecclesiastical boundaries, its boundaries follow the ancient townland land divisions, containing 55 of them in two distinct
parcels [See Figure 22] (Curl, 1986:321) (3). The following:

3. The English planters did not follow the Irish Ballibetagh level of indigenous land division—the ballibetagh level was made up of Balliboes (now referred to as Townlands), and was in turn smaller than the Baronies of the larger chiefs. Thus, the Barony of Loughinsholin was made up of 10 Ballibetagh (Rawlinson MSS, Analect.Hib., 1938:158), which were ignored when creating the Londoner's Proportions.
Figure 22

The Salters' Proportion in southeast County Londonderry, with Townlands (Ballydonnell and Ballymullet are in the lower right adjacent to the Lough) (Curl, 1986:326).
of the Manor of Sal, entitled "12th February 1618(19),
Bargain and Sale":

1. The Irish Company
2. The Salter's Company

conson: a competent sum

Of the manor of Sal in Loughinsholin, Londonderry,
Ulster, Ireland. Being the manor made on the Ballibetoe
known as Tomlaugh being the lands called Dromare Teden
Reagh 1/2 balliboes Aghram, 1 Ballyconahor, 1 balliboe
Killancee, 1 balliboe, Ahus Key, 1 balliboe and on that
ballibetoe called Moyolagh being Aghrinn 1 balliboe
Terrene Jupees 1 balliboe Brom Mean. 1 balliboe Balline
Garrow, 1 balliboe Don More, 1 balliboe Ballynit
Gilgridge Etrera, 1 balliboe and 1 Irish Rush being Drom
Rarry, 1 balliboe on ballibetoe Maherefealt viz Bally
Chevall, 1 balliboe Bally Maherefealt, 1 balliboe
Lackaby, 1 balliboe Killfaddy, 1 balliboe 1 ballibetoe
Maycann, 1 balliboe Bally n Giltheney, 1 balliboe Don
Arnon, 1 balliboe Tawny dessart doan, 1 balliboe Moy
Gargury, 1 balliboe Bally Langdon, 1 ballyboe Crosnereah
vis. Ahanilla and Tortogelley, 1 ballyboe Moyn
Gillmurray and Anna Patten, 1 ballyboe Tawney doan and
loughney. 1 ballyboe Ballibetoe Covrenah viz Liston
Morrow Bally Ahankeg, 1 ballyboe 2 Bally Ronahars, 2
ballyboes 1 ballyboe 2 Bally Neales 2 ballyboes Bally
Emultrah 1 ballyboe Bally Donnel, 1 ballyboe Bally
Rowey, 1 balliboe Bally Crowgelly 1 balliboe 2 Bally
Gillans, 2 ballyboes Drommor 1 ballyboe Balline heffer,
1 balliboe, 1 ballibetoe Bally May Moore viz Ballyn
Gigug Otra 1 balliboe 2 Bally Mahans, 2 balliboes Don
Ronan, 1 balliboe Ann Kough, 1 ballyboe Bally O Mulgan,
1 balliboe Cort O Crock, 1 balliboe Bally Crock, 1
balliboe Mayagh, 1 balliboe Moy Woolen, 1 balliboe
Dolosky, 1 balliboe Bally Drom, 1 balliboe ballibetoe,
Bally Ravenny viz Listreen Road. 1 balliboe Calabogin 1
ballyboe i.e. the Salter's portion 10 on the lot plan.
Exceptions of timber, mines, fishing
(Salter's Records 01/1/1; also Moody, PRONI T.853:119).

This document displays a working knowledge, if not fluency,
in the native forms of land division. Experts in townland
history as well as scholars of the Gaelic will probably be
amused by the tortured contortions this document puts the
native place names through. The scribe who took down this
passage had not yet standardized his punctuation or
spelling of his native tongue, let alone the unfamiliar Gaelic. However, most of the townland names are recognizable nearly 400 years later. Salterstown was situated partially in "Bally Emultrah", now Ballymultrea, and in "Bally Donnel", still known by that name [See Figure 22].

Ballymultrea townland is thought to be derived from baile-ui-maol-Trea, or "the Townland of the servants of St. Trea", the O'Multreas (Munn,1925:34). St. Trea appears in the Vita Tripatita, written c.890 A.D. and based on a work from c.700. The story goes that St. Patrick arbitrated a dispute in the area "between Lough Neagh and Slieve Gallon". He baptized the winner of the dispute, while blessing the winner's wife and her unborn child 4. He prophesied that "the child in her womb will be full of Grace, and it is I who will bless the veil on its head". A daughter was born, and angels brought down a veil from heaven and placed it on her head. St. Patrick moved to lift the veil, but St. Trea (for so she was) demurred, on the grounds that heaven had placed it there. St. Trea's feast day is August 3 (from O'Doibhlin, 1983:7-8).

The English planters were in a sense following the precedent of the earlier Irish chiefs, by creating a

4) St. Trea was the daughter of MacCairthenn, living in the 5th century. MacCairthenn was the grandson of Colla Uais, a local Chieftain buried on Slieve Gallion 335 A.D. (Annals of the Four Masters:1127; in Munn,1925:26).
territory of effective control made up of smaller economically defined units of land division (Robinson, 1984:83). These townlands are still (in 1990) the primary means of identifying personal addresses, and more importantly perhaps, serve as markers of personal roots or origins in rural Ireland to this day.

The Salters were in a hurry to establish the true boundaries of their new lands:

Wee are advised by Mister Raven to bounde the Church lande within our proporccon with all convenient speede which being not much is the sooner donne, because saithe hee while the Irish remaine upon yor lande they will indifferently, but if the Irish shalbe expulsed and driven off of or lande to the Churche landes before it be bounded then they will wrangle with you and endevor by all means to extend and enlarge the Churche landes beyond their Just or trwew boundes and so offer you wrong (Moody Transcripts "Salters Irish Letter Books, 28 July, 1614").

The Salters were not only worried about incursions from the Church or the native Irish, but from other Planters as well: ...the bounding of our lands, wch must of necessity be done this year, as we have written at large to Jones, that others to not intrude on us--especially Sir T. P. [Thomas Phillips] & the Churchlands...(Ibid. 13 June, 1614)

The London Salters apparently assumed that their lands were to correspond to native land divisions;

Raven informs us that the remote pporcons are fittest to be first bounded & upon or request hath pmised ours shalbe one of the first, therefore we doubt not but you will have great care to solicit Raven, if you find him anything slack therein, that or pporcon may be bounded before winter, wch we understand must be done with all Cos. pporcons at the general charge of the City against wch time procure the best evidence you can for us among the Irish, who know best how to distinguish the
limit or pporcon from or neighbours. (Ibid. 28 July, 1614).

At least the Salters had no qualms about using the Irish to help establish where their boundaries lay.

**THE INHABITANTS: The First Year**

On the 10th of May, 1614 approximately twenty English workmen and their families arrived at the site of Salterstown (Curl: 321. Draper's Co. Records Ma. Dr. B. 45). Baptist Jones led the party as Agent of the Company, and was responsible for governance, overseeing the building operations and disbursing what funds the Salters made available to him.

The Salters sent a younger man, a Mr. William Smith [or Smyth] along with Jones, presumably to assist him as a Clerk but in reality to monitor his activities and report back to the Company. This maneuver was amply justified by later events, as several workmen complained of never seeing the funds Jones was claiming to disburse. Both men wrote scathing, backbiting letters about each other back to the Salters in London. It is through the surviving fragments of this correspondence (and subsequent legal proceedings against Jones) that we know what little we do about the rest of the party during the first days of the Plantation.

Jones' party was surprised to find an Englishman already in residence on the Salter's land when they arrived.
Contrary to our expectation we found a good house ready built, in which dwells one Aubrey, a man of good sort and honest. He was some time dwelling in Ratlefe near London and was master of a ship. He has 2 townlands let to him by Beresford till Alhollantide at 50/- a townland. At his house we found bread, beer and meat, and so we all dwelt with him till now against Whitsuntide that we had our house up and our Carpenter with his followers and the rest of the workmen do dress their meat and brew their own drink in that house. But had not Aubrey's provision helped us at first, we had been put to a hard push for victuals (Wm. Smith to Company, 13 June, 1614: Salters Irish Letter Book, in Moody, PRONI T.853, p.173-4).

I have been unable to find any more information about the mysterious Mr. Aubrey. His habitation north of the Ballinderry river discredits the possibility that he was one of the Lord Audrey's family from Co.Tyrone. It is at least remotely possible that he is the Richard "Avery" listed on the Raven map of 1622. If so this would explain the architecture of Avery's 1622 house, which is different from anything else in the village. In any case Aubrey must have been a truly generous man to provide food, drink and housing for 20 boisterous workmen and their families.

Note that even under these crowded conditions, with subsistence by far from assured, the first priority of the workmen was to set up a brewery.

It is interesting to note that this band of colonists, like so many others of this period, depended on the kindness of strangers for food upon arrival. This dependency is especially remarkable considering how close Ulster was to London, and the planned nature of the settlements established there.
As Master Carpenter of the settlement party, Thomas Starkey enjoyed a middle status between the Company's representatives (Jones and Smith) and the common workmen. The workmen themselves were apparently hired both from London and Chester. On route to the Salter's Proportion, a "...collarman hired by Jones in Chester" was drowned while crossing the Bann River (Ibid:173). Smyth wrote that he was grateful that it was not the Carpenter who was lost. Despite Smith's concern, rigorous social boundaries must have been enforced, as Smith and Jones seem to have lived separately from Starkey and the workmen after the first house was erected.

Starkey apparently had his own crew, distinct from those workmen hired by Jones in Chester. Smith indicates this distinction when he refers to "...the Carpenter with his followers" versus "the rest of the workmen" in the passage quoted above. In another passage Smyth alludes to a carpenter who is "not one of the London carpenters" (Ibid:176), possibly referring to Starkey's crew. Jones was not pleased with the quality of his help, and did not hesitate to make an example of his Master Carpenter. In a letter to the Salters dated August 18, 1614 Jones noted that during a short absence on business to Dublin, work had come to a standstill due to general drunkenness, and that the Master-Carpenter and Wm Smith "...had many times been
together by the ears" [i.e."fighting"] (Ibid:184). Jones complained that:

The Master Carpenter is a lazy workman and if I had not set him by the gate [the "gate", as in stocks] as I did presently after I discovered his idleness, the losses I have now in hand would have cost much more (Jones in Moody, PRONI T.853, page 184).

Jones' dissatisfaction also extended to the workmen themselves;

I find the carpenters that came over with me not so good as I expected yet good enough to serve the present turn, and against the next year if there be occasion I will provide myself with better, seeing they are here with their wives I must not turn them to begging, but make the best use I can of them and hope they will amend every day (Ibid; emphasis mine).

This letter is the only evidence I have to date that the workmen who built Salterstown brought their families. However, these families were obviously considered to be temporary residential employees, rather than permanent tenant settlers.

The Population of the Salter's Proportion, 1614-1641

In his letter of the 18th of August, 1614, B.Jones said that the congregation at Salterstown consisted of 40 English men, women and children. We do not know how many other settlers were not attending church (if any). Of these settlers, we know for certain the names of only the four men discussed above--Baptist Jones (Salter's Company agent), Wm. Smith (Salter's Clerk, of Magwell St, London; later to act as Salter's Attorney in Ulster), Mr. Aubrey (previous settler on land), and Thomas Starkey (Master
Carpenter). Later records provide the names of some of the settlers to follow.

Baptist Jones has by far the most colorful history of any of the known first party. Jones was hired on as the Salter's Company agent March 28-30th of 1614. By February of 1616 he had been arrested by the Salters and brought up on charges of misappropriating funds and for failure to act on his commissioned duties. The court found him provisionally innocent—and gave him a year to produce proof that he had paid miscellaneous expenses appropriately. The Salters Company eventually paid Jones L291/11s/8p in settlement costs and formally petitioned him to vacate their land and not come back (in "Baptist Jones' Obligation to Depart..." in Moody Transcripts Salters Court Book vol.1).

Jones became a partner with John Rowley on the 9th of May, 1616 as farmers on the Vintners Proportion (three months after his arrest by the Salters). Rowley died the following year, leaving Jones as the sole lessee 5. The lease was formally rewritten on the 20th of April, 1619. Following the Pynner survey, Jones went to London to raise funds and renegotiate his lease. He persuaded Elizabeth Feltham to lend him L500 as a mortgage on a newly rewritten

5. John Rowley had been an extremely important man in Ulster affairs. He was the agent of the Royal the Irish Society, and served as an Alderman and Mayor of the City of Londonderry (Curl,37).
lease, in addition to negotiating to keep all of one year's rent to fund the building of a church at Bellaghy.

In 1621 Baptist Jones was knighted, presumably for his work on the London Plantations (!). By November of 1622, the Vintners Company asked Richard Lee to begin legal action against Jones for failure to pay all but his first rent payment. The church was unfinished, and the buildings on the Vintner's proportion were in a state of disrepair and vulnerable to attack. Sir Baptist Jones died in 1623, over L300 in arrears. (Curl:371,367,70; Moody1939:338; and Moody Transcripts, "Salters Court Book vol.1").

Among the earliest settlers on the Proportion was a Mr. "Joice Evered" ("mason or engyner") who appears in the Salter's Records (14 March, 1615[16]) as being paid 15s/perch of wall for supervising the construction of the bawn at Salterstown (and the partially completed bawn at Magherafelt). Curl provides several variations of this man's name (i.e. John Evered, Joyes Everard, Josias Everard, Ioice Everit). He was a Dutch engineer, evidently an old hand in the North, who helped Bodley with the Ulster fortifications of 1608 and with the building of Mountjoy Fort c.1602. He later appears as a resident of Magherafelt in 1622 (Curl:320, Carew MSS:634, Drapers Ma Dr,Book+793, Salter's Minutes, Transcript of the Court Book, vol 1, "Baptist Jones' Obligation to Depart..." Moody:120).
A Sir William Windsor held a freehold on the Salter's Proportion at an early date, signing a petition appearing in the Phillips Survey, and owning a modest (although rare) stone-built one and a half story house. He evidently commanded a Company of Foot at Coleraine, and later commanded the fortress at Desertmartin. In 1621 he was one of several men to be awarded among the "Mayor, Constable, and Society of Merchants of the Staple of the city of Londonderry" (Curl:323, British Library Addtl Mss.4756.Fols 121-2; Blades,81:50).

From the first summer of the settlement in 1614, Salterstown had a minister. Jones said of this first preacher that, "though his means are poor, yet he wilbe content for a while till I can find better for him." The pastor's name was John Binns, though nothing else is known of the man (McGuckin,1980:96). Binns was succeeded by Harman Shepherd (1618-1622), followed by Michael Birket (1622-1641) (Ibid:97). The Raven maps indicate Birket as minister at Salterstown. Mr. Birkett was the only survivor of the Rebellion of 1641 from Salterstown who is listed by name. He, and the then "keeper of the Castle", escaped over the Lough to Carrickfergus with their families, where they subsequently starved to death (Maitland:7).

In the Salter's Dividend Book for 9 Feb 1616, a Mr. William Fynche and Partners pay to the Salters the first rent received from their Londonderry settlements (Moody...
Transcripts, 142). Fynche (or "Finch" or "Fynch") was the chief farmer at Salterstown, signing a lease in partnership with persons unnamed in May of 1616 (Rent was L160/yr). His partners are listed in the 1622 Phillips survey as Hugh Sayer and John and Roger Foster (PRONI T.1576). He was listed on the 1622 Raven map as the occupant of the "castle" house situated within the bawn. A Captain Henry Ffinch is recorded in the Civil Survey of 1654-56 as a freeholder of several parcels of Salter's land; Henry was also a Sheriff in 1634, and in 1640-41 (Moody, 1939: 449-50). A Mr. George Finch leased extensive parcels of the Grocer's proportion in 1676 (Curl: 158, 323). I have been unable to trace any certain relationship between these men and the William Finch of Salterstown.

Hugh Sayer was listed as the farmer who was supposed to have received tools from Baptist Jones in the court settlement of 1616. In the Dividend Book he received L5 directly from the Company with which to pay Wm. Smith "as necessary". He is listed in the 1619 Pynner survey as holding "Salters Hall" (Whereas Finch has that honor 4 years later in the Phillips survey and Raven maps). Sayer is listed in the Calendar of the Carew Manuscripts as the farmer at Salter's Hall. He is also listed in the Phillips survey as one of four lease holding farmers, along with Wm. Finch, John and Roger Foster (PRONI T.1576). Maitland notes that in the muster of 1622 the Salter's proportion
mustered 16 men carrying twelve muskets and four halberds under Mr. Sayer (Maitland:3). He must have gone back to London at least twice, for the Salter's allocated monies for his return to Ireland in 1622 and in 1624.

A Mr. Olton accompanied Hugh Sayer to Ireland on his 1622 return. Over the next six months Olton dispensed £45 of Company funds on unknown goods and services.

On the 20th of April 1619 William Smith was granted letter of attorney for conducting locally witnessed land claim ceremonies known as "livery of seisin" (Salter's Records 01/1/1). On the 22nd of July 1619 one such Livery of Seisin was conducted on the Salter's Proportion, providing us with a list of witnesses on hand at that date. The witnesses were Hugh Sayer, Thomas Saunders, William Poole, Thomas Turner, William Gilforde, William Danders [Saunders?], William Tymmis and Patrick Halfepenny (Ibid.).

On the same day as the Livery of Seisen, July 22, 1619 a formal ceremony took place at Salterstown conveying the newly formalized Manor of Sal (the legal name thenceforth
for the Salter's proportion). 6. Robert Goodwyn entered the Bawn and took possession in the name of the manor—delivering it to Wm Smith, now acting as Salter's Company Attorney. Some of the same names appear again as witnesses, as well as others; Hugh Sayer, Thomas Saunders, Wm. Poole, Daniel Hall [still there in 1622], Christopher Bankes, Edward Forster [still there in 1622; apparently unrelated to John and Roger, leaseholders?], Richard Cooke, Thomas Turner, Wm. Gilford, Wm. Saunders, Wm. Tymmis, and Patrick Halfpenny (Moody Transcripts: 119). This list probably does not represent the entire population of the town at the time.

A review of the known population of Salterstown up to the Phillips/Hadsor/Raven Survey of 1622 yields the following: In May of 1614 Jones arrived with 20 workmen, while in August of that year Jones claims a congregation of 40 English men women and children. In 1619 twelve men are listed by name as witnesses of the Conveyance ceremony at

6. Robert Goodwyn was then the Town Clerk of the City of Londonderry, directly responsible to the Irish Society. Goodwyn enjoyed a glowing career in Ulster. He was trained as a lawyer, was a member of the Drapers, was Town Clerk of Londonderry in 1612, helped oversee the cutting of roads for the Vintners in 1616, was a Steward for the Clothworkers proportion in 1617, helped oversee the building of Muff for the Grocers from 1616-1619, and may have been the Salter's agent from 1622-1627. He served as Chamberlain, Town Clerk and Clerk of the Peace in Londonderry from 1613-c. 1641 (Moody, 1939: 450). Goodwyn eventually became one of the High Commissioners of Ireland appointed by Parliament in 1659 (Curl: 37, 94, 155).
Saltertown. In 1622, Sayer musters 16 men from the entire proportion.

The Phillips/Hadsor/Raven Survey of 1622

The Phillips survey is the most extensive and most detailed source of information available for the Plantation period. The survey lists by name 6 men at Magherafelt and 17 Heads of Household (one is the Widow Travers) at Salterstown. The lists of inhabitants from the 1622 survey explicitly exclude "young men living with their parents" and servants (Chart:163).

The names of the inhabitants of the Salter's Proportion appearing in the Phillips survey are as follows:

For Magherafelt, we have Thomas Cooper, Anthony Avery, Sylvester Fleetwood, Ellis and John Redfern, and Joice Everet. John Redfern was a plasterer who was paid L2/5s apiece to plaster 6 houses in Moneymore, and L22/- for finishing 5 pairs of chimneys (Curl:165,182). Joice Everet is the Dutch mason discussed earlier.

The names listed at Salterstown were Daniall Hall, Thomas Jackson, Richard Evans, Edward Young, John Howgrave, Widow Travers, Rowland Warbank, Walter Walton, Mr. Birkett (the minister), Matthew Hill, Mr. Finch (the farmer), Miles Shingleston, Thomas Pitts, Richard Avery, Thomas Taylor, Edward Foster, and Robert Scott.

Of those listed for this 1622 survey, only Daniall (or "Danyell") Hall and Edward Foster (or Forster) appear on
the 1619 list of witnesses to the Conveyance of the Manor of Sal. Daniall Hall, Edward Young, and Richard Averie all signed a "Petition of the Inhabitants of the Barony of Loghansholin", which complained of the burdensome jury duties and court attendances exacted on the inhabitants of the County (Chart:131,133). Mr. Wm. Finch is known to have been a leaseholder at Salterstown since at least 1616. He does not appear on the witness list of 1619, although he is listed in the 1622 survey. Robert Scott appears on the Muster Rolls of September 20th, 1622 as a "musket and caliver man" (Chart:54).

From 1627 until the 1635 Star Chamber revocation of all Irish patents held by the Londoners, the Salter's Company leased their estates in Ireland to Ralph Whistler. He administered his holdings alternately from his home on-site or from London. Ralph Whistler regained his lease when the Salter's regained their patent. Despite the constant revocation and regranting of Crown or Cromwellian patents throughout the 17th century, the Whistler family managed to somehow hold onto their lease of the Salter's lands until decades into the 18th century.

Mr. Whistler was the adopted son of Mr. Robson, the man who at one time administered the Royal Patent for Glassmaking for all of England. This same Mr Robson was the 2nd Warden of the Salter's Company at the time Whistler's lease was granted in 1627 (Watson, 1963:74).
In 1629 Thomas Phillips presented a survey to the Crown which was intended to highlight the shortcomings of the Londoners' plantations. In his report he included the following summary of the performance of the Salters:

**Salter's Proportion**

- Farmers Name: Ralph Whistler, 54 Townlands
- Rent by rent roll; the year ended Easter 1628=L316
- Rent by the information of Sir Thomas Phillips=L439
- Buildings by the viewer's report=1,438
- Buildings by the farmers by the viewer's report=0
- Buildings by the farmers by their own report=3,500
- # of British, partly by view and partly by info=79
- # of Natives by a book of information=203


This report, if anything an underestimation of building activities and English population, still indicates substantial growth in the Salter's Proportion since the Phillips/Hadsor survey of 1622.

Some rough socio-economic rankings may be inferred from the size of the houses associated with each name on the Raven maps. By this (admittedly risky) inference, it seems likely that in Salterstown Mr. Finch, living within the Bawn, was one of the wealthiest members of the community, while Danial Hall, Miles Shingleton, Thomas Pitts and John Howgrave were also relatively affluent. At the other end of the scale (and the other end of the village), Richard Averie, Thomas Tailor, Edward Ffoster, and Robert Scott all

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7. There is a slight discrepancy between documents for the 1629 Royal Commission Survey. Some say that there were 76 British men and 181 Irish on the Salter's Proportion ((Curl:321; Draper's Co. Records Ma.Dr.B45). The Phillips MSS report 79 British and 203 Irish (in Chart,1928:138-9).
lived in smaller structures (that of Edward Ffoster appears to be a traditional Irish form). Finally, there are those individuals whose names are not associated with structures, but are known to have lived at Salterstown, including the servants of Mr. Finch, who lived in the flankers of the bawn (Phillips Survey, PRONI T.1576).

Another way to approach socio-economic status is to look at the 1622 breakdown of legal status on the Proportion. Phillips reports for the Salters lands one freeholder (probably Sir Wm. Windsor, mentioned above), four leaseholders (probably Finch and Partners), 16 "reputed leaseholders" (status undetermined) and 27 British men along with 126 natives (Phillips MSS in Chart:138-9). Currie has noted that unlike most of the Company Proportions, the survey of those living in the towns of the Salter's lands probably accurately accounts for most of the English population (Currie, Dissertation:76).

The Native Irish on the Salter's Proportion

There is no evidence for native Irishmen living in the town of Salterstown during the first plantation. Where the Irish were settled, and to what degree these settlements were centralized, remains an open question.

The interactions between the Irish themselves presented a lively spectacle for the bewildered Company agents. In August of 1614, Baptist Jones complains:

Have daily busines to imploy myself about the plantn to order wrangling between the Irish tennts of
your land & the rest of the countrie thereabout, for they are together by the ears every day, & if quarrels and disorders were not daily punished to the uttermost of my power, it would be as uncivil a place to live in as ever formerly it hath been (Jones in Moody, Transcripts, Letter Book: 186).

Apparently the English were not content with a laissez faire colonization of the land, but instead actively intervened in native affairs with the intention of bringing to Ulster the benefits of English civilization.

The Salters were just as susceptible as any of the other London Companies to the temptation to keep rent-paying natives on the land. In a letter dated the 28 of July, 1614, the Salters Company instructed Baptist Jones in the following manner;

We doubt not but you will have a special care to draw unto you as many English tennts as you can to inhabit or houses after they are built. The Councels here moved the Ld. Dep. [Lord Deputy] that the worst sort of Irish inhabitants might first be removed & then the rest afterwards by degrees, lest if they should be suddenly put out altogether, it might give the Irish discontent & prove very unprofitable to us, which the Ld. Dep. did not dislike. Therefore we hope you shall continue on our land the best of the Irish till you can draw on English tennts (Moody, Transcripts, Letter Book: 171).

This policy is reiterated the following February;

Touching Irish tennts who, as you write, are tolerated but till May Day next, we are informed that if Irish will go to Church they may continue on or land; if this be so we conclude you may keep those Irish tennts to stay on or Ids. that are there already. If you have a mind to deal wth Brit. tennts, you may entertain such as you think fit (Ibid, 8 Feb, 1615: 191).

In March of 1624 there were still 147 natives on the Salter's proportion (C.S.P.I. 1615-1625: 472).
The above mention of native Irish attending the Planter's Church is intriguing in light of local events in 1614. On the Ironmonger's Proportion the Kern (native Irish outlaw bands) hanged an Irishman for the crime of attending the Planter's Church (Ironmongers:20-21). Native farmers were faced with the choice of displacement from the land or denying their religious beliefs, with their religious hegemony backed up by the swordsmen of a recently displaced native elite.

The Irish were apparently well aware of the current economic value of their own goods and services. Even in the first year of the settlement at Salterstown, Jones complained, "Have been dealing with the Irish tennts this month past to draw me lime and stone but they ask me such an excessive price that by no means I will meddle wth them at that rate" (Moody Transcripts, Letter Books:183). We do not know to what extent the English planters came to rely on Irish labor, produce or crafts as the first impressions following initial contact wore off, and the plantation enterprise wore on.

**Everyday Life in Salterstown: The Structures**

In his letter of August 18,1614 Jones noted;

I purpose to put up but 6 houses this year, to make a settlement to lodge the workmen in and keep stores and provisions, so that we shall be ready to go forward in the spring with what is resolved on in the meantime.

Later in the same letter he justifies this number of houses,
after discussing his hardships in acquiring building materials;

If I could have got houses covered I would have put up more this year, but I think it fit to build sparingly at first to some use than to set up frames of houses to no purpose.

According to Wm. Smyth, only one house (and another "in hand") was produced between May 11 and June 13. In the settlement proceedings in a suit brought against Jones by the Company (14 March, 1615[16]). Thomas Starkey (the Master Carpenter) was mentioned as having received £2 pounds/8/4 for constructing 3 houses at Salterstown and some other monies for 2 more houses at Magherafelt.

By 1619, five years after the first workmen arrived and 3 years after Jones had been removed from the Company's employ, there were 10 houses at Salterstown. According to the Pynnar Survey of that year;

Salters Town hath a Bawne of Stone and Lyme, 70 feet square, 12 feet high, with two Flankers; and a poor House within it of Cage-work, in which the Farmer, with his Wife and Family, dwelleth. Here are also 9 Houses of Cage-work standing by the Bawn, being inhabited with British Families; also a Sawing Mill for Timber; but the Glass Houses are gone to decay, and are utterly undone (Pynnar Survey in Hill:588).

The Phillips/Hadsor/Raven survey of 1622 is even more specific, giving the actual building dimensions for the village of Salterstown.

The Bawn is described as 83 long by 65 feet wide by 12 feet tall with a timber footpace and two round flankers 26 feet "broad". These flankers were two stories tall, shingled, and inhabited by some of Wm. Finche's servants
Finche's house within the bawn is described as a "smale house of timber" 33 feet long by 16.5 feet wide, of two stories with a shingled roof.

The survey lists 10 "smale Timber houses". One is an unfinished frame, unusually large at 42 feet long by 21 feet wide. Two houses are listed as 33 feet long by 16 feet wide, of two stories apiece with shingled roofs. Six houses are 27 feet long by 17 feet wide, of one and a half stories apiece with shingled roofs. One house is listed as 24 feet by 16 feet, one and a half stories with a boarded roof, while the last house is only 16 by 16 feet square, of one and a half stories, with a shingled roof. Additionally, the survey mentions in an offhand remark that the village also contains "4 cabbons thatched", without giving their dimensions (Phillips Survey, PRONI T.1576).

After 1641, we must assume that only the ruins of the bawn were standing until Gabriel Whistler's rebuilding in the 1650's -1670's. In his letter of 1691 he mentions providing housing for his farmer, implying some new residential building at the site of Salterstown. These farmers' homes were "once again burned" during James II's retreat of 1689 (Whistler in Maitland:7). Whistler rebuilt the bawn again in 1711, and may have rebuilt the "castle" as well. The ruin of the castle which now stands is of stone.

*Everyday Life in Salterstown: The Church*
For purposes of ecclesiastical administration, Salterstown lies within the Diocese of Armagh, in the Parish of Ballinderry. The original Catholic Diocesan territories were adopted wholesale by the Plantation Protestants. The Diocese of Armagh included the Southern edge of Co. Londonderry, and was overseen by Anglican Primate Ussher. The parish of Ballinderry was not officially incorporated within the new Protestant diocesan administration until 1620, when the archbishop at Armagh received royal grant to the glebe and church lands of the parish (McGuckin, 1981:96). The Glebe lands were leased as estates to private English gentlemen. Sir Edward Doddington, of Dungiven, leased a portion of the glebe lands on the Tyrone side of Ballinderry Parish. When he died c. 1618, Sir Francis Cooke acquired Doddington's widow, his castle at Dungiven, and his Ballinderry Glebe lands.

Within three months of landing in Ulster, the original party of workmen at Salterstown had a resident minister (Moody, Transcript "Letter Book", 18 Aug, 1614). Although not mentioned by name in the original 1614 reference, this man was probably the John Binns known to be on site the following year.

8. Bishop Ussher was an scholar in his own right, now famous for his estimated date of the beginning of the world: 4004 B.C. on October 23, at 9 A.M.
The first named Protestant rector of the Ballinderry parish was John Binns, who had a new church built for his congregation at Salterstown in 1615 (McGuckin, 1981:96). The church was built close to the castle on Lough Neagh; "...situated a short distance from the Castle, about two fields length" (Maitland, 1916:7; retold in Larkin, 1982:325).

In the summer of 1988, there was still a tradition in the neighborhood of Salterstown which refers to one of Mr. Port's fields as the "Church fields". Church field is literally two fields NNW of the surviving bawn. Although no ruins mark the site, there is a burn layer containing brick weathering out of the hedgerow. There may be a plantation-period church site in Mr. Port's field.

John Binns was succeeded in the Ballinderry Parish by Harman Shepherd (1618-1622) and Michael Birkett (1622-1641) (McGuckin, 1981:97).

Mr. Michael Birkett is listed in the Parish Records of Tamlaght under the following entry;


This appears to indicate that Birkett was hired in 1622 as rector for both of the parishes of Tawlaght and Ballinderry. Within the Diocese of Armagh, Tamlaght was a
part of Ballinderry Parish until the late 18th century (Ibid:420).

The church at Salterstown was destroyed and never rebuilt when a small Irish garrison holding the castle retreated before the advance of Monro's army in 1642-43 (Maitland, 1916:7; this same story is retold in Larkin, 1982:325). Birkett is one of only two men known to have escaped the Irish attack on Salterstown in 1641 (McGuckin, 1981:102). He unfortunately did not survive the subsequent famine and epidemics at Carrickfergus.

The next Protestant minister listed is Richard Wheelright, "institut. fuit 15th die Sept.1664, ad rect. de Tawlaght and Ballinderry, L3/6s/8d ster" (Ibid:422). This left quite a gap between Mr. Birkett's demise in 1641-2 and the coming of Mr. Wheelright in 1664, when there was no populace at Salterstown to preach to. Wheelright was replaced in 1673 by John Forbess (or Forbesse). Elias DeButts succeeded Forbess in 1719, and died in 1751. In 1766 William Lill was absentee rector of Ballinderry; his curate was John Christie. In 1766, Rev. Lill reported 85 Protestant families in Ballinderry parish, along with 128 Catholic families.

Throughout the period of the first plantation (1614-1641), Presbyterianism was gaining ground on the Anglicans as the second-most influential Protestant faith in the region. In 1625 a series of inspirational sermons were
delivered by a clique of Dissenter (Presbyterian) ministers near Antrim. The response they got is now known as the Six-Mile Water Revivals. The revivals spread into Counties Antrim, Down and Londonderry, lasting about 8 years. Charles I began limiting the movements of the Dissenting clergy. By 1638, all non-conformist ministers were supposedly replaced by Anglican priests. Most of these dissenting clergy went to Scotland, strengthening the Presbyterian movement there. Many Scots colonists left Ulster in the 1630's due to the Anglican repression under Wentworth. Presbyterianism returned to Ulster with the advance of Munro's army, and has remained ever since (M. Westercamp, 1988:15, 36, 38).

- In the 17th century, (and despite the Penal Laws, throughout the 18th century), the local Catholic population was not without men of the cloth. In 1631 Thomas Phillips took a census of Catholic clergymen still living on Londoners' lands; a census calculated to discredit the Londoners. In the entire county, 24 priests held 29 parishes; two of the priests were undertenants on the Salters' lands, holding services in two mass-houses on the proportion. He lists one Patrick McGuggin as the resident priest of Ballinderry parish. The name is not surprising since the McGuckin's had served that parish as erenaghs since 1406 (McGuckin, 1981:107).
In the late 17th century St. Oliver Plunkett was the Catholic Bishop of Armagh. In 1704, the Irish Government required all priests to "register", as a means of enforcing the Penal Laws. Owen McGiver came in to Magherafelt to register as the Ballinderry Parish priest. He was the only priest to register for Ballinderry, Tamlaght and Magherafelt. McGiver's successors include Fr. Lawrence McGuckin (d.1732), Taeg/Thady O'Corr (1732-1766), John Mulhallen (1766-1781) and Arthur Taggart (1782-?). Note that in the Parish of Artrea from 1744-1756, there is a Fr. John Halfpenny, whose name will appear again (above from O'Doibhlin,1982:38).

Everyday Life in Salterstown: The Economy

The economy of the Salter's Proportion was dependent on the extraction of non-agricultural resources. Currie has noted that with their tenure uncertain from the beginning (justifiably so, as events proved), the Londoners chose to concentrate on making fast money exploiting raw materials, growing only enough grain to meet subsistence needs (Currie, Dissertation:79). This was especially true for the Salters, placed on one of the most densely wooded areas left in the 17th century British Isles.

From the first summer of settlement, Wm Smith was sending letters to the Company waxing enthusiastic about the money to be made selling pipe-staves and timber. The
Company replies were always guarded; the Articles of Plantation said that they were not allowed to sell their timber for a profit except as necessary to other London Companies for their own building needs. However, those Undertakers in Ulster not affiliated with the London Companies sold their timber without Royal hindrance. The London Companies were ambivalent about how strictly they would be held to the Articles once their obligation to build the Cities of Coleraine and Londonderry was fulfilled (see "Letters" Appendix A). Such qualms do not seem to have hindered the agents on the scene, and the "unofficial" timbering of Loughinsholin and Glenconkeen (to the north) became one of the dominant industries of 17th century Co.Londonderry.

In light of his arrest in the spring of 1616, it seems probable that Baptist Jones was making a profit from timbering the Salter's lands at Company expense. He was at pains to justify keeping the Company-hired workmen despite the low yield of actual houses built in the first years of the Plantation. The Company paid for the workmen, a boat for shipping (at Jones' suggestion), and a sawmill (Pynnar Survey, 1619 mentions the sawmill, Hill:588). Jones' enterprise would probably have gone undetected if he had paid the workmen, and if he had managed to rid himself of Wm.Smith. A carefully cynical reading of Jones' letter to the Company 18 Aug,1614, reveals the following outline (in
my own words) of what may very well be a 17th century snow
job;

A) since the workmen are slow the necessary work is not
done.
B) since they brought their wives, and cannot be
replaced with better workmen they must be retained.
C) Since mortar and roofing materials are not available
it would be unwise to build more houses immediately
because the unfinished frames would rot.
D) The carpenters can be usefully employed felling and
squaring timber (for tenant houses) throughout the
winter.
E) If, upon inspection, there is little timber cut for
new houses next spring, despite year-long labor charges,
see item A. (For text of the actual letter, see Appendix
A).

Within three months of his arrest, Jones entered into a
partnership with John Rowley as a joint leaseholder of the
Vintner's Estate. Rowley had already been reprimanded by
the Irish Society for cutting down thousands of trees for
his own gain (Smithes and Springham Report of 1613-1614).
The Privy Council had revoked Rowley's earlier leases at
that time (Curl:60).

In all fairness, Jones had been found innocent of all
charges at the time of his new partnership. This being the
case, the Salters must have themselves been remiss in not
reimbursing their agent punctually for the many expenses of
establishing the plantation.

Contrary to the Articles of Plantation, Salter's
leaseholder Ralph Whistler (1622-1635) was known to have
exported vast quantities of pipe-staves from the Salter's
Proportion. The Phillips survey of 1622 noted that
timbering was the mainstay of the Salter's economy,
implying that timbering was in full swing before Whistler's lease (Chart, Phillips MSS:21). A Royal Commission of Inquiry of 1628 found only one violation of the prohibition against merchandising the Londoners' woods, and that was the farmer on the Salter's estate (Moody, 1939:341; Chart, Phillips MSS:96-97). This notoriety did not seem to inhibit Whistler, for as late as 1637 he is known by name as one of the leading exporters of pipe-staves in the County (Moody, 1939:341; Report of the Surveyor General of Customs in Ireland, 1637 PRONI, T615:49).

The woods were immediately seen as a source of fuel as well. Thomas Smyth suggested to the Company that they purchase an Iron mine if the ore could be located, "If we had a man of skill to search for oar in yr grounds, you have all other things for it, the gain would be extraordinary; considering that wood doth so abound" (Moody Transcript Letter Books, 13 June, 1614). Two months later, the Salter's Dividend Book records a charge of L2/10/- for "buying of Smyths Ires & some Iron Myne from Ireland" (Ibid, Dividend Book). In the year 1626 the Company built an Iron Forge reputed to have been near the Ballinderry Bridge--this forge is said to have fallen quickly into disuse (Maitland: Ballinderry Parish Magazine, 1912; O.S.MSS, 47, 49, Londonderry; McCracken, 1957:123-138; McGuckin, 1981:100).
Smiths and Coopers were not the only occupations to take advantage of the woodlands. Smith suggested in the first year of the Plantation that the woods could be used as ash in soap-making, but there is no evidence that the Company ever took this suggestion seriously (Moody, Transcripts, Letter Books, 13 June, 1614). In the same letter, Smith suggests building a grist mill; again there is no evidence that his suggestion was followed. A grist mill should have figured more prominently if the Planters had been more interested in planting.

Pynnar, in his survey of 1618-19 noted that the settlement at Salterstown had "a Sawing Mill for Timber; but the Glass Houses are gone to decay, and utterly undone" (Pynnar in Hill: 1970: 588). The 1622 Phillips/Hadsor survey corroborates this by saying, "Neer unto the Village there is a mill, and a glass house lieing Wast" (PRONI T. 1576). These are the only historical references to what must have been an early experiment in glass manufacturing. However, the local neighborhood inhabitants of 1988 still refer to a particular field on Mr. Purvis' land as the "Glassworks Field" (personal communication, Sam McMaster).

The Company received a significant amount of money for the leasing of fishing rights on the Lough. In 1621 Mr. Deputye Stone paid L90/, another L60 in 1622 and a further L80 in 1623 (Moody "Irish Dividend Book": 154-5). A Mr. Warner paid L80 in 1624 and again in 1625. Fishing was...
particularly important to the Company, since these profits were collected more regularly than the ground rents. Meanwhile the profits from the various entrepreneurial activities of the agents and leaseholders on-site never seem to have made it back into the Company ledgers.

In 1631, Ralph Whistler was granted a license to hold a market every Thursday at Magherafelt, and two annual fairs lasting two days each, one on the 14th of August, and one October 18th (Maitland:30 and PRONI T649/5; T.520/1). Note that already in 1631, Magherafelt was seen as the better site for a market, even though nine years previously it was by far the smaller of the two towns on the Salter's estate. In 1990 the Thursday farmer's market is still a popular practice in Magherafelt and other Ulster communities.

Philip Robinson has made a study of the development and distribution of Ulster Plantation towns, suggesting that those that survived the devastations of the Cromwellian period to be rebuilt in the later 17th century were the market towns; the size of the town was related to the number of farms using it as a market center (and the convenience of subsequent means of distribution such as roads or ports). This could mean that the relative importance of Salterstown was already in decline before it was destroyed.

The Rebellion of 1641-1656

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For lack of definitive primary sources, the fate of the village of Salterstown and its inhabitants during the Rebellion of 1641 and the following troubles has been a mystery. Our sources for the Rebellion in County Londonderry are a few refugee depositions and later enraged commentaries, the latter coming from both camps in the dispute. Neither kind of evidence is particularly impartial. However, enough names and dates have survived to produce a rough chronology of events.

In a letter dated January 14, 1641(2), the Mayor and "Others" of Colerane [sic] told the "Lords Justices of the Councell of Ireland":

Upon the 23rd day of October the first rebellion of this county began at Moneymore, where the O'Hagan with others surprised the castle and towne, and spoyled the British of their goods, the next day tooke Desert Martin and Magherefelt and shortly after burnt them both...(in Hogan,1936:9)

The letter goes on to say that soon after the burning of Magherafelt, British defenders under a Mr. Conway surrendered on terms, "...and then the enemy speedily wasted the whole barony of Laghonisholin" (Ibid).

There was a shortage of arms among the British, and the early defense of the County was privately coordinated and financed by gentlemen of means. In one case 600 troops were paid privately to defend some 3000 women and children (Hogan:10). Refugees flooded into strongholds at Derry, Coleraine, Limavady, Ballycastle, and Carrickfergus.
Epidemics and famine soon began to decimate these overcrowded communities.

Considering the speed of communications in the 17th century, the London Companies were fairly quick to respond to news of the Rebellion. On the 2nd of November, 1641 the Salter's requested "Bandoliers and Rests to be bought for as many muskets as the Company have fitt to use" (Luard, 1909:22). The Salter's proportion had been obliterated only two weeks before this proclamation was issued. In the Salter's Minute Book there appear two related entries. On 26th January 1641(42) the Salters sent L100 for the relief of Protestants of Ireland, particularly those around County Londonderry. On the 22nd of March of 1641(42) the Company voted to donate a "demi-culverin" engraved with the name of the Company to the defense of County Londonderry (Salter's Minute Books 01/1/1+2).

In the months following the outbreak of the rebellion, the entire City of London responded to a series of pitiful petitions from the survivors of Londonderry and Coleraine. On 22nd of September, 1642 "The humble Petition of the Mayor, Aldermen and other Inhabitants of Coleraine, in the Kingedom of Ireland, setting forth the lamentable Estate and Condition of the Towne, was this day read in the House of Commons"(Guildhall MS 7428/17 Folio 2688). A handwritten abstract of the petition survives, and is included here:

An abstract of a petition of distressed people in the Towne of Coleraine in the County of Londonderry in
the Kingdom of Ireland to the honourable [illegible] in [illegible] and [illegible] of the Common House of the Parliament in England/.—Showing that in the beginning of this detestable Rebellion, the whole County being destroyed by fire by the enemy, even to the Walls of Coleraine, and in they flocked more than twenty thousand people out of the Country into that poore Towne (most being deprived of all their goods and also often unfurnished in all manner of victuals whereby the inhabitants of the Town being so charitable far beyond their ability in feeding and sustaining such a multitude) were at the last brought into such misery by famine that many of them dyed for lack of sustenance—And that there [illegible] dyed through Cold and hunger within the walls of the small Towne not lesse than Six Thousand soules.—And that there could not be lesse than Ten Thousand soules yet remaining in that distressed Towne, the which [illegible] by the greater mercy of God by sending such relief as all Charitable people shall bestow on them in all probability, they must likewise perish through the extremity of this winter./(Guildhall Ms.7428/17 folio 2688).

To this last petition I add a few statistics gleaned from a similar petition from the City of Derry; 6059 people remained alive in December of 1641(42) within the walls of Derry, after spotted fever and starvation had killed 5123 women, children, sick and aged people (Ibid.). The City of London responded to these petitions by ordering a Collection over the next three General Fast days in London and "Suburbes", as ordered by the Commons and Mayor of the City (Ibid.).

As far away as New England, Protestants responded to news of the Rebellion. In 1643, the English House of Commons received the following:

The Humble Petition of Diverse Inhabitants of New England, that are here intrusted for the Affairs of that Plantation, concerning the Collection, to be allowed them on the next two Lord's Dayes in London, and the Parishes thereabouts, for the transporting and
transplanting of poore Children driven out of Ireland, and other poore fatherlesse Children of this Kingedom that are out of imployment, was this day read in the House of Commons (Ibid.).

The collection petitioned for was authorized. Given the endemic labor shortage in 1640's New England, I (perhaps wrongly) doubt the purity of their Christian charity.

But what actually happened in Southeastern County Londonderry? Lord Hamilton summed up both the British situation and the historian's problem of gaining information;

Many outlying settlements were so completely obliterated as to leave no witness to tell the story. The Plantations of the London Companies in County Londonderry undoubtedly suffered heavily, especially in the southern part of the county. ... Many from the county were undoubtedly killed before they could get to Coleraine, and the witnesses of such murders may themselves have succumbed to the mortality in Coleraine. The massacre period in this district must, however, always remain more or less a sealed book, for there are few depositions from County Londonderry (Hamilton, 1920:247).

One of the only depositions surviving from the vicinity is that of Elsie Craig. Unfortunately the prose style in which it survives reads like a Victorian romance; it is therefore probable that the surviving copy is at best a [19th century] "retelling" of a now lost original account, or else the entire account is a knowledgeable forgery (O'Doibhlin, 1985:25).

Elsie lived just south of the Ballinderry river on the shores of Lough Neagh, less than five miles south of Salterstown. According to the account, those living closest
to the Lough were left till last in the initial looting spree of October, 1641. Scots were left alone entirely, until later in the Rebellion when it became obvious that the Scots would not remain neutral, at which time they were turned out of their homes or killed. The English settlers were killed or taken captive; apparently the decision was left to the Irish chief leading the raid or holding the territory. Craig reports that the English were assembled at Cookstown to march on Newtonstewart, with Sir. Wm. Stewart raising the defence (in O'Doibhlin, 1984/5:24-41).

Elsie Craig was captured after her beloved went off to help with the defence. She served as scullery maid to a poor Irish family that she had known before the rebellion, until she caught the eye of a young Irish chieftain, who arranged for more lenient treatment. She spent some of her captivity in Moneymore, where she saw other prisoners from various communities. These included Mr. Matchett (the minister at Magherafelt), Thomas and Andrew Young, Mrs. Patterson with her five children, John Gillespie with his wife and two daughters, David Beattie, Mrs. Moffat with her two children, Alexander Murray and his wife, and Archie Laggan (O'Doibhlin: 32).

She eventually overheard the plotting of her young chieftain while he was in his cups, and escaped to a local band of English defenders. The commander of these defenders
gratefully accepted her information and returned her to her beloved (Ibid).

The form of this story sounds suspiciously like that of an American versus Indian "captivity narrative", a literary form which enjoyed a vogue in the late 18th and 19th centuries. However, much of Elsie's information is corroborated from other sources-- I leave it to others to judge the literal authenticity of her heroism.

I am struck by two details of her account. First, her mention that those at Lough-side had warning and time to leave. Second, she makes no mention at all of Salterstown, which was probably the closest English settlement with any pretensions of defence. Recognizing the danger of working from negative evidence, it nonetheless seems plausible that Salterstown was not mentioned either because it was captured very early on, or was abandoned very early on.

W.H. Maitland, the historian of the Salters' second village of Magherafelt, has the most complete published account of events on the Salter's Proportion during this period. His account of the taking of Magherafelt is included in Appendix A. It differs from the "Mayors of Colrane" account on several points. Instead of a Mr. Conway surrendering "on terms", the Maitland account tells of a disorganized and futile defence led by a Mr. Waring (see Appendix). Meanwhile, at Salterstown;
The Castle at Salterstown, which had been erected by the Salters Company at the time they got possession of their Estates was, during the Rebellion of 1641, held by a small guard of probably about 20 men. They were attacked by Sir Phelim O'Neill, who captured the Castle, and held it until 1643 or 1644, when the advance of the British forces compelled him to retreat into Co. Cavan. Before leaving he burned the Castle and Church. The latter, it is said, was situated a short distance from the Castle, about two fields length. The keeper of the Castle and the rector, Mr. Birket, escaped across the lake in 1641, but they and their families subsequently died of starvation at Carrickfergus (Maitland, 1916: 7).

Unfortunately, Maitland did not cite his sources for this account. What was the fate of the "...small guard of probably about 20 men", and how did the two most prestigious men of the village manage to escape from the attack and capture of the bawn?

Were the other women and children of the village evacuated with the family of Rev. Birkett?

Yet another secondary source recites a similar story;

Almost immediately after the rebellion began, while Cormac O'Hagan was seizing the neighboring towns of Moneymore, Desertmartin and Magherafelt, Phelemy Grom led a force of Irishmen gathered from Ballinderry and the neighboring parishes against Salters' Castle. The English were caught unawares and most were slain. Ralph Whistler, the Salters' agent, and his family managed to escape to Carrickfergus along with Michael Birket, the Protestant minister. Whistler managed to survive the rebellion, but Birket died shortly after he made his escape from hunger and exposure. Phelemy Grom held the castle for some time, but was eventually driven from it by the English. Before leaving, however, he destroyed the castle and the Protestant church (McGuckin, 1981: 102).

The similarity between these two secondary accounts leads me to believe there must be some primary document out there which is well known to all but myself. McGuckin may be
copying from Maitland, but where did Maitland get his information?

This Phelemy Grom was certainly the most powerful Irishman in the parish, owning property on the Tyrone side of the Ballinderry river. It is reasonable that he would be the one to strike first within the parish.

The only primary document I have located which mentions the fate of Salterstown is an edited diary of a friar participating in the Irish side of the rebellion. O'Mellan's Diary of the Confederate Wars records that "Felim Gruamda O Neill, son of Niall, son of Felim Balbh" captured "Baile-in-tSaluinn" (Town of the Salters), "Mr. Fuisler's town in Kelleter" (Mr. Whistler's town in Killetra) in the early days of the rebellion. O'Mellan further records that in response to counter-attacks by Dudley Phillips (son of Thomas), the native Irish began to abandon their lands and flee westward. By late in 1643, the province was a desert, and famine broke out (O Mellan, in McGuckin, 1981:103).

Maitland transcribed a letter of 1691 from the Salters' lessee Gabriel Whistler to the Company, in which Whistler complains bitterly about the Company's insistence on back-rent from the period of the Rebellion;

Within a few days all the houses whatsoever in the County of Londonderry, except the City of Derry and the town of Coleraine, and one poor tenant's house that stood in the woods, and so of all the province of Ulster, excepting the great towns of strength were burnt, and the Protestants that could not make their
escape to some place of strength were murdered, and all
the stock they had, both of live and dead goods, were
taken away, and from that time to the year 1656 there
was not so much as a single inhabitant (Protestant) on
your lands, nor upon any other of the Companies' lands
that I ever heard of (Whistler, in Maitland, 1916:6).

Whistler had his own reasons for establishing that there
were no English tenants on the Salters' lands during the
troubles. However, since other Companies reported the same
thing, it seems safe to assume that he was largely correct.

From the discussion above, I conclude that in even an
optimistic scenario, the village of Salterstown was
probably hastily evacuated of all save a core of Protestant
defenders. Assuming that weakly defended strongholds would
have been a priority for the Irish, the defenders probably
lost possession of the bawn within the first 72 hours or so
of the outbreak of the Rebellion. Their fate is unknown. A
less rosy reconstruction of events, supported by McGuckin,
would have it that there was no time to evacuate the
"civilian" population, except for the families of Birket
and Whistler.

The village must have been looted, and the livestock
driven off. However, if Maitland's and McGuckin's accounts
are correct and the bawn was garrisoned by the Irish, it is
at least possible that the village was not immediately
burned. However, Whistler's references to rebuilding houses
for a tenant indicates that no village was standing by the

9 It may prove worthwhile to look for refugee lists
from Carrickfergus.
1650's. Ralph Whistler is the only inhabitant of the first plantation at Salterstown who lived to see the site again.

POST-REBELLION SALTERSTOWN

On the 26th of July, 1654 several of the minor Companies associated with the Salters in planting the Proportion petitioned the Salters Company to once again begin to plant the Irish Estate. These companies included the Saddlers, the Cutlers, and the Joiners (Luard, 1909:22).

According to a letter by Gabriel Whistler, nephew of Ralph Whistler and heir to his lease with the Salters, the Salter's proportion was abandoned by the British from the Rebellion of 1641 until Cromwell regranted the Londoner's Charters in 1656 (Individual Companies regained their Letters Patent from the Irish Society in 1657; Curl: 129). Ralph Whistler, still legally the lease-holder from before the Star-Chamber revocations of 1635, returned to the Salter's lands from London in 1656. He quite suddenly died soon after arriving on the proportion 10.

Gabriel Whistler says that in 1657, "...I went over and got a few straggling people to come upon your lands, but all I could get out of it, for four years, until 1660, was but L134 above the public taxes laid upon it" (Whistler to

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10 A memorial to Radulphus Whistler dating from the year of his death is preserved in St. Swithin's Chapel in Magherafelt. This memorial is possibly the oldest non-architectural relic of the Plantation period surviving in the district.
Salters Co. in Maitland:6). This was the beginning of the second Plantation of the Salter's Proportion.

The "few straggling people" were included in the 1659 Irish Census. Unfortunately the census only listed by name those people considered important by the census takers, and no one at Salterstown seems to have qualified for that distinction. However, the census shows a total population of 9 people at Salterstown, 4 of them English-Scots and 5 Irishmen. In the adjacent Ballydonell townland lived an additional 5 Irishmen. It is assumed that these figures refer to heads of household rather than total population (In McGuckin, 1981:105). If these statistics refer to heads of household, the total population at Salterstown in 1659 was comparable to Baptists Jones' population estimate for Salterstown in 1614, the first year of the initial attempt at Plantation.

In 1660 Charles II gained the throne, and made void all Cromwellian land Patents, forcing the City to once again reapply for title to their proportions. In 1663 the Salters regained their title to Whistler's lease, "...and from that year, for many years your full rent and the public taxes could not be made out of it..." (Whistler in Maitland:7).

In that same year of 1660, the government conducted an extensive survey designed to enforce the taxation of every hearth in the Country. These Hearth Money Rolls afford us a list of names for those at Salterstown in 1663. This survey
lists fewer people than the 1659 survey, since in 1663 they were only counting those households which had a hearth (or, more accurately, a chimney). Many native Irish apparently revived a chimney-less open hearth architecture in order to avoid the tax. At "Salters' Town" the following people had hearths: David Patten, William Tallen, Henry Cornelious, Hart o Neile, Owen o Toole, William Dillayne, and Henry Wright. In the adjoining townland of Ballydonnell the additional 3 names are listed: John Adamson, Donnoghe Norrison, and Patrick o Kelly (in McGuckin, 1981:105). Note that none of the English names are from the first Plantation; the town (now a tiny hamlet) was repopulated by completely different people.

Another source of names for settlers of 1663 comes from a 1754 lease of the Salters' Estates, which stipulates that the leaser may not infringe on freeholds granted from indentures dating to the 2 and 3rd of June, 1663. The following people indentured themselves (to Whistler or the Salters?) in return for freehold land, a bargain their descendants enjoyed 100 years later; George Salter, Nicholas Skinner, Thomas Gellibrand, Matthew Travis, Henry Gosse, Thomas Little, Richard Core, William Lane, John Smith, and their heirs (Gilbert, 1838:70; Luard, 1909:70). This is the only evidence I have encountered for indentured servants on the Salter's Proportion. It is possible that Matthew Travis was a descendant of the "Widow Travers"
listed in the 1622 Phillips/Hadsor survey, but without more evidence this remains a speculation.

The Economy of the 2nd Plantation

We have only a few indications of the economy of the Salter's Proportion during the second plantation. The archives of the Cutler's Company, now at the Guildhall in London, records the Cutlers' income from 1660-1755 deriving from its share in the fishing rights of the Salter's Estate, as administered by the Irish Society:

**Irish Fishery Returns from 1660-1755**

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1660</td>
<td>£ 35/15/6 (scratched out)</td>
</tr>
<tr>
<td>1661</td>
<td>£ 10/2/6</td>
</tr>
<tr>
<td>1662</td>
<td>£ 12/16/6</td>
</tr>
<tr>
<td>1664</td>
<td>£ 6/15/0 (&quot;the propcon of £100 for the fishing in Coleraine and Londonderry&quot;)</td>
</tr>
<tr>
<td>1665</td>
<td>£ 15/5/2</td>
</tr>
<tr>
<td>1669</td>
<td>£ 23/12/6</td>
</tr>
<tr>
<td>1670</td>
<td>£ 18/18/0</td>
</tr>
<tr>
<td>1673</td>
<td>£ 17/11/0</td>
</tr>
<tr>
<td>1675</td>
<td>£ 33/15/0</td>
</tr>
<tr>
<td>1677</td>
<td>£ 35/2/0</td>
</tr>
<tr>
<td>1681</td>
<td>£ 35/15/6</td>
</tr>
<tr>
<td>1682</td>
<td>£ 17/11/0</td>
</tr>
<tr>
<td>1684</td>
<td>£ 27/0/0</td>
</tr>
<tr>
<td>1685</td>
<td>£ 29/14/0</td>
</tr>
<tr>
<td>1688</td>
<td>£ 21/12/0</td>
</tr>
<tr>
<td>1691</td>
<td>£ 21/18/9</td>
</tr>
<tr>
<td>1708</td>
<td>£ 165/7/6 Ball Master</td>
</tr>
<tr>
<td>1709</td>
<td>£ 23/12/6</td>
</tr>
<tr>
<td>1710</td>
<td>£ 16/17/0</td>
</tr>
<tr>
<td>1712</td>
<td>£ 24/3/10</td>
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<tr>
<td>1714</td>
<td>£ 37/4/11</td>
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<tr>
<td>1715</td>
<td>£ 13/10/0</td>
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<tr>
<td>1716</td>
<td>£ 18/4/6</td>
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<td>1717</td>
<td>£ 17/18/7</td>
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<tr>
<td>1718</td>
<td>£ 14/17/2</td>
</tr>
<tr>
<td>1719</td>
<td>£ 14/14/3</td>
</tr>
<tr>
<td>1720</td>
<td>£ 16/7/6 Russel Master</td>
</tr>
<tr>
<td>1721</td>
<td>£ 9/13/7 Thompson</td>
</tr>
<tr>
<td>1722</td>
<td>£ 9/12/8 Wm Smith</td>
</tr>
<tr>
<td>1723</td>
<td>£ 27/11/0 S.R.Hopkins and Bully</td>
</tr>
<tr>
<td>1725</td>
<td>£ 14/14/4 Spilser?</td>
</tr>
<tr>
<td>1726</td>
<td>£ 11/10/9 Bazugh</td>
</tr>
</tbody>
</table>

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Note that whatever may have been happening on land, the fishing was interrupted for only two years in 1689 and '90. There is an apparent cycle of boom years at intervals varying between 7-11 years apart [See Figure 23]. These bountiful years may represent cycles in the actual fish
Figure 23

Fishing Returns, 1660-1753. Actual values in text (Cutlers' Company Records).
population, or simply varying intensification in fishing as practiced by different lease-holders.

Income from the fisheries had little impact on the local plantation economy outside of the port cities of Coleraine and Londonderry. This was an off-shore industry employing different personnel than that of the inland estates. The fisheries were leased directly from the powerful Irish Society, and the income was distributed to the Companies without recourse to on-site undertakers acting as middlemen in the transaction. The fisheries represented one of the only consistently profitable enterprises appearing in Company ledgers for their Irish estates.

In contrast to the modestly profitable fisheries, the London Companies probably saw very little of the money generated by the continued illegal trade in timber from the remaining woods of Killetra and Loughinsholin. Illegal timbering probably was resumed by Gabriel Whistler just as soon as he could get the Proportion resettled. In 1679 a new quay was built at Coleraine solely to handle the export of timber (Curl:98). Moody suspected that the illicit timber was exported primarily to Scotland and Spain. "At Coleraine, the custom house was away from the quay, in the middle of the town, and was described as not much bigger than a cobbler's shop" (Moody,1939:348,350).

The Salter's Company in 1989 retain a document entitled "A Compleat Index of the Court Books belonging to the
Worshipful Company of Salters, London; from the year 1685 to the end of 1737 (Minute Books I & II). At some time within that period the Salters were offered £2000 for their Irish timber holdings, an offer they apparently declined (#1:305). In response to an investigation on the extent of timbering by the inhabitants, the tenants produced an affidavit and certificate as to the quantity of timber on site, and an account of the timber "disposed of" (#2,194-198). Unfortunately the actual Court Books indexed were unavailable, so I cannot date these entries.

In 1678 Gabriel Whistler petitioned the Irish Society for free use of timber for building. The Society agreed, citing Whistler's excellent record for improving the Salter's buildings. However, Whistler was an absentee leaseholder; his agent was Hugh Rainey, owner of a local iron-furnace. The Irish society's agents later reported that Whistler's under-tenants had "caused much waste in the woods" (Smith,1966:50-1).

Moody is careful to point out that there is no reason to believe that the Salters profited from Whistler's illegal activities. The proceedings from this enterprise do not appear on any of the Salter's ledgers from the period (Moody Transcript "Salters Irish Dividend Book"). By 1690 the Irish Society had heard enough. They ordered a crackdown in timber management. The
following is an outline of the Proclamation issued in April of that year:


- All Salters Range and Parishes of Artra, Desertlin, Lisson, Arboe and Derreloran shall be designated the Upper Range.
- Balliaghy Range and the parishes of Desertmartin, Kilcrennahan, Ballinascreene, Killilaugh and Maghera shall be designated the Lower Range.
- An Overseer shall be appointed to each under the orders of the Irish Society.
- The Vintner's Belliaghy Wood-yard is to continue for the supply of the Corporations, for timber for forst, casks and woodworking.
- The Wood-yard in or near Coleraine shall be continued.
- The Society appoints a Keeper of Wood-yards, accountable for all wood outgoing.
- All tenants are to be furnished only from wood-yards.
- Keepers shall post bond "not to transport or merchandize out of the Kingdom any Timber, Staves, Planks, Boards, or other woodwork whatsoever; but what shall be in Cask filled with Fish, Beef, Tallow, Butter, or other proceed of the Growth of the Country".
- Rates for wood shall be fixed and published yearly.
- Tanners who give notice shall be allowed bark.
- Contracts for charcoal and cordwood shall be made on a year-to-year basis.
- All wood shall be transported only by permission accompanied by a "lot-pass" to be issued by the Woodyard Keeper.
- Overseers, Keepers, Wood-Bayliffs, Workmen in the Yards may seize wood in any form used without authorization, and keep 1/2 of the proceeds from the fines and subsequent sale of the wood.
- There shall be a yearly Woods inspection to mark trees to be felled in the coming season. No tree shall be felled under 5' in girth, unless decaying or dotterell. (MSS of the Guildhall Library 7428/17).

It is remarkable that after nearly 80 years of plundering on an industrial scale there still remained trees "5' in girth" to mark for subsequent harvest. Note that under the
above terms no wood could be harvested from the Salter's Proportion, unless processed elsewhere.

Apparently these stringent ordinances were not effectively enforced. Currie notes that of some 12 timber-fired ironworks in 17th century Londonderry, 6 were still functioning in the mid-18th century. Hugh Rainey of Magherafelt operated one in the late 17th century in the Tullylinksay Townland, but had to move when the local woods were exhausted (Currie, Dissertation:82). These iron works are at least as culpable as the barrel-stave industry for the 18th century deforestation of Loughinsholin. The Irish Society was not unaware of the activities on the Salter's Proportion. Gillespie notes the following observations found in Irish Society records:

The Irish Society having reserved their right to the growing timber, of which the Estate of Magherafelt [the Salter's Proportion] was largely composed, a few extracts may elucidate the above:

20th March 1685 Iron works were erected on the plantation, to the great destruction of the woods.

29th April, 1714 Great depredations were committed on the woods; a thousand pounds of timber was represented as being embezzeled away (Gillespie,1827:58).

The woods of Salter's estates had been nearly obliterated before the Irish Society program could be enforced. Maitland reports the following:

In a report made by a deputation appointed by the Irish Society to visit the Plantation of Ulster in 1836, they stated,'there must have been large forests on the Estate, as from the records of the Society of all the orders of timber, most of them were given on the woods of Salter's Town, and the Society regularly paid
salaries to the Rangers and Caretakers of the Woods.' (Maitland, 1916:2).

In the *Ordnance Survey Memoir* for the Parish of Ardtrea of 1833-1836, there is a drawing of an early 17th century Halberd, then in the possession of the Pastor of the Chapel of the Woods. This halberd was attributed to a Woodranger of the Salters Estate [See Figure 24] (O'Doibhlin, 1983:88). One wonders whether the Woodrangers were being paid off by those making an illegal profit on the timber.

In a 19th century transcript in the possession of the Salters Company there is a record of an agreement made between the Company and the Irish Society in 1741 to "encourage the growth of timber on the manor" (Yellowbound Abstract, unnumbered: Salters' Archives). By the mid-18th century there must have been little left of the primeval forests of Loughinsholin and Killetra. In 1802 a visitor noted;

> On the Salters', which is held by Lord Londonderry and Mr. Baerson (sic), there are sometimes in hedge rows, about the town of Magherafelt, but very little timber of any value besides; I suppose in the whole there may be from 5 to £800 worth of trees (Slade, 1803:93).

Construction timbers and barrel staves were not the only products made from the timber of Loughinsholin. Late in the 17th century, under Gabriel Whistler's tenure, tanners would strip the bark off the oak trees, which were then left to die. These stripped trees were called "pearns" or "rand pikes" (Currie, *Dissertation*: 5, 40). For a discussion...
Halberd, "Sketch of a halberd or spear formerly belonging to one of the Woodrangers on the Salters Estate, now in possession of the Rev'd. L. Dowdall, curate of the Chapel of the Woods", from South Derry Historical Society reprint of the Ordnance Survey Memoir of the Parish of Ardtrea, 1833-36, ed. by Dairmaid O'Doibhlin, p.88.
of the local tanning industry see "Leather" section.

The Collapse of the Second Plantation

Whistler's letter provides us with a heartbreaking account of his attempts to restore the plantation. He rebuilt both Bawns and Castles (Salterstown and Magherafelt) sometime in the 1670's, along with an unspecified number of new tenant houses. Calamity again struck the plantation in 1688 and 1689. In June of 1688 King James II's Irish Parliament passed a bill which again made void the Londoner's Charters to the land. In 1689 Whistler lost over 60 tenants in the Siege of Derry. All of his buildings were destroyed again during the retreat of James II late in 1689. I include here an extended excerpt from Whistler's letter of 1691, in which he defends his lack of rent monies due to truly extenuating circumstances.

The strength of his narrative is that of a first-hand witness fighting an absentee bureaucracy.

Mr. Redmayne also says that you were pleased to order him to write that what loss had happened was upon improvement that was upon their land, and not on the land itself, and that your rent was in the nature of a ground rent, and therefore ought to be paid without any manner of delay.

But it is true what could not be got [from rents], the Company was pleased to abate, as by your books will appear, but until the year 1677, I got little out of it above what you had and the taxes, and what I did I laid out with many considerable sums I carried from England to rebuild the tenant's houses that were burnt in the rebellion [of 1641-56]. It is true by the year 1677 I had got it planted, and it turned out to advantage, but being in taxes it was settled low; and that we should have no more troubles there, I laid out the most of it in rebuilding the two chief houses, and making them
strong for a defence for the Protestants of that County to fly into in case of a sudden massacre, as the great Rebellion was, which homes are now again burnt [during the retreat of James II in 1689]. But so soon as the late King came to the Crown, he put the Government and arms in Ireland into Popish hands, and thereby put the Protestants in fear, so that trade and rents began to cease, and the people that had anything considerable to remove out of that Kingdom, and so it continued until the Happy Revolution [ascension of William and Mary].

And at the same time happened that fatal siege at Derry, into which almost all the people of that County that had either purse or strength, and were not fled into England or Scotland, went and were besieged, 16 weeks, and wherein many thousands died, of which I have above sixty whose hands I now dearly want.

It was not in your nor in my power to hinder what hath happened. War, fire and the sword had done it, I am a very great loser by it, never to be repaid. Never will that Kingdom, in 20 years of peace, be put into the condition they were before these calamities happened, besides the vast losses to the owners.

In the meantime I have writ you the truth of what hath befallen, and beg your pardon that I have been so tedious, but in less I could not lay before you the misfortunes that have attended our unhappiness there. I only further entreat that you will please to do me as you would be done by were you in my condition, and that you will give me leave to subscribe myself,

Your Humble Servant,

Gabriel Whistler


Whistler's account has been widely read, and versions of his story appear in several other secondary sources (Margary, 1845:56; McGuckin, 1981:100, etc).

POST-PLANTATION SALTERSTOWN

The second destruction of the Bawn and Castle marks the end of Salterstown as a planned plantation village. Although the townlands of Ballymultrea and Ballydonnel were again resettled in the 18th century, there was no longer a
centralized community built adjacent to the Castle. Post-plantation settlement took the form of isolated farmsteads. Community structure was defined by millseats and frontage roads.

The Salter's Agents: the Ascendancy

The chain of command from Crown to Irish Society to Company to Undertaker to Tenant remained in place in the post-plantation period. The undertakers for the Salters were men of means, and played prominent roles in a rising 18th century Protestant aristocracy in Ulster. This aristocracy has become known as the "ascendancy".

Evidently Gabriel Whistler was able to convince the Salters to maintain his lease, for in 1711 we find that he has once again set out to rebuild the Castles and Bawns at Salterstown and Magherafelt. The Irish Society Court Minutes for 27 October, 1719 include the following;

A letter from Mr. Thomas More of the 19th of October with a copy of the Bond given by Mr. Thomas Ash, Agent to Mr. Gabriel Whistler for the due application of the Timber granted by the Society to the sd. Gabriel Whistler in the year 1711 for the building his two Castles of Salterstown & Magherafelt in the County of Londonderry in Ireland amounting to Two Hundred & Eighty Three Tons of Timber or thereabouts, inclosed therein...(PRONI MIC 9A/6: 271).

By this time Mr. Whistler must have been in his seventies, if we assume that he began his Sisyphean labors in Ulster while in his early twenties in 1657. Note that this also represents the third period of construction on the Salter's Castle. It may be that this same timber was used to help
with the 1717-20 repair of the church in Magherafelt (Curl, 1985:108).

Whistler used a series of intermediary agents to look after his affairs in Co. Londonderry. This situation was not unusual at the time, as outlined by E.A. Currie in her Dissertation on the cultural geography of southeastern County Londonderry:

Under the system of long leases given out by the Companies in the middle of the 17th century and again in the beginning of the 18th century there emerged a group of major landlords who by sub-leasing created a pyramid of proprietors down through minor landlords, middlemen, gentlemen farmers to a base of tenants and cotters who actually worked the soil. With the availability of Church land and freeholds and the overlapping of interests from the proprietors of one estate to the next a hierarchy of estates great and small developed to match this pyramid of land proprietors (Currie, Dissertation: 78).

Therefore it will come as no surprise that Whistler's agent in 1687 was Hugh Rainey, the operator of an iron foundry at Magherafelt 11. The Irish Society letter cited above mentions one Thomas Ash as Whistler's agent in 1711 (Currie: 13, PRONI MIC 9A/6: 271).

In 1744 three different parties leased half of Gabriel Whistler's holdings from the Salter's Company; these were William James, Denford, Berks, in trust for John Rawlinson, Southampton; another John Rawlinson of St. John at Hackney, Middlesex; and Thomas Bateson, a prominent banker of

11. Rainey made enough money in Magherafelt to endow a school in that community. The Rainey School is still going strong in 1988.
Belfast [See Figure 25]. That same year an unspecified area of additional land was leased to Thomas Webster, Whistler Webster, Godfrey Webster, Jane and Elizabeth Webster, and Thomas Bateson (Salter's Records: "Yellowbound Abstract", April 20th and September 5th, 1744). The following year the leaseholder of most of the Salter's Proportion was Thomas Bateson, who assumed a 53 year lease in 1745 for the annual rent of L500/-(Curl,323).

The Company chose to renew and extend various leases to the Bateson family until 1853. In 1754 a Bateson lease gave him control of all lands save a list of freeholds owed to Indentures contracted back in 1663 (see above). The Batesons went into partnership with Lord Londonderry at some point in the 18th century. The leaseholders apparently administered their lands through agents, but I only have the name of the last agent, Andrew Spotswood, who worked for Sir Robert Bateson (Gillespy and Hicks, 1841:6). In 1853 the lands reverted back to the Company, which promptly appointed Spotswood as the Company's agent.

Post-Plantation Salterstown: The Structures

Generations of families of the eighteenth and nineteenth centuries lived in structures still integrated into the fabric of the rebuilt bawn wall. Sam McMaster remembers a row of "wee cottages" attached to the East wall of the bawn facing the Lough (personal communication, 1989). Since the shared roof of these cottages appears in an aerial photo.
"The Family of Thomas Bateson, Esq." 1762, painted by Philip Hussey (The Ulster Museum).
from 1952 (Jope), I assume they have been torn down only since then. A row of structures attached end to end extends South from the bawn wall. One of these was occupied by the McMaster family within living memory. They now serve as agricultural out-buildings.

The Terrier of the Salter's Lands of 1752 describes Ballymultrea;

On this town land stands the walls of the Salters' Town Castle, which was burnt in 1688, with tolerable farm-houses, and a corn mill. Great parts of this shrub of wood, whins, and some bog.

The same Terrier describes the Ballydonnel townland;

On this Townland is 2 tolerable farmhouses, the rest cabins; Part of this was the Domain of Salters-town Castle, mostly arable and pasture, except some moss (Gilbert,1838:23-25; Luard, 1909:23-37).

The Terrier description implies that the Castle was once again in ruins, only 41 years after the Salters had credited Whistler for the lumber to rebuild it. Perhaps the timber was never used at Salterstown, despite documented evidence for repairs at Magherafelt (see discussion above).

In 1845 a member of the Salter's Company toured the Company holdings in Co. Londonderry, and included a description of Salter's Castle in his report;

"Salter's Castle--once a strong square stone building, with two round towers fronting the lake. The whole now very dilapidated. It is supposed to have been destroyed at the time of the Great rebellion", (Margary,1846:5).

This ruin, interesting to a Salter, is situated two miles from Ballyronan, following the shore of the lake,
and was one of the Bawns, or fortified places, erected at the original settlement of the plantations by the different companies. There is a description of it in Nicholas Pynner's "survey" of 1618 [sic]. In the year of the Great Rebellion, 1641, it was destroyed, with all the buildings and improvements on the Estate.

By the year 1677 the Estate was again planted, houses built, and Salter's Castle and Bawn again erected, and made strong for a defence for the Protestants to fly to, in case of trouble arising.

After the famous siege of Londonderry in the time of James II, the Estate was again laid waste by the retreating army, and with it were destroyed the then newly erected Castle and Bawn at Salter's Town; the ruins of which second Castle are those now seen.

The portions of the ruins fronting the lake still present the appearance of an ancient fortification, but the castle ruin has more the aspect of an ecclesiastical building. There still remain a few cottages attached to the ruins. From the ruined walls on the shore is an extensive and pleasing view over the lake (Ibid:56-58).

Margary is obviously relying on both the Pynnar survey of 1619 and the Gabriel Whistler correspondence with the Salters Company dating from the 1690's.

There stands in 1988 a building attached to the Castle ruins which was the home of the farmer's family until quite recently. A stone above the door to this house says "R.A. 1769" [See rubbing, Figure 26]. It is possible the R.A. stands for a member of the Ash family, who were the agents of Whistler in 1711. However, surviving 19th century rent rolls (See below) indicate a Richard Adams family on the site. Richard Adams probably built the house which the McMaster family occupied later in the century.

Post-Plantation Salter's Proportion: The Economy

As has been noted in the previous section on the economy of the second plantation, the illegal and (to a lesser
Rubbing of Date-stone above the doorway of a farm building attached to the ruin of Salter's Castle, Salterstown. "R.A." stands for Richard Adams, the Salters' tenant at that time.
extent) the legally sanctioned timbering of the woods continued in the early 18th century. Timbering doubtless contributed significantly to the local economy of the region; this contribution remains undocumented for obvious reasons.

The rural economy of 18th and 19th century Southeast County Londonderry was dominated by subsistence agriculture supplemented by locally-consumed commercial dairying and a growing cottage industry in linen cloth production (Currie, Dissertation; Gillespie, 1827:58).

The combined effects of a rising population, subsistence agriculture, and racked rents meant that a high percentage of the rural population in the early 19th century was impoverished. This was particularly true for those native Irish living in marginal highland areas [See Figure 15]. The stage was set for the disastrous potato famines of 1845-47. In Ulster generally, the famine was somewhat offset by the slowly industrializing economy of the urban areas.

After the Salter's regained direct control of their Irish holdings in 1853, the Company took an active interest in improving the productivity of their holdings. The Salters kept scrupulous records of the improvements to buildings and ancillary facilities on the proportion throughout the third quarter of the 19th century. These detailed documents record that in 1858 the corn kiln on
Richard McMaster's leasehold in Ballymultrea was rebuilt at Salter's expense. In that year a new grist mill was also built in the same townland. In 1859 improvements were again undertaken on the McMaster corn kiln. In 1864 the Salters built a new dwelling house at the mill. Between 1864-1869 the Salters paid for a "thorough draining" of the fields in Ballymultrea. In 1870 the McMaster corn kiln burned down, and was rebuilt using insurance money (Salter's Records, Maps 0/12, Rural Districts Condition of Buildings Book up to 1870: 011/1/2/1:37).

An unknown Company agent recorded the details of the rebuilt corn kiln:

March 7th 1870 Richard McMaster's Corn Kiln damaged by fire. Examined this kiln and finds there is nothing wrong with the construction. The head or cover on which the corn is dried being 10 feet 9 inches clear above the floor on which the fire is placed. The roof is 3 feet 4 inches above the head, at the walkplates, and it would be an improvement to be raised 2 feet higher when the new roof is laid on.

March 30th 1870 At Salterstown Corn Kiln the lanterns are built to prevent fire. (Salters Archives Special Journal 1870- March 1875 inclusive 09/1/1).

While the location of the corn kiln is now a mystery, the 1858 mill is most likely one of the 5 ruined mill seats lying along the creek dividing Ballymultrea from Ballydonnell townlands [See Figure 27]. Since a good mill site is determined by slow-changing topography, it is very likely that one or more of these ruins is sited on the remains of the original 17th century mills.
Figure 27

Post-Plantation Salterstown: the Tenants

Trying to work out the names of the tenants who actually farmed on the site of the ruins of Salterstown has proven difficult.

Since strictly speaking there was no village at Salterstown after the second destruction of the Bawn and Castle in 1689, this discussion focuses on the tenantry of the Ballydonnel and Ballymultrea Townlands. Most of the surviving documentation of the 18th and 19th centuries used the townlands as a unit of assessment, just as they had been used in pre-plantation times. The current owners of the ruins of the Salter's Castle, the McMaster family, own adjacent property in both of these townlands. I have extended the scope slightly in order to include the name McMaster where it first appears on other townlands in the Salters Proportion.

Post-plantation tenant histories were reviewed for two simple purposes; to establish the relative density of post-plantation settlement in the area around what had been Salterstown, and to trace the documentary evidence for several of the families still living in the neighborhood in the 1980's. Many of the people I spoke to in the course of these investigations were passionately interested in their own family's heritage on the land. The following rent roll transcriptions are included here in the hope that some of the folks who helped me may recognize their own ancestors.
Sources for Post-Plantation Tenant History of Salterstown

There survives a 1740 list of households within the entire Parish of Ballinderry paying Hearth money. Unfortunately the list is not broken down by townland or village (McGuckin, 1981:112-13). However, this list does contain the earliest reference I have found for a David Port, and both Ambrose and Humphrey Taylor. The Ports and Taylors appear often in the 19th century rent rolls; both families still live within a mile of Salterstown, as of 1990.

The earliest rent list from the 18th century (which I know of) dates from 1752. The Ballymultrea Townland includes tenants Andrew Bell (rent 140/0/0), Widow Tracy (46/0/0), Bryan McGukin, and "the Widow Taylor & others" (72/0/0). The adjacent Ballydonnell Townland lists George Henderson (62/1/0), Wm. Baxter and partners (56/3/0), John Workman (61/1/0), and Bryan Kelly and partners (65/2/0). The Widow Tracy, Bryan McGukin and the Widow Taylor all appear on the earlier Hearth Money list of 1740. A Patrick O'Kelly was resident in Ballydonnell in 1663, according to the Hearth Money Rolls of that year.

Unfortunately, the surviving rent-rolls of the Salter's Proportion for 1766, 1772, 1774, 1783, 1790, and 1805 list only the total rents from each townland, without listing the names of the tenants (Gilbert, 1838:36-57). Fortunately the
tenant names are listed on rent rolls from 1814, 1818, 1821-24, 1825, 1828, 1836, and 1845, surviving in the Salter's Hall Archives (Archive # 05/3/1; 05/3/2; 05/3/3; 05/3/4; The 1821-24 Rental in Armstrong, folio; The 1845 Rental in Margary, 1846:5-6). The Dyer's Company retains isolated references to tenants on both Townlands for the years 1850-1868 (Dyer's Irish Estate Letter Book, 1850-1868, Ms.8177).

The complete Rent Rolls surviving at the Salter's Hall (London) Archives were transcribed for the Ballydonnell and Ballymultrea Townlands for the years 1814, 1818, 1825, and 1828. I cast a slightly wider net in order to trace the McMaster family. Lot numbers are provided when they were recorded, although the lot numbering system changed at least once, as seen in the surviving Estate maps [See Figures 28 & 29].

A Terrier of the Salter's Proportion with Rental for 1/2 year ending 1st November, 1752 (Luard, 1909:23-37).

--Ballymultrea:
Andrew Bell rent £140/0/0
Widow Tracy rent £ 46/0/0
Bryan McGukin, Widow Taylor, and others rent £72/0/0

--Ballydonnell:
George Henderson rent £62/1/0
Wm Baxter and Partners, rent £56/3/0
John Workman rent £61/1/0
Bryan Kelly and Partners £65/2/0

Salter's Ledger c.1802-1808, (Salters Hall Archive 09/2/49).

--Lecha Townland:
David McMaster (6 acres/0 rods/30 perches) Lot #9. Leased since 1794.
Figure 28

Ballymultrea and Ballydonnell townlands around the ruins of Salters Castle, early 19th century. Estate Maps, untitled and unnumbered watercolor and ink. Lot # Maps of the Salters Irish Estate, Back Folio Shelving, Salters Hall Archive, London. N.B. This tracing combines two original maps.

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The Armstrong Maps from Valuation of the Manor of the Salters, by Wm. Armstrong, 1821-25, unnumbered bound folio, Salters Hall Archive, London. Compare more detailed lot divisions with those of Figure 28.
--Tillinkisy Townland: M. McMaster (10a/2r/10p) Lot 15. Leased since 1794.
Robert McMaster (9/2/10) Lot 16. Leased since 1794.

Rent Roll of the Salter's Estate for One Year ending November 1814 (05/3/1).

--Lecha Townland:
David McMaster (13 acres/2 rods/34 perches) Lot #2.

--Ballymultrea:
Neal Donnelly (13/3/12) Lot 2, 6+18.
Saml. Sheppard (11/0/20) Lot 5.
Chas. Momay (9/0/11) Lot 7, 8.
Hugh Hagan (9/0/11) Lot 9, 10.
John McMullan (13/0/10) Lot 11.
Francis Donnelly (3/1/30) Lot 12.
John Sheppard (14/0/0) Lot 13.
David Post (7/3/35) Lot 16.
Manus Kelly (9/3/2) Lot 17.
[Mill Land] (9/2/34) Lot 21, 24, 30.
Chas. Donnelly (7/3/14) Lot 22.
Conl. Hull (10/1/16) Lot 23.
Hugh Adams (5/2/28) Lot 25.
Andrew Port (7/3/16) Lot 28.
Alex Clark (28/0/28) Lot 29, 31, 35.
Jane Port (19/0/38) Lot 32, 37, 39.
Tim. y Sheppard (13/3/0) Lot 33, 38.
John Port (17/0/26) Lot 34.
Richard Adams (9/2/10) Lot 36.

--Ballydonnell:
Hugh McQuickan (13 acres/1 rod/18 perches) Lot 1, 2.
Robert Rankin (3/1/34) Lot 3.
Saml. Sheppard (14/1/12) Lot 4.
Saml. Keightly (7/2/7) Lot 5.
Wm. McQuickan (7/2/14) Lot 6.
Wm. Baxter (7/0/0) Lot 7.
David Dunn (11/2/35) Lot 8.
Hugh Adams (8/2/14) Lot 9.
Wm. + Ian Sheppard (10/1/2) Lot 10.
Mary Keightly (7/2/7) Lot 11.
Joseph Baxter (11/1/0) Lot 12.
Rent Roll of the Salters' Estate for One Year ending November 1818 (05/3/2).

---Lecha: David McMaster (13a/2r/34p, Lot #2).

---Ballymultrea:
Neal Donnelly (13/3/12)Lot 2, 6, 18.
Sam Sheppard (11/0/20)Lot 5.
Chas. Mumay (9/0/11)Lot 7, 8.
Hugh Hagan (9/0/11)Lot 9, 10.
John McMullan (13/0/10)Lot 11.
James Donnelly (3/1/30)Lot 12.
John Sheppard (14/0/0)Lot 13.
David Post (7/3/35)Lot 16.
Manus Kelly (9/3/2)Lot 17.
[Mill Land] (9/2/34)Lot 21, 24, 30.
Chas. Donnelly (7/3/14)Lot 22.
Com. Hull (10/1/16)Lot 23.
Hugh Adams (5/2/28)Lot 25.
Hugh Adams (6/1/7)Lot 25.
Thos Taylor Jr (6/0/20)Lot 27.
Andrew Port (7/3/16)Lot 28.
Alex Clark (28/0/28)Lot 29, 31, 35.
Jane Post (19/0/38)Lot 32, 37, 39.
Tim Sheppard (13/3/0)Lot 33, 38.
John Port (17/0/26)Lot 37.
Richard Adams (9/2/16)Lot 36.

---Ballydonnel:
Hugh McQuickan (13/1/18) Lot 1, 2.
Robt. Rankin (3/1/3) Lot 3.
Saml. Sheppard (14/1/12) Lot 4.
Saml. Keightly (7/2/7) Lot 5.
Wm. McQuickan (7/2/14) Lot 6.
Wm. Baxter (7/0/0) Lot 7.
David Dunn (11/2/35) Lot 8.
Hugh Adams (8/2/14) Lot 9.
Wm. +? Sheppard (10/1/2) Lot 10.
Mary Keightly (7/2/7) Lot 11.
Joseph Baxter (11/1/) Lot 12.
John McCausland (5/2/22) Lot 14.
Thos. Taylor (5/0/26) Lot 15.
John Taylor Sr. (3/0/10) Lot 16.
Ambrose Taylor (7/2/14) Lot 17.
Wm Bingman (9/3/36) Lot 18.
James Kane (9/0/2) Lot 19.
Hugh Shuter (9/0/0) Lot 20.
James McCausland (7/0/32) Lot 22.
Saml. Wright (6/3/0) Lot 23.
Thomas Bennett (6/2/0) Lot 24.
George King (10/1/30) Lot 25.
Richard Adams (29/1/20) Lot 26, in trust.
Richard Adams (16/2/8) Lot 27.
Roger McQuickan (7/3/32) Lot 28.
Felix Quin (11/1/12) Lot 29.

Valuation of the Manor of Salters, by William Armstrong, 1821-1825, (Unnumbered bound folio volume, Salters Hall Archives).

This volume has its own lot map with an idiosyncratic numbering sequence [see Figure 29].

Richard McMaster is listed as holding 10a/2r/15p in Ballymultrea, and 14a/7r/51p in Ballydonnel. These holdings are listed as lot numbers 120, 121, 122, 147, 148, 149, and 150.

These lots are subdivisions of the lots corresponding to the rent rolls both before and after this date [See Rent Roll Lot Maps]. Armstrong's map probably reflects sub-tenant divisions, rather than the lease-holder names associated with the larger lots of the rent rolls. For example, the land immediately surrounding the ruins of Salterstown are listed on the official Salter's Rent Rolls as Lot #36 (held by Richard Adams), while on the Armstrong map the same area is subdivided into Lot #'s 147, 148, 149, and 150 (held by Richard McMaster). In this
case presumably Adams was McMaster's landlord, although Adams was himself a tenant of the Salters'.

Rent Roll of the Salter's Estate for One Year ending November 1825 (05/3/3).
--Lecha: David McMaster (13a/2r/34p, Lot #2, and 6a/0r/30p, Lot #9).

--Ballymultrea:
Neal Donnelly(13/3/12) Lot 2,5,18.
Sam Sheppard (11/0/20)Lot 5.
Chas Munay (9/0/11)Lot 7,8.
Hugh Hagan (9/0/11)Lot 9,10.
John McMullan(13/0/10)Lot 11.
James Donnelly (13/1/10)Lot 12.
John Sheppard(14/0/0)Lot 13.
David Post (7/3/36)Lot 16.
Manus Kelly (9/3/2)Lot 17.
[Mill Land] (9/2/34)Lot 21,24,30.
Chas. Donnelly(7/3/14)Lot 22.
Comil. Hull (10/1/14)Lot 23.
Hugh Adams (5/2/28)Lot 25.
Neal Kelly (6/1/7)Lot 26.
Thos Taylor Jr (6/0/20)Lot 27.
Andy Post (7/3/16)Lot 28.
Alex Clark (28/0/28)Lot 29,31,35.
Jane Post (19/0/38)Lot 32,37,39.
Tim Sheppard (13/3/0)Lot 33,38.
John Post (17/0/26)Lot 34.
Richard Adams(9/2/10)Lot 36.

--Ballydonnel:
Hugh McQuickan(13/1/18)Lot 1,2.
Sam Sheppard (3/1/34)Lot 3.
Sam Sheppard (14/1/12)Lot 4.
Saml. Keightly(7/2/7)Lot 5.
Wm. McQuickan(7/2/14)Lot 6.
Wm. Baxter (7/0/0)Lot 7.
David Dunn (11/2/35)Lot 8.
Hugh Adams (8/2/14)Lot 9.
Wm+Ian Sheppard(10/1/2)Lot 10.
Mary Keightly(7/2/7)Lot 11.
Joseph Baxter(11/1/0)Lot 12.
Wm. Benigman (5/2/22)Lot 14.
Thomas Taylor (5/0/26)Lot 15.
John Taylor sr (3/0/10)Lot 16.
Ambrose Taylor (7/2/14)Lot 17.
James Kane (9/0/2)Lot 19.
Hugh Shuter (9/0/0)Lot 20.
Andy McCausland (7/0/32)Lot 22.
Andy McCausland (6/3/0)Lot 23.
George King (10/1/30)Lot 25.
Richard Adams (29/1/20)Lot 26, in trust.
Richard Adams (18/2/18)Lot 27.
Roger McQuickan (7/3/32)Lot 28.
Felix Quin (11/1/12)Lot 29.

Rent Roll of the Salter's Estate for One Year ending November 1828 (05/3/4).

--- Lecha: David McMaster (22a/2r/7p), Lot #2.

--- Ballymultrea:
John McAluce (9/2/31)Lot 1.
Neal Donnelly (13/3/39)Lot 2, 6, 18.
David Patterson (9/0/6)Lot 3.
Sam Sheppard (11/1/15)Lot 5.
Daniel Murry (9/2/8)Lot 7, 8.
Andy McKee (9/0/20)Lot 9, 10.
Cathrine Mullen (13/0/20)Lot 11.
John Sheppard (13/2/12)Lot 13.
James Collins (7/2/29)Lot 16.
Owen Kelly (9/0/27)Lot 17.
Hugh McGee (10/2/33)Lot 20.
Wm. Hull (6/12/18)Lot 23.
Thomas Taylor (6/0/30)Lot 27.
Andrew Post (7/3/0)Lot 28.
Alex Clark (29/2/8) Lot 29, 31, 35.
Widow Post (20/0/21)Lot 32, 37, 39.
Tim. y Sheppard (13/3/28)Lot 33, 38.
John Post (17/0/35)Lot 34.
Richd+Robt. McMaster (10/2/15)Lot 36.
Ambrose Taylor (1/3/0)Lot 40.
(see Ballygish) (9/2/34)Lot 21, 24, 30.
---Ballydonnell:
Hugh McQuickan (18a/1r/37p) Lot # 1, 2 and 8.
Sam Sheppard (12/1/12) Lot 3.
Thos. Sheppard (5/2/11) Lot 4.
Saml. Keighlty (7/3/3) Lot *.
Wm. McQuickan (7/2/6) Lot 5.
Hugh Adams (8/1/28) Lot 8.
Wm. Clark (2/2/7) Lot *.
Wm. Sheppard (2/3/0) Lot *.
Robert Adams (7/0/2) Lot 11.
Joseph Baxter (11/0/31) Lot 12.
Wm. Benigman (10/0/6) Lot 18.
James Benigman (5/2/19) Lot 14.
John Taylor (1/0/27) Lot *.
Mary McNickle (3/0/34) Lot 16.
James Kean (9/0/31) Lot 19.
Andy McCausland (12/3/18) Lot 22.
Robert Hull (10/1/16) Lot 24.
Robert McCusdy (5/2/8) Lot *.
Richard McMaster (18/0/11) Lot *.
Pady McQuickan (4/1/4) Lot 27.
Isiah McQuickan (3/2/35) Lot 28.
Benj. McLeann (8/3/2) Lot *.

Rent Roll of the Salter's Estate for One Year ending November 1829-30 (05/3/5).
---Ballydonnell: Richard and Robert McMaster (9/1/20).

Rent Roll of the Salter's Estate for One Year ending November 1836, (Luard, 1909:66-68).
---Ballymultrea:
Richard McMaster (9a/1r/20p) Lot 26. Leased since 1831.

---Ballydonnell:
Port + McMaster Mill Land (2a/1r/29p) Lot 22. Leased since 1831.
Rental of the Manor of Sal, County Londonderry for the year 1845 (J.J.L. Margary, 1846:5,6,56-58).

--Ballymultrea:

--Ballydonnel:

--Magherafelt:
Richard Kielt (7/0/16) Lot 28

Note: the Kielt family are still in Magherafelt, and were my hosts in their guest house in 1988 and 1990.

Townland Totals for rents collected on the Salter's Proportion, (Luard, 1909:36-57).

S.W. Luard compiled a list of the total money collected in rents from each townland on the Salter's Proportion from rent rolls still surviving in 1909. Many of these original rent rolls are now lost, and Luard's townland totals are our only record for several years.

<table>
<thead>
<tr>
<th>Year</th>
<th>Ballymultrea</th>
<th>Ballydonnel</th>
</tr>
</thead>
<tbody>
<tr>
<td>1766</td>
<td>£29/7/4.5</td>
<td>£28/14/6</td>
</tr>
<tr>
<td>1772</td>
<td>£29/7/4.5</td>
<td>£28/14/6</td>
</tr>
<tr>
<td>1774</td>
<td>£61/19/3.5</td>
<td>£53/2/9</td>
</tr>
<tr>
<td>1783</td>
<td>£127/17/4</td>
<td>£101/0/11</td>
</tr>
<tr>
<td>1790</td>
<td>£141/4/6</td>
<td>£107/16/8</td>
</tr>
<tr>
<td>1805</td>
<td>£223/18/3</td>
<td>£191/10/8</td>
</tr>
<tr>
<td>1814</td>
<td>£223/18/3</td>
<td>£191/10/8</td>
</tr>
<tr>
<td>1818</td>
<td>£223/18/3</td>
<td>£191/10/8</td>
</tr>
<tr>
<td>1824</td>
<td>£223/18/3</td>
<td>£191/10/8</td>
</tr>
<tr>
<td>1828</td>
<td>£247/2/10</td>
<td>£236/2/0</td>
</tr>
<tr>
<td>1830</td>
<td>£246/11/8</td>
<td>£235/8/10</td>
</tr>
</tbody>
</table>

Note the dramatic rise in rents between 1790 and 1805. This rise probably dates from lease negotiations in 1794 (Armstrong, 1821-24:above). Rents are then stable for the 20 years from 1805-1824, followed by modest increases thereafter.

Discussion

There is an obvious increase in population density on both townlands throughout the 18th and early 19th centuries. The names of leaseholders listed in the formal rent rolls kept by the Salters do not necessarily include sub-letting undertenants or members of a tenant's extended
family (See Armstrong, above); therefore the true population density is possibly higher than a simple total of names listed. By the same reasoning, individual families may have been on site as undertenants before their names appear as formal lease-holders, as is apparently the case for the McMaster family. The practice of sub-letting made rent-racking a tempting option for the actual leaseholders. The rents collected by the Salters may not reflect the actual rent paid by the undertenants.

Assigning ethnicity by surname analysis is a risky business, and I hesitate to place much stock in any conclusions drawn therefrom. It appears from the tenant lists that Irish, Scottish and English families were all present on the two townlands adjacent to the ruins of Salterstown throughout the 18th and early 19th centuries. Eighteenth century Parish records strengthen this impression. In the 1740 Hearth Money rolls there were a full 95 Protestant households in Ballinderry Parish (McGuckin, 1980:112). In 1766 a religious census conducted by the Church of Ireland parish rector William Lill reported 85 Protestant families and 128 "Popish" households (Ibid:112).

Of the families still living in the area in 1990, the native Irish McGuckin's can trace their tenure back farthest, with a secure claim as hereditary erenaghs dating back to at least the early 15th century (McGuckin, 1980:88).
A McGuckin was listed as a priest in the parish in 1631 (Phillips; in McGuckin, 1980:107); the name appears in the Salter's Terrier of 1752, and is frequently listed in the 19th century rent rolls (above). No doubt many of the various Kellys, Hagans and Quins listed in the 19th century are descended from equally ancient local families.

Of the Planter-period families only the Taylor family may be of direct descent from 17th century villagers. A Taylor is listed at Salterstown in 1622, although there is no record of that name in the area in the later 17th century. Taylors appear again in the Salter's Terrier of 1752, and in the 19th century rent rolls (above).

There is an oral tradition associated with the 18th century tenants of the "Salter's Castle" ruins (this is the name that the ruins of Salterstown have come to be known by locally). I repeat this story verbatim from Patrick Larkin's account;

Anthony Conwell became the Parish Priest of Artrea parish in 1756. He is said to have been the first "settled" priest in the Parish. His predecessor, Father Halfpenny, posing as a layman, was joint tenant of a farm in Ballymilligan, but had to disappear when an upsurge of priest hunting was imminent. On one occasion, he did just that—disappear under a clump of potato tops hastily provided for him by the McMasters of Salterstown, a Protestant family. Seeing the Priest's danger from a band of Redcoats who were close on his tail and responding generously to the priest's appeal for refuge, they hid him among the drills till the danger was past. In thanking them for there good deed, Fr. Halfpenny declared that the McMaster family would prosper and survive for many generations; it has been so till the present time (Larkin: 1982:99—as told to him).
As we have seen earlier, Fr. Halfpenny was indeed Parish Priest from 1744-1756. It is possible that the McMasters were undertenants of one of the families listed in the Terrier of 1752. A Robert McMaster is listed as a "dissenter" (Presbyterian) living in Magherafelt in 1766 (O'Doibhlin, 1982:150). His signature appears in the jacket of a book still in the family as "Robert McMaster at Salterstown". The book is entitled "The History of the Revolutions That Happened in the Government of the Roman Republic" by the Abbot deVertot, published in Dublin in 1736. Various McMasters are recorded in Lecha and Tillinkisy townlands from 1794 (see above).

Robert McMaster was apparently an undertenant of Robert Adams for Lot 36 in Ballymultrea Townland. In 1825 the official Salter's rent rolls list Adams on that lot. In the same year the Armstrong account lists McMaster on the same parcel of land, although it has been further subdivided into smaller lots [See Maps, Figure 29]. Taken with the evidence above, it is probable that the McMaster family have been resident at Salterstown since the 18th century, albeit as undocumented undertenants.

The McMaster family gained a lease agreement for Salters Castle March 1, 1832. The agreement was signed by Lord Londonderry, Sir Robert Bateson, and Richard McMaster. Richard McMaster's family Bible (Published in 1802) is

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still in the McMaster family, and contains a list of his children with their birthdays in the 1820's and 1830's.

Still another Robert McMaster of Ballymultrea, Ballyronan, and Magherafelt was registered as owner of Salter's Castle in fee simple Nov. 3, 1918.

The McMaster family is flourishing on the same land, with three generations (four as of 1989) living within a half-mile of the Salters Castle ruins to this day. Father Halfpenny was right.
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THE EXCAVATIONS: DESCRIPTION AND DISCUSSION OF FEATURES

SITE LDY 49:1

The following is a technical description of the actual excavations at Salterstown up to 1989, including: surveying and recording procedures, definitions for the standard notation used in describing proveniences, descriptions of stratigraphy, a discussion of excavation strategies, and the description and interpretation of features discovered in the course of excavation.

The 1988 Field Season

During the summer of 1988, a remote sensing survey and limited sample excavations were carried out at Salterstown (LDY 49:1) ¹. A soil resistivity survey was used in conjunction with the Raven map of 1622 and the standing remains of the original bawn to target areas for sample excavations. The area surveyed was designed to sample the southern end of the village as seen in the Raven map [See Figures 30, 31 & 32]. The Raven map indicates that just south of the Bawn there was a "dogleg" curve in the central village street. That curve follows high ground around the shore of the adjacent Lough Neagh. The modern road south of the bawn matches the curve in the Raven map.

¹. All surveying and excavation equipment, as well as a good deal of labor, was provided in 1988 by the Department of the Environment of Northern Ireland, Historic Buildings and Monuments Division, Archaeological Survey. I am indebted to Dr. Hamlin for authorization, to Nick Brannon for coordinating the equipment loan and transportation, and to both Nick and Jim Woodman for helping with backfilling.
It is nearly three o'clock in the morning the night before handing in the report, and the computer printer has just misnumbered several pages. Rather than spend literally days printing out a new version of the entire document with fresh pagination, I am forced to insert a nonsense page. I encourage the ambitious reader to skip this page. For those less ambitious, perhaps now would be a good time to get up, take a break, fix a snack and daydream.

It is my fervent hope that the Dean does not review every page of the document, and that this little subterfuge will slide on past without causing a stir in the hallowed halls of academia. While the actual research and compilation of this study has been an exciting and rewarding experience, the little details of actually currying along this huge monster of a document are beginning to drive me bats. I hope the reader is more patient than I.
Figure 30

Figure 31

Figure 32

Remote sensing was accomplished using a "Bradphys MK4" Earth Resistance Meter using the twin electrode method, with a fixed probe 15m distant and the mobile probes set .5m apart. Readings were taken .5m apart in a series of N-S transects 1m apart; 3500 square meters were surveyed. Subsurface anomalies which corresponded best with the Raven map were targeted for sample excavation.

A total of 26 square meters were excavated, arranged in two trenches [See Figure 33]. Trench One revealed postholes, a clay pad, and both a N-S running trench and an E-W running trench [Features 2,5,6,7,21,and 50]. The Features were in direct association with 17th century artifacts [See "1988" in Artifact Catalog, in Appendix]. Charcoal, mortar and daub were interpreted as demolition debris. The clay pad [F7] was at that time interpreted as a ground sill. Using the building dimensions provided in the 1622 Phillips/Hadsor survey, Trench Two was located to find the opposite ground sill of "the structure". Trench two only partially revealed Feature 3, a massive stone-filled posthole adjacent to a trench (F1). Out of time, in the rain, Feature 3 was triumphantly interpreted as my second "ground sill", and the site was backfilled for the season. We were so encouraged by the 1988 field work that we returned in 1989 for a full 10 weeks of data recovery.
Figure 33

Plan View of 1988 test excavations. Salterstown LDY 49:1
Soils and Stratigraphy

The stratigraphy of the site is for the most part very straightforward. The site consists of only six major strata, with various intrusions, lenses and striated mixes. There is a topsoil loam plough-zone (Stratum 1, or from now on, "S1"), which grades almost imperceptibly into a darker, more sandy artifact bearing layer (S2). Stratum 2 is subdivided into a plain S2, a charcoal-rich 2A, and a mortar/plaster-rich 2B. Stratum 2 rests on either one of two natural subsoils (S3 or Ironpan), depending on where you are on the site. Where Stratum 3 occurs the Ironpan does not, and vice-versa. Both of these subsoils provide a dramatic color contrast with the artifact-bearing strata above, and with the various man-made features which intrude down into them. Underlying both the Ironpan and Stratum 3 are two additional sterile natural strata (S4 and S5).

Here is a brief field description of each strata on the site, including, besides the strata discussed above, a clay which was apparently carted in, and the various strata in the bottom of the well [F26] excavated in 1989:

Munsells: Stratum 1: 10YR3/4 dark yellowish brown loam plough-zone, bearing artifacts of mixed provenience and chronology.

Stratum 2:  10YR3/3 dark brown sandy loam, artifact-bearing.
Stratum 2A: 10YR2/1 black charcoal-rich sandy loam, artifact rich.
Stratum 2B: same as 2A with high proportion of mortar and/or plaster.

Stratum 3: sterile subsoil, 10YR7/2-5/2, light grey to grayish brown coarse sand, some artifacts resting on surface.

Stratum 3A: 10YR4/2 shaded interface with S.4, a product of mineral leaching.

Ironpan: 5YR5/8- 7.5YR3/4 yellowish red to dark brown iron-bearing sand, very hard, natural deposit replacing S3. Retains plough scars in E-W alignment on surface of Ironpan stratum.

Stratum 4: sterile subsoil, 7.5YR5/8 strong brown mottled with 7.5YR4/4 brown, sterile silty sand.

Stratum 5: Sterile subsoil 7.5YR6/4 fine silty light orange-brown sand, lighter and more fine than S.4.

Pure Clay: 10YR6/6-6/8, sandy clay.


Ash: 5YR7/1 light grey fine textured ash.

Well S.F: Brown 10YR3/1 very dk. grey coarse sandy clay-bearing loam.

Well S.G: Orange Sand 10YR3/6 dk yellowish brown coarse sand with clay.

Well S.I: 10YR3/3 dark brown organic slurry, in semiliquid state.

Well S.J: 10YR4/4 very fine textured silt, in semiliquid state, same color as clay floor at bottom of well.

This stratigraphic sequence of strata 1-5 is typical of what soil scientists refer to as a "spodosols" horizon sequence. Such a sequence is the product of leached hydrous oxides, and is diagnostic of mature forest contexts with a fluctuating water table (Brady:1974). According to N. Brady, the horizon sequence works something like this; the white sand underlying the humus-bearing topsoil and the ploughzone acts as a leaching conduit. Some minerals are deposited in the lowest levels of this horizon, staining the white sand a darker grey. The underlying dark orange sand retains most of the leached
oxides, hence the color. A spodosols horizon sequence can develop quite quickly (a period of hundreds of years), if one is thinking on a geological time scale.

That Salterstown was once within a mature forest is attested to by any 17th century account of County Londonderry. At that time the woods of Loughinsholin, Killetra and Glenconkeen were some of the last surviving primeval forests in Northern Europe (excepting Scandinavia) (McCracken, 1971).

The clay encountered on site was imported, rather than a natural deposit. There is a natural deposit of "Lough Neagh Clays" occurring under the southwest end of Lough Neagh. This deposit extends for some 500 square meters, although it is found near the surface only in the neighborhood of Coalisland, nearly 15 miles southwest of the Salterstown site (Wilson, 1972:79). It would be interesting someday to run a comparative petrographic analysis of the Coalisland clay with that found in local red earthenware ceramics.

Before flood control measures were undertaken in the 19th century, Lough Neagh was subject to annual floods as high as 3 meters above normal water levels (Woods, personal comm.). In the 17th century, normal water level on the Lough would have been much higher than it is today. Immediately east of the mapped area of the McMaster farm, the ground falls away into a low wetland area down to the
Lough shore. It would take less than 1 meter of flooding to inundate this area, bringing the shoreline of the Lough right up to where Raven drew it in 1622.

Mr. Woods of the Lough Neagh Freshwater Field Station visited the site, and was nice enough to compile a few statistics for the project. Before the McMahon projects of 1846-58, the Lough level was 14.8 meters above Belfast Normal, while floods could raise that figure another 3 meters. By 1860 the Lough had dropped to 13.8m above Belfast Normal, and floods were only 2.1m high. Following the Shepherd project of 1942 the Lough was again lowered, now to 13.1m, with 1.6 meter floods. In 1952 the Lough was lowered to 12.9 meters. In 1959 the Lough was lowered once again, to 12.5-12.6 meters, while flooding was reduced to 1 meter. The Lough has stabilized since then to those approximate values (Personal Comm. Mr. Woods, Lough Neagh Freshwater Field Station). In other words, the 17th century inhabitants of Salterstown lived on a very wet, densely wooded site. This fits very nicely with the soil horizons observed by the excavators.

The 1989 Excavations

The 1989 research season included 10 weeks of excavation and 3 weeks of documentary research in London. This season's field work was once again sponsored in part by the Dept. of the Environment for Northern Ireland,
which donated all equipment and necessary materiel for the project, coordinated housing and on-site transportation, and provided £1000 in research funds. An additional £500 was donated by the Worshipful Company of Saddlers of the City of London, one of the original companies involved in the Salters' Proportion. This £500 is only £90 short of the total 17th century investment by that Company (Moody, 1939:442). All other research funds were squeezed from my Teaching Assistantship stipend from the University of Pennsylvania. Ten people, from America, Canada and Germany all volunteered various amounts of time to the field season, paying their own airfare to Northern Ireland. In addition, a 6 person D.o.E. archaeology crew from the nearby Bellaghy dig put in several days of fevered trenching to help out late in the season.

Record Keeping and Proveniencing

The surveying of the overall site and general topographic proveniencing were accomplished with plane table and a "Kern RK" self-reducing alidade. In 1989, all horizontal proveniences were recorded by 1mx1m units 2, as measured South of the Main Datum or East/West of an optically secured baseline running south of the Main

2. The previous 1988 sample excavations were provenienced by Trench # and stratum, except for particular artifacts or features, which were measured to 1m. All measurements are metric unless they refer to 17th century survey data.
Datum. Individual units were measured by tapes off this baseline, then confirmed optically. Each 1x1 unit was named for its Southwest coordinate. Vertical proveniences were recorded by Strata, as discussed above. Thus, a typical provenience might be 19S2W.2a, indicating a three dimensional provenience at 19m south of main datum and 2m west of the baseline, in stratum 2a.  

Features or outstanding *in situ* artifacts were vertically provenienced by folding rule and line-levels from the top of the nearest local datum stake, again usually the southwest corner of each unit. All local datum stakes were then optically provenienced relative to main datum, tying the entire site into a three dimensional grid.

A few definitions are in order. A "feature" is defined for our purposes as any man-made stratigraphic anomaly (ditches, postholes, imported deposits, etc), although several quite natural stratigraphic disturbances will be discussed (flood deposits, tree roots, rodent burrows), since they have direct bearing on the interpretation of the site. Features which show evidence of two or more distinct building episodes were subdivided into "a", "b", ...

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3. This shorthand referencing system was also used in labelling artifacts. Artifacts from 1988 were given a "T1" or "T2" designation, followed by the stratum number. Artifacts from Trench 1 were also assigned "N" or "S" designations, narrowing their provenience to within a 1x8m area.
etc. These letter designations do not refer to chronological order. In text, features are referred to by "F" followed by their number, as "F13". As noted already, vertical proveniences were recorded by stratum and depth below local datum (dbld), usually but not always read from the southwest corner of each unit. All dbld figures were subsequently converted to depths below main datum (dbmd) unless otherwise noted.

Each excavator was responsible for keeping field records of their excavation units. Standardized forms were generated in advance, for recording plan views, profile/sectional drawings, camera shots, and artifact descriptions. Excavators were expected to record every edge of soil contact and feature in their units.

Each of the excavators was asked to maintain a field notebook. Daily entries were to indicate the day's date, the unit # and stratum (at the beginning and end of the day), the name of co-excavators in the unit, the pro forma sheets filled out, and the photographs taken. Entries were to define explicitly the "experiment" which that unit's excavation was meant to perform, including the interpretive problems that unit might solve, the evidence necessary to produce such a solution, and any features which might be expected. Any and all speculations on the nature of the unit or interpretations of the site as a whole were encouraged.
These notebooks were not ultimately intended as record keeping devices, but were meant to keep the volunteers actively engaged in the problem-solving process. I believe that they served both purposes well. Many of the ideas in this final report first appear in the daily journals. Aside from any of the considerations above, the journals also offered the field director a valuable alternative to the manic and possibly myopic obsession which can overtake one in the field. I offer this entry from my wife Ruth's journal as an illustration:

Monday June 19th, 1989. 9-10:30am Thought about the cows, then tea. 11-1pm. Thought about lunch, then cows. 1:30-5pm. Thought about dinner, Wondered about cows. (with permission of author)

So much for the many enticements of the 17th century when compared to food or the inhabitants of a dairy farm.

No one worked alone. Any redundancy was more than paid off in complete record-keeping. In addition to the crew records, the site director maintained an updated plan view of the entire site, generated without reference to crew plan-views.

At the beginning of the season, all soil was screened through 1/4" mesh for artifact recovery. On June 30 Nick Brannon and I agreed that the plough-zone [S1] would henceforth be sampled, but not screened, as this stratum was found to contain relatively little information. Comparing the density of artifacts in S1 from early and
late in the season bears this out; there was little or no loss of information, but a significant gain in speed. Stratum 2 was screened throughout the season. At the same time, we began to shovel-scrape the plough zone, again with no dramatic change in artifact recovery. As a general rule, as soon as artifacts appeared in S2, trowels were used exclusively until sterile soil was encountered.

Pam Crane volunteered to coordinate artifact cleaning and recording in the field. Thanks to Pam's perseverance, the crew's patience (and the rainy Irish weather), nearly all of the artifacts were clean, if not cataloged, before the site was backfilled.

Excavation Strategy

The original intention of the 1989 excavations was to define the floorplan and associated houselot of the structure indicated by the 1988 excavation. It was hoped that (time permitting), we could divide the crew and use one squad to trench North in an effort to pinpoint additional structures as indicated on the Raven map. Again, if time permitted, I also hoped to cross the road to the east and test for structures on the other side of the village street. This was/is a particularly exciting prospect, as the structures for the opposite side of the street on the Raven map were of a 17th century vernacular Irish construction style. My strategy was feature-
oriented. I wanted buildings. As it turns out, we probably accomplished the first goal of defining a homelot, but none of the others.

The first days of the season were spent re-excavating the 1988 trenches. I knew that there was more to the features than I had been able to excavate the previous year. This exercise also gave the volunteers an orientation in the strata they could expect from the site. Our survey came down within 2cm of the trench walls of the previous season [See Figure 34].

Most of the decision making which followed was based on estimates of where the architectural features of the structure would be, if the features we already had were what we thought they were. In other words, if we had one line of postholes we would sink units looking for their opposite bays, or spend days looking for an intervening hearth. This "strategy" was the biggest single mistake of the season. I was led to spend a long time intensively investigating a small area, rather than opening up a large area which might have provided more information on the village as a whole.

On June 30th Nick Brannon tactfully suggested a more extensive sampling of the area, at a faster rate than my crew had become accustomed to. In the following week we abandoned screening the ploughzone and opened a trench heading west. In that week we encountered the well [F26],
probably the single most important feature on the site, but one which demanded a high proportion of our available labor for the remainder of the field season. On July 18th Prof. Bernard Wailes of the University of Pennsylvania showed up on-site and also suggested that we expand our coverage radically, offering the catchy adage, "When in doubt, move out" ⁴. He also suggested that we tear out most of our balks, since "all the good stuff is under 'em". Dr. Wailes observed that most of our linear features were parallel to our excavation units—the original inhabitants were also orienting by cardinal points. He and Mr. Brannon both suggested that we excavate a few diagonals instead (Wailes and Brannon, 1989: Personal Comm.). This last suggestion accounts for the rather odd plan of the excavation, when taken as a whole [See Figure 35].

On July 21st and 28th the crew from the nearby Bellaghy excavations came by and helped shovel-scrape down to S2 in three different areas totalling 45 square meters of new units.

Two of these new areas were set on diagonals. To the north we were able to preserve the standard proveniencing system despite the diagonal lines of the excavation. However, the 1x10m diagonal extending NW out of the

⁴ The adage has since been attributed to the late Dr. Chet Gorman.
western end of the site required a new horizontal reference system.
Figure 34

Location of the 1989 excavations within larger site of LDY 49:1, with standing structures as surveyed 1989.
Figure 35

Plan View of Salterstown LDY 49:1.
1989 excavations detailed rendering

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We simply numbered these units "1-10M" from southeast to northwest. All measurements and artifact labels for that area reflect this exceptional proveniencing system. Where the NW diagonal was widened out at its tip to investigate the trash pit [F53], the original proveniencing system as used for the rest of the site was restored.

Altogether, 170 square meters were excavated in the 10 weeks of the 1989 field season. To accomplish this while retaining high standards of cautious, methodical excavation technique, my crew often worked from 9 in the morning until 7 or 8 o'clock at night. We often worked Saturdays.

If I had it to do over again, I would use the stratigraphic information from the 1988 dig to guide a Grade-All or similar earth moving machine. I would expose 3X the area actually excavated down to stratum 2a, and spend the season mapping, sectioning, and finally excavating the features so exposed. I would have lost some artifacts. I would know far more about the site. Caution was a liability in the 1989 season.

The Features

Evidence for 17th century activities was concentrated in the interface between Strata 2 and 3—at the base of the plough zone and the top of the white underlying subsoil. At no point on the site was there a demonstrably
undisturbed 17th century occupation surface. Stratum 2a is interpreted as the surviving pockets of the lowest edges of that now-missing surface. The staining of 2a is due to several factors; the natural leaching of the soil, the probable destruction by fire of most of the site on at least two occasions in the 17th century (1641-3, and 1689-90), and the co-incidence of that stratum with primary deposits of kitchen refuse. There is an obvious correlation between the occurrence of 2a and the presence of underlying features cut into the subsoil. Therefore 2a is not exclusively the result of natural leaching of the soil, nor of the primary charcoal deposits. It is therefore probable that parts of 2a represent a burn layer.

It is possible that parts of the surface of S3 were once occupied, but this is not currently provable. Therefore, features cutting into subsoil provided the only assuredly undisturbed contexts on the site. After the 1989 excavations these features included 26 postholes, a trash pit, several linear stone-filled trenches, four additional trenches without stones, myriad plough-scars, and a late-17th century well. Eighty-eight separate features have been identified [See Figure 35].

Due to ploughing, no groundsills or posthole alignments
remained undisturbed enough to create a single complete floorplan. This is not to say that evidence for structures was not there—but reconstructing floorplans remains an interpretive challenge. No intact brick chimney bases survived the plough. What we have are large, stone lined post holes forming bays, with brick and ash scatters hinting at hearth placement and artifact concentrations indicating residential use. In places, one structure has been apparently superimposed over the evidence for another—posing nasty interpretive problems while reenforcing an impression of continuity in village plan from one period of occupation to the next.

For clarity's sake demonstrably related features will now be discussed together.

The "White Wispies"

Feature 83 should not technically be considered a feature at all; F83 designates evidence found in several areas of the site for at least two distinct flooding episodes which water-carried sinuous strands of S3 white sand into and across S2 deposits [See figure 36]. This phenomenon, once recognized by the crew, was nick-named the "white wispies", and has become a key tool in interpreting the relative dates between features. We know by dendrochronology that the well cap was built no earlier than 1664 (+/- 9yrs); we know by the artifacts it contained (particularly the shoes), that the well was no
longer in use after the opening years of the 18th century at the absolute latest. The white wispies meander across the S2 deposit capping the well, dating the wispies at no earlier than the earliest 18th century [See Profile F26]. The wispies indicate that at the time of the flood there was still a slight slump to the surface above the well. Using the wispies, we can reconstruct the relative chronology of otherwise unconnected features.

For example, the stone filled trench [F43] running E-W at 22-23S displayed a very clear sectional view of two distinct episodes of white wispies drifting up to and abutting this feature at a time when F43 stood above ground.
Figure 36

The "White Wispies".

- Redeposited Subsoil (Lazybeds?)
- Posthole
- Ash and Charcoal
- Stone rubble
- Clay

Feature 83, known occurrences, the "White Wispies"
level [See Profile, F43, in Figure 51]. At one stroke, this establishes F43 as a standing feature, rather than simply a ditch, and dates it to no earlier than the 18th century. This makes F43 one of the most recent features on the site. This is corroborated at 22S2W, where F43 cuts into the earlier clay [F84] associated with the well [F26]. At 22S3W the wispies wend through the S2 along the opposite side of F43, indicating that whatever above-ground feature F43 may have been, it was equally exposed to flooding at the same level on both sides. In other words, there was no "interior" or "exterior" to that feature at the time of the floods.

The clay [F84] associated with, and to the west of the well [F26] is elevated slightly relative to the well. It was probably exposed to the surface for longer than other contemporary features. The wispies were deposited directly over the surface of the clay at 21S4W, the highest point of that feature. At 21S5W, the same episode of flooding is carried over the clay within S2.

The white wispies also occur at 24S0-4E, where they flooded across the middle of S2 overlying the Ironpan. They were also recorded at 2-3M along the western diagonal.

The wispies also sealed over the trash pit [F53], embedded within the S2 which covered that feature. This was the furthest inland that we excavated in 1989,
indicating that the entire site was potentially subject to inundation.

The Plough Scars

Features 10, 11, 28, 48, 65, 70, 71, 72, 74 and 79 were all found to have very shallow sections displaying an asymmetrical wedge-shaped profile [See 1989 site plan, Figure 35]. They were all crisp along one edge and irregular along their opposite edge, indicating the work of a plough. These were all linear features trending E-W across the surface of S3. They suggest that over time all but the deepest sections of S2 have been repeatedly redeposited.

Features 4, 19, 31, 32 and 86 present a tougher interpretive challenge. These are very dark stains of almost no depth on the surface of S3. Features 4 and 19 present sharp, parallel edges. Feature 9 displays a series of thin parallel lines spaced precisely 8" apart. Feature 4 has several projecting lines coming off at right angles to the main stain. It is possible that these features represent the soil stains of rotting worked timbers. It is more likely that they are an ephemeral trick of the soils.

The Puncheon Scars

Across much of the area from 4-9S in the northern-most end of the excavation, there appear several E-W running
lines of small puncheon scars [See 1989 site plan, Figure 35]. These are scars left by driving a stake or rail fencepost directly into the ground. Under normal circumstances, they would likely have been lost to the investigator; the bright white sand of S3 allowed them to stand out dramatically. There are lines of scars at 6S, at 7S, and two at 8S, all running parallel [See Figure 35]. The shapes of the individual scars are usually clear; they are either split-rails with one round edge, or squared off lumber of approximately 1x3" or 2x4". They are spaced too closely to be used for barbed wire. They probably represent several different episodes of wattle fencing. I can think of no way to date these scars positively, other than to say they probably predate the period when the plough scars were created adjacent to them. It is possible that they were meant to keep animals out of the lazy beds (see below). It is equally possible that they define the boundary of a 17th century homelot (see posthole discussion).

The "Lazy-Beds"

Interpretive problems were compounded by a series of long parallel intrusions of redeposited subsoil across most of the site (Features 1, 21 (18), 15 and 75; See Figure 35). These trenches cut through the S2a where that Stratum occurred. The intrusions were regularly spaced at intervals of 6 ft. (1.75m.), and were generally 2.5
ft. (.75 m.) wide, and 2 ft. (.64 m) deep. The fill of these intrusions was a finely striated mix of S2 and S3 sand and loam, suggesting gradual infilling. This fill consistently contained early 19th century pearlware. These features have been provisionally identified as evidence for 19th century spade horticulture or "lazy-bedding", whereby the fill from deep parallel ditches was mounded up to form raised potato beds. The original surface of the raised beds between ditches has been erased by subsequent plowing.

Nick Brannon disagrees with the "lazybed" interpretation of these features because the spacing and dimensions seem wrong. At Bradley's Cairn, Co.Tyrone lazybeds spaced only 2-3' apart and of indeterminate length were excavated (Brannon, 1979:20). I therefore offer the lazybeds as a provisional interpretation until I have a more plausible alternative explanation. One such alternative is suggested in the following discussion of structures.

Whatever their ultimate interpretation, the resulting stratigraphic deposits required "reading" the site as if someone had laid a huge screen of bars across our maps. In several areas, earlier post-holes had been intersected by these trenches, and were discovered only after the 19th century trench fill had been removed. More shallow early
features may have been completely eradicated by the lazy-beds.

**Kitchen Refuse**

Resting on the surface of Stratum 3 at 13-14S3-4W [F87] and at 18-21S4-6E [F88] there were thick deposits of ash and charcoal containing high concentrations of chopped *Ovis*
Figure 37

Charcoal/Ash "Kitchen Refuse" deposits 13-14S3-4W:

18-21S4-6E.

Features 87 & 88, Charcoal + Ash Deposits

13-14S3-4W: 18-21S4-6E

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and *Bos* bone and brick [See Figure 37]. These concentrations were provisionally identified as hearth refuse. Neither deposit showed evidence for the hearth itself. Sectional drawings of the stone-filled trench [F57] 14S2-7W indicate that at the time the hearth refuse was deposited it was blown or flooded up against F57, which at that time must have been an above-ground wall. There is no such deposit on the other (south) side of F57, indicating either an interior or simply the limit of the charcoal and ash dump.

**Ditches**

Unfortunately the various trenches encountered on site do not neatly fit any one explanation. Features 2, 35, 43 and 57 are all ditches containing dark S2 or S2a fill with varying amounts of stone rubble, brick and charcoal. Feature 43 (22-23S2-6W) stood at least partially above ground level during two 18th century flooding episodes (see "white wispies" above). This must have been a stone wall or sill, although flood deposits indicate that at the time it was equally exposed on both sides. The eastern end of the trench itself cut into the primary deposit of clay [F84] around the well.

Feature 57 (14S2-7W) was also at one time a standing feature, again either a stone wall or a sill. A thick deposit of charcoal and ash either drifted or washed up against the now-missing vertical northern face of this
feature (see "kitchen refuse"). Although features 43 and 57 appear parallel on the site plan, they are unfortunately probably not contemporary. The artifacts found in direct association with F57 and the charcoal/ash deposit adjacent to the north were of early and mid-17th century date (See 11-13S3-4W in artifact catalogue).

Feature 35 (17-19S2-3W) runs at a NNE diagonal. Unlike the two features discussed above, this ditch did not contain a lot of stone rubble (there is some), but instead was rich in early-mid 17th century artifacts and faunal material (See F35; Artifact Catalogue). The fill was an S2 loam, but hard, and stained to orange/brown as if by fire. To the north F35 becomes shallow and diffuse, leading the excavators to rename it F78 at 14-16S2W. Here the two feature numbers will be treated as a single feature. At 14S2W the feature apparently forms a corner with F57, although at this point both features were quite shallow, and the excavation inconclusive. Feature 35 was abruptly cut at its southern end by the primary clay deposit [F84] around the well, firmly establishing this feature as one of the oldest on the site. If Features 35 and 57 did form a corner, any other corners are now lost due to subsequent disturbance.

Feature 2 runs N-S at 12-16S4E. It was filled with S2/S2a sandy loam, scattered bricks, clay and faunal material. Artifacts indicate a 17th century date for the
feature, although its orientation to the postholes and other contemporary features remains unexplained.

Given the area of the site exposed in 1989, I cannot adequately account for the ditches discussed above. They do not add up to enclosures or structures; neither do they display the stone-laid channels typical of field drains.

**Trash Pit**

At 16-18S10-11W a pit was encountered; its original dimensions must have been about 1.5m in diameter by .7m deep [See plan and section views; F53, Figure 38]. It was excavated in quadrants by arbitrary levels. Feature 53 was cut directly into subsoil S3 and S4, apparently without a lining. The pit was partially filled in by collapsed sandy subsoil, probably washed in by frequent rains. However, the pit remained in use after these flooding episodes, as artifacts in the S2 deposits above attest. One of the first things encountered as excavation of F53 started was a small articulated skeleton, deposited at a near-vertical angle in the S2a of the NE quadrant of the feature. We were all in a state of near-panic until mandible and maxilla fragments confirmed that we had found the remains of *felis domesticus*. Seventeenth century pets were disposed of with less decorum than their 20th century descendants.
Figure 38

The trash pit, despite its name, was not filled to the brim with artifacts. However, there was a good collection of faunal material (aside from the cat, which displayed no butcher marks), bricks, window glass, and a thin flat sheet of wood. Ceramics, pipes, coins and other dateable artifacts were scarce. A rather disappointing "sometime in the 17th century" date for the feature is the best we can do at the moment.

The Well, and associated Features

At 19-21S1-3W was unearthed a stone-lined well [F26]. The well was over 3.5 meters deep (dbmd) and 1.6 to 1.8 meters across [See F26 plan and profile drawings: Figures 39 and 40]. The well was constructed by digging an asymmetrical builder's hole, approximately one meter wider towards the west than the actual well shaft required. This presumably gave the stone-mason room to stand while constructing the stone lining. This is reflected in the quality of the stonework, which is finely constructed and most nearly vertical along its east face; that is, along the face where the workman had the most ready access. As he worked towards himself around the circumference of the shaft, the work got more sloppy; the shaft acquires a noticeable slope on its west face. The mason let into the stonework at two points a
Figure 39

Plans of Feature 26, The Well 19-21S1-3W

Timbers removed except line of Bucket-tip

Timbers in situ

1m

Top and Bottom Coarser of Stone Lining F26

Salterstown LDY49:1

O. Miller from P. Morrison

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Figure 40

Profile of Feature 26, The Well, facing South.
2"x3" horizontal post, .8-.9 meter up from the floor of the well. This post was used as a bucket-tip by those lowering a bucket to fetch water.

As the mason worked upwards he backfilled his own little work area on the outside of the well proper, creating a kind of reverse scaffolding. This backfill was composed of redeposited S4 orange sand mixed slightly with clay. When the stone lining reached the desired height, a latticework of criss-crossed timbers was placed over the top of the well; some of the more stout of these timbers extended across the builder's hole to the west of the well, the entire construction forming a platform over the surface of the well and extending to the west. This platform was made at least .3-.4m below what was then ground level. The construction of the timber platform required undercutting into two different strata of sterile subsoil to the west [See Profile F26], presumably to accommodate the timbers.

The ends of the timbers were set into clay, brought in for that purpose. Although only vestiges of that clay survive from most of the circumference of the well shaft (some having fallen into the well when the timbers collapsed), there is a very thick deposit of the clay over

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5. The explanation of the "bucket tip" or bucket "trip" was kindly provided by Phillip Robinson of the Ulster Folk Museum, who paid a timely visit to the site in early August 1989.
and immediately adjacent to the platform created over the builder's hole to the west [See Figure 41].

The clay would have required a lot of effort (and possibly expense) to cart onto the site. Several local farmers told me that the clay was not common in their fields. The clay was thought worth all that effort because it served multiple purposes. First, it held the ends of the timbers fast, providing a secure platform over the shaft and to the west of the shaft over the builder's hole. Second, it shored up the sandy subsoil and prevented it (for a time) from collapsing in on a platform built below ground surface. And finally, the clay provided insulation from heat, cold and flooding for the interior of a snug, semi-subsurface wellhouse. The extension of the timber platform to the west, and the thick clay shelf above and around that, created ample storage space for 17th century refrigeration.

Timbers from the well [F26] and surrounding clay [F84] were numbered, mapped and photographed in situ. The largest was then sent to the Dendrochronology labs at the Palaeoecology Centre at Queen's University, Belfast. David Brown of that laboratory reported that the timber was felled in 1663 (+/-9 years). A copy of Mr. Brown's report is included in the appendix. This date places the construction
Feature 84, Clay around the well extending in lens due to smearing by plow: for extent of primary deposit see Figure 35.
of the timber platform within the early years of the second occupation of Salterstown.

A plan view of the timber platform has been provided, showing several timbers removed to expose those underneath [Figure 39, above]. The plan view indicates a hole immediately above the north end of the well shaft. An access hole in this position would be in alignment with Feature 44 discussed below.

Cutting into and across the clay shelf to the west is an E-W running stone-filled ditch [F44]. This stone-paved cut through the clay probably served as both drainage and entryway into the springhouse. Where Feature 44 ends to the west, there are two stone pads [F40 and F82], one on either side along a slight NE diagonal, which may have served to support a doorway and part of a surrounding superstructure. The original builders can be forgiven for not trusting postholes for this particular bit of engineering.

There was already an accumulation of S2a in place adjacent to the clay along the eastern edge of the well when the timber platform collapsed [See section of F26]. This may indicate that the superstructure of the springhouse had burned before this final episode.

Around the outside of the well area, subsequent ploughing has smeared lenses of clay off the primary deposition, extending the clay distribution farther to the
west than the original deposit. However, enough of the primary deposit of "pure" clay survived to allow reconstruction of the original plan. Two plan views at successive depths have been generated, showing first the top-most plough smearing of the clay, then the actual contact edges of the clay and surrounding soil matrix [Compare figures 35 and 41]. Note that the original deposit of clay, where strong contact edges survive, appears to be laid out in a rough octagon! The surviving stone pads [F40 and F82] are situated where sides of the octagon meet. On site crew members jokingly referred to our "stop-sign" clay feature.

The well posed several bizarre problems for the excavators. Interpreting the clay around the well required us to excavate by frequent sub-sectioning of our arbitrary excavation units, in order to "catch" the often elusive contact edge between the partially collapsed clay and the surrounding soil. Where the surrounding subsoils of soft sand had undermined the clay, then clay, sand and timber all collapsed together. We encountered a clay/sand mix immediately around the collapsed timbers to the west and south of the well shaft, and voids created by the uneasy physics of sand, clay and rotting timber all trying to reach the center of the earth. We were forced at some points to install our own timbers across the area, and lie belly-down on our boards while stripping away mixed clay
and sand from 300 year old timbers themselves suspended over air pockets often a meter across.

Compared with the complex tumble of features outside of the well, the excavation of the interior fill was fairly straightforward. The shaft was divided into quarters centered on a point at 20S2W. Section drawings of the fill were updated constantly until the quartered sections were too muddy to support themselves. Screening the juicy muck coming out of the well became a matter of spreading buckets out on sheet plastic and allowing it to dry overnight (weather permitting). The resulting hard mass was hacked through with trowels and shoveled through sifting screens by main force. Wet sifting facilities were an unavailable luxury.

Section drawings of the fill of the well suggest that the well was filled in while the timber platform and its northern hatch were still intact. The surface of Stratum "F" within the well is convex, with a peak directly under the hole left by the timber lattice, sloping away to the south. This convex slope, along with the relative uniformity of the fill, suggests a sudden, intentional infilling episode rather than the gradual, finely striated

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5. I can confidently say this because I did not set foot inside the well for the entire season. For this careful work I am especially indebted to Pete Morrison, as well as Josh Fitzgerald and Matt Parkhouse. This interpretation of the well and associated features owes much to the field journals discussed above.
concave deposit one would associate with abandonment. That the timbers collapsed suddenly very soon afterwards is indicated by an only very slight deposit over Stratum "F" before the entire complex of timbers, clay anchorage and surrounding sand came tumbling in. This sudden collapse trapped large pockets of air under the timbers for the following 300 years.

Strata "I" and "J" from within the well probably represent fluctuations in the water table. Neither stratum ever completely dried out, as witnessed by the fine collection of leather and wood preserved in these strata (See relevant artifact sections). Stratum "J" probably is fine silt filtering in from around the stone lining.

The dendrochronology date of 1663 +/- 9 years for the timber platform sealing the top of the well does not rule out the possibility that the well was actually dug and in use during the 1st Plantation. Wells are often cleaned and refurbished over time, leaving little evidence for their original date. However, we can confidently date the platform and associated clay pad (interpreted here as the flooring of a springhouse) to the 2nd Plantation. If the well were in use before that time, we should expect to find at least a scatter of artifacts dating to the earlier 17th century in and immediately around the well. In archaeology textbooks we are taught to expect a dated coin in the builders trench alongside the well shaft---no such
thoughtful hint was found at Salterstown. Until we know more, a late 1650's-e.1660's date seems most reasonable for the original construction of the well.

**Feature Catalog**

The following is a catalogue of all features excavated on the site, accompanied by a brief description of each, and an index of citations from various field journals and other sources.

Following the catalogue are section drawings of most features. Feature numbers 4, 8, 9, 10, 11, 17, 19, 22, 24, 28, 31, 32, 41, 42, 52, 55, 58, 73, 85, and 86 were found to be ephemeral soil stains which disappear in a sectional view. Features 40, 61 and 82 are stone pads seen best in plan views. Features 16, 68, and 69 are the result of rodent intrusions or tree roots, and are not included in the section drawings. Features 25, 50 and 59 are all associated with clay pad Feature 7; only Feature 7 is included in the section drawings. Finally, plow scar features 48, 65, 70, 71, 72 and 74 are identical in section, therefore the sectional view of feature 65 is the only one included here.

Immediately following the feature drawings is a discussion attempting to resolve these features into a meaningful sequence of human activities.
FEATURES LIST

Feature 1: 13S2-3E, ditch trending E-W, gradually infilled with redeposited S3 and S2A. Originally thought to be a robber's trench associated with F3, now thought to be a lazy-bed ditch. (-62.3cm) dbmd at top of feature. OM6/19, 26; 7/17; PM6/26; 1-11, 19; PC9, 10; photos and artifacts. Artifacts are of mixed date, ranging from "Everted Rim" ceramics to 19th century Whiteware.

Feature 2: 16-10S3-4E, ditch trending N-S. OM7/17; PM3

Feature 3: 13S2E, Large Posthole with stones, recut at least once. (-63.3cm) dbmd at top of feature, (-114cm) dbmd at bottom. PM 1-11, 6/23, 6/26, 17, 19; OM 8/5; PC 7/4-7, 29-32, photos and artifacts. Episode F3a included a 8/64ths Pipe Stem, daub and faunal remains. Episode F3b contained a Edinburgh Pipe bowl dating to no later than 1630, as well as window glass, nails, faunal remains, mortar, plaster and burned wood (See Artifact Catalogue). Artifacts from F3b are interpreted as demolition debris mixed with a scatter of kitchen refuse. Feature 3b therefore represents either a repair during the first Plantation or a 2nd Plantation rebuilding episode incorporating debris from the demolition of the 1st Plantation site. The demolition debris argues for the latter interpretation. The fact that F3b is a reused posthole indicates the possible continuity in site plan between the two periods of the Plantation. See "posthole" discussion below.

Feature 4: 25S3-5E, Soil Stain, possibly from rotting timber, trending E-W. OM 7/13; PC 7/13, no artifacts.

Feature 5: 19S4E, Posthole, stone lined. (-65.2cm) at top, (-92.9cm) dbmd at bottom. OM 7/4; Artifacts include undateable brick and daub.

Feature 6a&b: 19S3E; Posthole, stone lined, recut. (-65.2cm) dbmd at top, (-90cm) dbmd at bottom. MP 7/11, 11, 12, 18; no artifacts.

Feature 7: 17-18S1-3E; Clay Pad, trending E-W, with brick.
Feature 7a: 18S2E; Shallow depression/hole, underneath F7, predating clay pad, OM 7/26, 70. Artifacts include nails, daub bearing wattle impressions, and burned wood. Both F7 and F7a are interpreted as hearths.

Feature 8: 12S2E; Dip in N. profile OM 6/20; no artifacts.

Feature 9: 18-19S0-1E; Same as F17, Soil stain, clay,charcoal mix, perpendicular to F7 trending N-S, may be ghost of rotting timbers... OM 6/21, no artifacts.

Feature 10: 17SSE; Soil Stain, trending E-W, (-59cm) dbmd at top of feature. OM 70-1; PC 19,20, Photos, no artifacts.

Feature 11: 17SSE; Soil Stain, trending E-W, (-59cm) dbmd at top of feature. OM 70-1; PC 19, photos, no artifacts.

Feature 12: 19SSE; Posthole, (-72cm) dbmd at top, (-95.5cm) dbmd at bottom of feature. Om 6/30, PC 19,28; MP 8, photos, no artifacts.

Feature 13: 19SSE; Posthole,(-67.8cm) at top, (-100.3cm) dbmd at bottom of feature. OM 6/30; PC 6/30,19,26,27, photos, no artifacts.

Feature 14: 19SSE; Posthole, (-67.5cm) at top, (-82.5cm) dbmd at bottom of feature. OM 6/30; PC 19,25,26, photos and artifacts. Artifacts include undatable nails, faunal remains, brick and daub.

Feature 15: 16S1-3E; Ditch, gradual infill with redeposited S3 and S2A. (-64.5cm) dbmd at top of feature. OM 6/26,6/27,6/30,70,71; RB 6/26,71, PM 6/26, no artifacts.

Feature 16: 14-15S1E; Ditch, gradual infill with redeposited S3, trending NNW, probably a rodent burrow or tree root, connects F15 and F1. OM 6/27; RB 71; PM 6/26, photos, no artifacts.

Feature 17: 17-18S1E; Soil Stain, trending N-S, perpendicular to both F21 and F15, (-62.5cm) dbmd at top of feature.OM 6/26-8, 70,71; RB 6/26,p71, no artifacts.
Feature 18: 18-19S0-3E; Ditch, trending E-W, another of series of parallel ditches, possible associated with lazybeds. (-61.1cm) dbmd at top of feature. OM 70-1, 6/26-30, 7/3, 7/26, MP 12; PM 55, Photos and artifacts. N.B. Same as F21. Artifacts are of mixed dates, ranging from "Everted Rim" to 19th century Whiteware, and include a relatively dense scatter of brick, daub and slag.

Feature 19a&b: 19S0E; Linear Soil Stains, trending N-S 8" apart. Possibly ghosts of rotted timbers. No artifacts.

Feature 20: 18S5E; Posthole, (-66.2cm) dbmd at top, (-71cm) dbmd at the bottom of feature. MP 9; PC 19. Artifacts include undated brick fragments.

Feature 21: See F18.

Feature 22: 15S1E; Soil Stain in West profile. No artifacts.

Feature 23: 19S1E; Posthole, with repair, (-70cm) dbmd at top, (-95.5cm) dbmd at bottom of feature. OM 6/28, 6/30, 7/3; MP 6. Artifacts include undated brick fragments, faunal remains, nails, daub and burned wood, possibly indicating demolition debris. See discussion for F3 and "Posthole" discussion below.

Feature 24: 19S0E; Linear soil Stain, perpendicular to F18, trending N-S, very similar to F17. OM 6/28, no artifacts.

Feature 25: 17-18S3-5E; Rock and brick bonded in Clay, disturbed lumps trending in haphazard E-W. Probably originally associated with F7, then ploughed. Artifacts include undated brick fragments, faunal remains, and nails.

Feature 26: 20-21S2-3W; Well, stone masonry lined (-131cm) dbmd at top course of stone lining, constructed using assymetrical builders hole, cutting through several earlier features including 44 and 84. Capped with timbers dating to 1664 (+/- 9yrs.). PM 27-46, 61-79; photos and artifacts. Extremely rich artifact density with date ranges which consistently overlap within the last 1/4 of the 17th century, except for 2 unmarked pipe bowl fragments which may date to the early 18th century (See Artifact Catalogue). N.B. "Everted Rim" and Carrickfergus Brownware ceramics occurring
together in a sealed late 17th century context requires revision of usual date range for everted rim tradition (See discussion in "Ceramics" chapter).

Feature 27: 24S3E-3W; Ironpan, probably naturally occurring soil but outside possibility this is heat-fused sand and clay OM 7/5, 7/6, MP 13.

Feature 28a,b,&c: 17-18S1-2E; Parallel Soil Stains, possibly ghost timbers, running E-W (-60.5cm) dbmd at top of feature. No artifacts.

Feature 29: 19S3W; Possible Posthole Ren 5,6. Artifacts include window glass, burned daub, and faunal remains.

Feature 30: 24S2-3E; Posthole KP 91; no artifacts.

Feature 31: 20S1W; Soil Stain, linear, trending E-W, possible ghost timber. PM 33, no artifacts.

Feature 32: 20S1W; Amorphous Soil Stain, may be heat discoloration of underlying S3. PM 33, no artifacts.

Feature 33: 24S0E; Posthole; MP 17,18. no artifacts.

Feature 34: 24S5E; Posthole OM 7/10-11; PC35. Artifacts include undated faunal remains and brick.

Feature 35: 19S3W; Ditch, running NE-SW, rich in e17th century artifacts, cut by and therefore predating F84. OM 7/13-14, 7/18; Ren 8,9; PM 43. Artifacts include an undecorated tin-glaze apothacary jar, and faunal remains.

Feature 36: 24S2W; Posthole, shallow; PC39,40. Artifacts include undated faunal remains and daub.

Feature 37: 24S2W; Posthole; PC 39,40, no artifacts.

Feature 38: 13S5E; Posthole, rectangular OM 7/17,8/5; PC48. Artifacts include an 8/64ths pipe stem, handblown table glass, daub, lithics, and faunal remains.

Feature 39: 24S4W; Posthole; PC 7/17, 42. Artifacts include undated faunal remains.
Feature 40: 19S5W; **Stone Pad**; PM 50, no artifacts.

Feature 41: 19S5W; **Posthole**; OM 70; PM 50, no artifacts.

Feature 42: 20S5W; **Ephemeral Soil Stain** OM 70; PM 50, no artifacts.

Feature 43: 22-23S4-6W; **Ditch**, (-85cm) dbmd at top of feature at 23S5W; OM 7/26, 7/28, 70; PC44; PM 52. Artifacts include 1.17th-e.18th c. Sgraffito and Carrickfergus Brownware ceramics, and faunal remains.

Feature 44: 20S3-4W; **Ditch**, cut through and therefore post-dating (or contemporary with?) F84. OM 71; PM 60. Artifacts include 1.17th-e.18th c. Carrickfergus Brownware, Reduced Greenware, and Faunal remains.

Feature 45: 11-13S0-1W; **Soil Stain**, U-shaped redeposited stained S3, blending into F1 and F75, originally thought to be cap of ditch around raised lazybeds, now unsure because of shallow depth. OM 7/25, 70-1. Artifacts include Hard-Red Striated Redware of uncertain date.

Feature 46: 11S0E; **Posthole**. OM 70-1, no artifacts.

Feature 47: 12S0E; **Posthole**, redeposited subsoil in fill. OM 70-1, no artifacts.

Feature 48: 12S2E-1W; **Ploughscar**. Artifacts include a 7/64ths pipe stem.

Feature 49: 18S3E; **Clay deposit** with S2a and brick, possibly associated with F7, F50, and F25 as part of built hearth. OM 7/26, 70; PM 55; KP? no artifacts.

Feature 50: 17S3E; **Brick and Clay Pad** OM 6/27, 7/26, p70; PM 55. Artifacts include window glass, Faunal remains, Brick fragments, and mortar; taken together they represent demolition debris.

Feature 51: 23S3-5W; **Contact edge**, Ironpan and S3, no artifacts. Bears further thought, check field drawings.

Feature 52: 5-7m; **Linear Feature/Ditch?**, Trending E-W. OM 8/3; PC49, no artifacts.

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Feature 53: 7-9m; Trash Pit. (-82cm) dbmd at top of feature. Probably intended from start as trash pit. PC 8/2-8/5; 49, 50; Rich artifact density, including faunal remains, window glass, nails, daub, ceramics, pipe stems ranging from 6-9/64ths, and a late 17th century Knife blade; N.B. "Everted Rim" and Carrickfergus Brownware ceramics occurring together in a sealed late 17th century context requires revision of usual date range for everted rim tradition (See discussion in "Ceramics" chapter).

Feature 54: 9-10m; Pit or Ditch?, OM 70; PC 49, no artifacts.

Feature 55: 3-4m; Soil Stain or Ditch, linear, trending E-W, PM? Artifacts include combed-slip ceramics of 117-18th century date.

Feature 56a+b: 14S1W; Posthole, (-59cm) dbmd at top of feature. Lines up with F3 and F7. OM 8/4, 8/5, p70. Artifacts include undated faunal remains. 56b is cut by 56a.

Feature 57: 14S3-4W; Trench, stone filled, running E-W, (-65cm) dbmd at top of feature. OM 8/5; JF 19-20, 8/5. Artifacts include window glass and faunal remains.

Feature 58: 20S3-4W; Posthole (debunked) PM 77, no artifacts.

Feature 59: 17S5E; Clay topped Posthole?, in association with F10. no finds.

Feature 60: 17S5E; Posthole, capped with clay. OM71; no finds.

Feature 61: 17S3-4E; Stone Pad Set flush. no finds.

Feature 62: unassigned

Feature 63: unassigned but 19S3E artifacts include faunal remains and brick fragments(poss 6a or 6b?)

Feature 64: unassigned

Feature 65: 5S1E-2W; Ploughscar, 51cm dbld 4S0E at top of feature, 57cm dbld at bottom; section OM p68; no finds.
Feature 66: 5-6S1W; Soil Stain (debunked), p68

Feature 67: 5S1W; Posthole section p68, 51cm dbld 4S0E at top of feature, 71cm dbld at bottom; no finds.

Feature 68a&b: 6S2W; Ploughscar and Tree Root, section p68. Artifacts include Sgraffito ceramics.

Feature 69: 5-6S0E; Tree trunk mold, p68, no finds.

Feature 70: 6S2W-0E; Ploughscar, section p68, 57cm dbld 4S0E at top of feature, 62cm dbld at bottom. Artifacts include Sgraffito ceramics and faunal remains.

Feature 71: 7S1W-1E; Ploughscar, section p68, 56cm dbld 4S0E at top of feature, 61cm dbld at bottom; no finds.

Feature 72: 8S0-1E; Ploughscar, less than 3cm deep; no finds.

Feature 73: 7S1E; Posthole (debunked); no finds.

Feature 74: 10S0-2E; Ploughscar, 47cm dbld 14S3E at top, 49cm dbld at bottom; no finds.

Feature 75: 10S0-2E; Ditch, section p68; 47cm dbld 14S3E at top of feature, 72cm dbld at bottom; trending E-W parallel to F1, another possible lazy-bed trench. Associated with F45. No finds.

Feature 76: 13S6E; Ditch, shallow and running N-S, some water-born striations in associated soil, section p68; 55cm dbld 13S4E at top of feature, 62cm dbld at bottom, no finds.

Feature 77a&b: 18-19S1W; Posthole, recut, OM 8/4; OW 7,10, artifacts. 77b cuts 77a. F77a contains window glass; F77b contains faunal remains.

Feature 78: 14-15S2W; Shallow Ditch, trending N-S, OM 70 Artifacts include faunal remains and bottle glass. Possibly same as F35 to the south.

Feature 79: 5S1E-2W; Ploughscar, 49cm dbld at 4S0E, 54cm dbld at bottom. section p68, no finds.

Feature 80: 16S3E; Posthole; N.B. Under F15, Bone and brick in notes but not in catalog, substantial depth.
Feature 81: 16S5E; Posthole OM 6/27, no finds.

End of Features assigned in the field.

Feature 82: 19S3-4W Stone Pad, OM #??, JF 18 no finds.

Feature 83: 24S2-3E; 21S2W, 21S5W; White Wispies, water borne striated wisps of S3 carried through S2 (add prov.'s as nec) PM57, OM 40,47; KP 89, MP 14,15,16,23; PC 42,50; no artifacts.

Feature 84: Clay around well; OM 43-4,46-7,49,51; PM 7/25,7/26,8/2, 33-5, 48, 60. MP 18, 24-31; OW 4,5; PC 43-7. Artifacts include 7/64ths pipe stems, late 17th-e.18th century ceramics, window and bottle glass, nails and other architectural hardware, faunal remains, daub, wood, brick, and an e.17th century knife blade. (See Artifact Catalogue under "F26.clay" and "F26.below clay").

Feature 85: Ditch running WSW between 3M and 4M, with stones. PM59

Feature 86: Ditch running WSW at 10M, cuts F54. PC,late.

Feature 87: Charcoal/Ash Deposit 13-14S3-4W, high density of Faunal material, catalogued by standard grid reference.

Feature 88: Charcoal/Ash Deposit 18-21S4-6E, high density of Faunal material, catalogued by standard grid reference.

Unnumbered Features: Puncheon holes running E-W across 5-9S2E-2W.
Figure 42
Features 1 and 2.

Feature 1 Facing West, 12-13S2E

Feature 2 Facing North 14S3-5E

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Figure 43 Features 3 and 5

Feature 3 facing S, 1382E, recut posthole.

Feature 5 facing NW, posthole, 1954E
Figure 45 Features 12, 13, and 14.

Feature 12, 1955E, facing NE, posthole

Feature 13 + 14, 1955E, facing S, postholes
Figure 46 Features 15, 20, and 80.

Feature 15, 1652E, facing E, cutting F80

Feature 20, 1855E, facing W
Figure 47 Features 21, 23, and 29

Feature 23, 1951E, facing W, cut by F21

Feature 29, 1953:4W, facing S
Figure 48 Features 30 and 33

Feature 30, 2453E, facing W, with postmold.

Feature 33, 2453E, facing S, South.

Scale: 1m
Figure 49 Features 34 and 35

Feature 34, 2455E, facing NE, posthole

Feature 35, 1953W, facing N, trench

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Figure 50 Features 36, 37, and 38

Feature 36, 37, 38, facing W

Feature 38, 1355E, facing E
Figure 51 Features 39 and 43

Feature 39, 2454W, facing N

Feature 43, 232456W, facing W

A & B are 2 episodes of flooding; the "White Wispies"
Figure 52 Features 45, 46, and 47

Feature 45, 115øE, central area unit, associated with F4 and F75

S.1

S.2

F45 S.2

Feature 46, 115øE, facing S, possible hole

S.1

S.2

F46 S.3

Feature 47, 125øE, facing E, posthole

S.1

S.2a

S.3 F47 S.3

-0.63m adbmd

-0.80m adbmd

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Figure 55 Features 10, 57, 60, and 87

Feature 57, 145W, facing N

S.1

S.2

S.3

Ash et F87

S.4

note: ash deposited against standing feature

Feature 60, 172.5E, facing E

S.1

S.2

S.3

F10

F10 is a plow-scar

1M

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Figure 56  Features 65, 67, and 75

Feature 65, S52W-1E, plow-scar, facing E

s1

s2

s3

Feature 67, S51W, possible, cut by F65

s1

s2

Feature 75, 1050'-2E, associated with F45, 'Lazybed' facing E

s1

s2

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Figure 57 Features 21, 76, and 77

Feature 76: 1326E, 3anc.12, water-drawn fill...

S.1

S.2

S.3

Feature 77a & b, 1311-11, facing W, b cuts a...

S.1

S.2

S.3

S.4

--- -1.75m dbmd

--- -1.10m dbmd
Figure 58 Features 78 and 81

Feature 78, PS1, Phase 1, Feature 81, Phase 1

Feature 81, PS2, Phase 2, Feature 81, Phase 2
EVIDENCE FOR STRUCTURES

The Postholes

Working on the assumption that if you look hard enough at even the most random phenomenon you will eventually believe that you see a pattern (such is the history of science), I encourage skepticism when trying to interpret the features on this site. That goes double for the postholes [See Figure 59]. However, having stared long and hard, I have convinced myself of a pattern, and I shall now try to convince the reader that the pattern I see is the product of intentional 17th century activities, rather than that of my own mind.

In a seemingly random array of postholes, those which are related will have artifacts of similar date in their fill, and will be dug to similar depths in order to distribute and carry loads symmetrically. In a situation where original occupation surfaces have been repeatedly disturbed (as at Salterstown), related postholes will also begin at similar depths. In practical terms, repeated ploughing has leveled most of the tops of the features to similar depths; it is doubtful that any features on site retain their original height, except possibly the stone lining of the well [F26].

The following table displays all vertical proveniences for post-holes. All depths are in cm below main datum, 1st
Figure 59 All postholes.
at the surface/top, then at the bottom, and finally by the difference between top and bottom.

Posthole Comparisons, in cm.
F# top bot. diff.

F3 63.3 114 50.7
F5 65.2 92.9 27.7
F6 65.2 90 24.8
F12 72 95.5 23.5
F13 67.8 100.3 32.5
F14 67.5 82.5 15.
F20 66.2 71 4.8
F23 70 95.5 25.5
F29 80 104 24.
F30 79 98 19.
F33 85 105 20.
F34 35 108 73.
F36 86 96 10.
F37 87 124 37.
F38 54 87 33.
F39 77 117 40.
F40 66 Stone Pad
F46 59 76 17.
F47 63 80 17.
56A 79 109 30.
56B 59 92 33.
F60 63 76 13.
F67 52 72 20.
77A 74 107 33.
77B 77 110 33.
F80 ? ?
F81 63 76 13.

As expected, the postholes do not fall into ready groups by similar top and bottom measurements, since the original top surfaces of these features are now long gone due to repeated ploughing. However, the postholes do cluster at different depths at their bottoms into roughly three groups; those <95cm dbmd at bottom, those between 95-105cm depth below main datum (dbmd), and those >105cm dbmd at the bottom. Some of the deepest postholes are those farthest downhill from the main datum. To control
for this somewhat, another group clustered tightly between 105-110 cm dbmd is illustrated. These depths are remarkably similar when you consider the vagaries of excavation, soil color change, and the usual measuring and mapping discrepancies which creep into a site late in the field season. These features were usually more than 13 m from the main datum.

Each of these clusters have been illustrated in the following Figures [See Figures 60, 61 & 62]. Since some postholes fall near the values dividing groups (for example "95 cm"), these features are included in more than one group. Postholes which were recut to different depths will also appear in more than one group.

As a guide for teasing a pattern out of the distribution of postholes across the site, I cut a series of mylar templates to the dimensions provided in the 1622 Phillips/Hadsor survey (in feet and inches) of the houses surveyed. Each template was made to the same scale as my master site plans. I could then overlay the templates across the site plans at various alignments, trying to line up features into actual structures. The following is a discussion of the result when the templates where positioned over postholes which were already found to be related by their depths.

Postholes of <95 cm dbmd do not form a pattern, and I make no claims for them as independent evidence for
Figure 60 Post Holes 95-105, depth below main datum.

Postholes - 95-105 m depth below main datum
at bottom
Figure 61 Post Holes greater than 105m dbmd.

- Postholes deeper than -1.05m depth below main datum at bottom

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Figure 61

Postholes 105 and deeper
Figure 62 Post Holes 105-110 dbmd.

- Clay
- Linear feature with 2x fill (and stones)
- Ash and charcoal deposit
- Posthole
- Reposed subsoil (wet clay?)

Postholes between -1.05 to -1.10 m depth below mean datum
at bottom.
structures. They may provide supporting evidence taken with other information.

At first blush, the postholes 95-105cm deep seem to form two parallel lines with an E-W long axis at 19S and at 24S [See figure 60]. However, it is extremely unlikely that this E-W pattern forms a structure, for the following reasons; there are no bays formed by an alignment of postholes, there is no evidence for a hearth, and the well (F26) cuts across what would appear to be the gable end of the structure. I therefore reject this alignment as a possible structure.

The postholes >105cm deep also seem to form a pattern [See figure 61], this time a rectangle missing its NE corner, a corner supplied by another posthole (F38 at 13S5E) too shallow to be included with the rest of this group. This pattern has a N-S long axis. For reasons discussed above, this cluster was additionally narrowed to those postholes 105-110cm deep. This more narrowly defined group preserves the pattern noted above [See figure 62]. Note that everywhere a posthole is missing from the pattern made by the highlighted cluster, an unhighlighted posthole is still available.

The dimensions of this possible structure would have been approximately 18x36 feet, considerably different from any of the Phillips/Hadsor dimensions. However, these figures are not unlikely for the dimensions or included
volume of a later 17th century dwelling. This is one indication that the structure post-dates the first Plantation occupation.

Several other tests have been devised to determine if this pattern is truly the remains of a structure. First I wanted to double check that these postholes were truly related. There was still a built-in distortion in the clustering of depths due to the slope of the site away from the main datum, making farther postholes appear deeper. Therefore the differences between the surviving top surface and bottom of each posthole were compared, to establish relative depth. Two consistent clusters emerged.

The first cluster was composed of postholes with approximately 33cm difference top to bottom. These formed a rough square preserving the northern 1/2 of the rectangle observed above [See figure 63]. Note that two of these postholes were not included in the original 105-110cm dbmd group. The new postholes, related by there relative depths, serve to complete the original rectangle [See figure 62].

The second cluster of relative depths was composed of postholes with approximately 25cm difference top to bottom [See figure 64]. These postholes form a nearly straight line of substantial posts neatly dividing our now complete rectangle into two rooms.
The rough square composed of postholes with approx. 33cm difference top to bottom can be partially generated by a
Figure 63 Post Holes with 33cm difference top to bottom

Postholes with 33cm difference top to bottom
Figure 64 Post Holes with 25cm difference top to bottom.
different strategy. By plotting the distribution of all post-holes on the site which have been re-cut at least once, the same floorplan is replicated [See figure 65]. These post-holes include Features 3a+b, 6a+b, 23a+b, 56a+b, and 77a+b. Note that even within this smaller square structure, there is a possible hearth area (F7/7a), now on the south (gable?) end.

The recut post-holes must represent either a repair during an extended period of occupation, or a rebuilding episode following a demolition. Either way, we are looking at a sequence of sealed contexts. Such a sequence is only found in one other place on the site, the hearth area (F7/7a) occurring within the footprint of the recut post-holes. This relationship is all the more exciting when we compare the artifacts found in related post-holes. Three of the five recut post-holes (F3b, 23b, 77b) contain demolition debris, while F3b contains a marked pipe bowl dating to no later than 1630. This represents strong evidence for a 1st Plantation date for the first (unrepaired) post-holes; the demolition debris may indicate a rebuilding episode rather than a simple repair.

So much for the post-hole evidence. Taken by itself, this line of evidence is intriguing but inconclusive. Two other lines of inference are now brought to bear. First is the hitherto unexplained presence of a clay pad (F7) at 18S1-3E, which seems to taper off unevenly in an arc of
Figure 65 Recut Post Holes.

- Clay
- Linear feature with RA fill (and stones)
- Ash and charcoal deposit
- Posthole
- Re-deposited subsoil (lazugado?)

All recut Postholes
displaced rubble running NE out of 18S3E [See master site plan: Figure 35]. This feature survives as two distinct episodes, the first a shallow depression of discolored sand filled with fire-cracked rock and burned wood [F7a: Figure 44]. The second episode was laid directly over the first [F7], and is a pad of erratically fired clay with straight sides and a smooth flat surface which has been cut to the south by the intrusive F21. This clay pad is now interpreted as the remains of a slightly assymetrically placed central hearth, probably of the suspended chimney-hood variety. Such a chimney would not require the substantial brick chimney base associated with English brick fireplaces, but would require the hefty cross beams of a nearby bay for suspending the hood. The relatively high density of partially baked wattle-impressed daub recovered from in and around F7 supports this interpretation. The uneven tapering of the feature to the east may be the vestigial remains of a baffle entry or "jamb-wall" built adjoining the hearth in the 1.17-e.19th century Scots-Irish vernacular tradition (Robinson,1983:49). The final line of evidence comes from a third independent source, the distribution and density of architectural debris and architectural artifacts across the site. This includes daub, mortar, plaster, bricks, hand-forged nails and roves, roofing slate, window glass and window leads. The distribution of each of these
artifact types is plotted separately, and is included in the Appendix. Note the high concentration of daub and bricks in the hearth area, and the distribution of roofing slate almost exclusively within the post-hole rectangle.

As an early test for structural remains, each of these distributions was plotted again onto transparent film, then they were overlaid to generate a visual image of the distribution of all architectural debris across the site. A striking pattern emerged [See Figure 66]. The total architectural debris clustered into three distinct areas, one around the well (F26), one around the trash pit (F53) and one closely matching the rectangle created by our posthole alignments presented above. A fourth, less dense area at 12-14S3-4W is also discernable. This area is also thick with ash and kitchen refuse [See "Kitchen Refuse" above].

The distribution of Stratum 2A across the site, discussed above, closely matches with the distribution of architectural debris, implying that the structure may have been destroyed by fire.

The "lazy-bed" features coincide suspiciously with the footprint of the structure, hinting that these intrusive 19th century ditches were actually robbers trenches pulling out the more substantial evidence for a ruined

7. This technique is analogous to trendy computerized "geographical information systems" (GIS's), producing essentially the same information on a much lower budget.
structure,
Figure 66 Overlay of architectural artifacts; Distribution of all Architectural Debris including Nails, Window Glass, Slate, Brick, Daub and Roves.

Count by 1x1m excavation unit, =5 items

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perhaps even a mass-walled structure with postholes bearing the load of the roof. I suppose it is theoretically possible for a cruck-type structure to have its couples set into postholes, with non-loadbearing massed walls between. However, I have never heard of such a structure, and there is no evidence for mass walls around the footprint described by the postholes. I think it is more likely that the 19th century intrusions were the product of raised-bed gardening, and were positioned to take advantage of the rich S2a deposits prevalent in that area of the site.

In review, we seem to have a series of postholes of related depths which form a rectangle of dimensions consistent with late 17th century domestic architecture (though not that of the original occupation). Of the 9 deepest postholes on the site, 6 are accounted for in this structure. Comparing the relative depths of the postholes, one set completes two of three known bays, while another set divides the structure into two rooms. The postholes create two gable ends and a middle bay. Additional bays may have been present in the unexcavated units of the site. Posthole F81, 16S5E, may represent one side of such a bay. Within the rectangle is a hearth area. The highest density of architectural debris on the site corresponds with the dimensions of the posthole pattern.
If the reasoning above is correct, we are now looking at a square structure measuring approx. 18'x 18' with a small fire pit against one wall. This structure was subsequently modified to include an additional room to the south, creating a structure 18'x36', with a larger hearth area (now centrally located), and a recut of 5 of the original postholes. These modifications represent either repairs to an intact structure or the rebuilding of a ruin in accord with an earlier homelot plan. Demolition debris found in the recutting episode of three of the postholes strengthen the rebuilding interpretation.

If we accept the evidence above for a domestic structure it poses interesting consequences for the rest of the site. First, it should be noted that the smaller square structure probably dates to the 1st Plantation, while the larger structure superimposed upon the first dates to the second, late 17th century occupation. The larger dimensions are consistent with that later date. By way of negative evidence, neither structure outlined precisely matches the dimensions of the Phillips/Hadsor survey of 1622. If the smaller square structure is from the first plantation, it may be the 16'x16' structure referred to in the 1622 survey. If the larger structure dates to the second occupation, the well (F26), dated to 1663 (+/-9yrs) would have been immediately out the back door to one side, the kitchen refuse of 12-14S3-4W would
have been out the back door to the other side, while the trash pit (also of later 17th century date), would have been a short walk directly behind the building. The rich deposit of faunal remains and charcoal/ash at 19-21S4-5E would have been directly out and to the side of the front door. This accounts for several of the major features of the site in a manner consistent with known 17th century disposal patterns.

The extensive cobbling found in units 19S6-9E suggest that either the structure was built directly adjoining the street or else enjoyed a cobbled front yard. Water-driven striations in the soil running N-S at 13S6E may now be interpreted as either run-off from the drip-line of the eves, or more likely a shallow gutter running between the structure and the roadbed (see figure 35).

The interpretation outlined above has the distinct advantage of accounting for a great number of the features on the site within a single framework. The biggest disadvantage is simply that this interpretation is not immediately obvious when glancing at a plan of the site, making me extremely wary of staking my fledgling professional reputation upon it.

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8. For a thorough discussion of 17th century English colonial household disposal patterns in North America, as recognized by plough-zone artifact distributions, see articles by T. Riordan and D. Pogue, 1988.
My second misgiving is architectural. Those familiar with posthole structures will have spotted my problem already; impermanent earthfast structures do not normally have posts midway across the gable ends. Such a post would have been unnecessary when using coupled bays. At least three other published impermanent 17th century colonial structures have half-bays at the gable ends; all are in North America [See Figure 67]. The Kingsmill Tenement II in James City County, Virginia; the Utopia Leasehold, also at Kingsmill, and the Warehouse at Flowerdew Hundred, Prince George County, Virginia (Carson et al., 1988:127-8,132). The Utopia structure dates from c.1660-1710; the Flowerdew warehouse was built c1619-30, while the Kingsmill Tenement II dates from c.1625-50. In other words, this variation has been found throughout the 17th century in Virginia. Timber framed buildings resting on conventional timber sill-plates often have a load-bearing vertical post midway across the gable ends. These are technically referred to as "prick posts" [See Figure 68] (Cummings, 1979:53). It is no great leap of faith to imagine the builders of earthfast structures simply letting the prick posts into the ground along with the bays, suggesting an interrupted sill construction technique.

The concept of a suspended firehood was commonplace in 17th century Ulster. However, the firehood has been
Figure 67  Excavated English 17th century Earthfast structures with prick-posts at gables (Carson et al. 1988: 127-8,132).

A: Kingsmill Tenement II, Virginia
B: Flowerdew Warehouse, Virginia
C: Utopia Leasehold, Virginia
Figure 68 Timber framing terms: Note "Prick-post" at Gable end (Cummings, 1979: 53).
Figure 69 Suspended Firehood with Jambwall, Smith's Ordinary, Saint Mary's City (Miller, 1986:72).
associated with the mass-walled architecture of the Scots and Northwest Counties of England, and does not appear in the literature with post-hole architecture in Ulster [See discussion in "Architecture"].

Posthole structures with suspended firehoods do occur in the later 17th century in Virginia and Maryland, particularly where settlers from the Northern Counties built [See Figure 69] (Miller, 1986:72). These settlers chose to build in wood, despite their vernacular heritage of mass-walled structures. There is a simple environmental explanation for this—wood was plentiful and inexpensive. This is precisely the same argument made by Brook Blades when he sought to explain the distribution of timber cagework versus stone dwellings appearing in the records and Raven maps of the Phillips/Hadsor survey of 1622 in County Londonderry. Where wood was plentiful, as at Salterstown, the buildings were of timber (Blades, 1981).

It is therefore not inconceivable that some of the many Scots and North Countrymen known to have settled Co. Londonderry chose to build in wood, while preserving the vernacular tradition of an open hearth with suspended firehood.

If one accepts this premise, then at least 26 otherwise independent features on the Salterstown site are immediately explained.
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The Salterstown Ceramics

Since Salterstown is largely a plow-zone site, most of our ceramics were in coin-sized sherds; 300 years of plowing effectively pre-empting our chances of finding romantic, displayable whole vessels. However, what we lost in sherd size the site repaid in ceramic variety.

I agree in principle with Cunningham and Drury (1985:3) and Hurry and Miller (unpub. 1989:1) that the most reliable basis for the classification of post-medieval ceramics is vessel form. However, the Salterstown collection does not afford that luxury, and I am forced to rely heavily on analysis of ceramic fabrics. I have included vessel form typologies from several authors for most of the wares defined, and have drawn what analogies the Salterstown collection allows.

The following is an historical discussion of each category of ceramic identified for analysis. Introducing the discussion of each ware I have included a single-spaced technical description of the actual sherds found at

1. I am indebted to Henry Miller and Silas Hurry of Historic St. Mary's City for allowing access to their splendid study collections, and for the hours of time they spent discussing ceramics with me on several visits to Maryland. I am also in debt to Nick Brannon of the D.o.E. of Northern Ireland for generously sharing his collection of ceramic study samples with me, and to George Miller for identifying several of my 18th and 19th century wares in a timely manner. Dr. Patrick McGovern of MASCA, University Museum, Philadelphia was helpful in describing potential kiln variations in ceramic production. I take full credit for any misunderstandings evident in the following discussion.
Salterstown. Wares not recognized from the literature are not given names unless more than one vessel has been identified. This is intended to control partially for the tendency to grant spurious identities to variations due to kiln mistakes. All colors are described with Munsell color codes.

At Salterstown, from a total of 1,103 sherds, 39 distinct fabric types are definable. If details of glazing and decoration are accounted for, these numbers jump to 72 definable sherd variations, from an estimated minimum of 178 vessels. These varieties are broken down by ware type in the accompanying graph [See figures 70-71]. As the graph illustrates at a glance, these numbers are greatly inflated by the many varieties of decoration available from Staffordshire in both the 17th and 18th century, and by the vagaries of glazing quality present in the more utilitarian earthenwares. Using the chart as a guide, each ware is discussed in turn below.
### Figure 70 The Salterstown Ceramics

The total ceramic finds have been broken down into the following categories for analysis.

<table>
<thead>
<tr>
<th>Category</th>
<th>% of Sherd</th>
<th>% of Nets</th>
<th>% of Hil</th>
<th>% of Hil</th>
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<td>.5</td>
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<td>.7</td>
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Figure 71 Salterstown Ceramics List continued.

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18th-20th century Mass-Produced Faux-China Wares

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<tr>
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<td>Relief Decorated</td>
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<tr>
<td>Yellow and Brown Transfer Print</td>
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<td>Aqua Transfer</td>
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<td>Blue and Brown Floral Hand-Painted</td>
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<td>Pink-on-White Relief Molded</td>
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The Stonewares

Remarkably little stoneware was found on the site. (only 48 sherds total). There was late 17th century Rhenish Grey saltglaze, Brown saltglazes (of both 18th century British and 17th-18th century Rhenish provenance), 18th century English White saltglaze, and two unique wares here named "Salterstown Purple-Striated Paste" and "Salterstown Speckled Paste", as well as several as-yet unidentified single stoneware sherds.

**Rhenish Brown Sherd Count: 4 Min.Vessel: 1**

**Paste:** Stoneware, light grey (10YR7/1) at the break, interior of closed forms often takes on a rose blush at the neck (2.5YR6/2) "pale red", very fine texture.

**Glaze:** Salt glaze over a mottled brown iron-bearing wash on the exterior (10YR4/3 to 10YR5/6) "brown" to "yellowish brown".

**Deco:** None on Salterstown specimens; others of type often have diagnostic Bellarmine Bearded Man motif on shoulder.

**Forms:** Closed Bellarmine-type bottle, ([See Figure 79 and Cunningham D11#53].)

**Note:** Date 1560's-1700 (Gusset, 1980:158), probably produced at Raeren.

**Rhenish Grey Sherd Count: 2 Min.Vessel: 1**

**Paste:** Stoneware, light grey (10YR7/2), very fine grained.

**Glaze:** Salt glaze on both surfaces, over a blue cobalt decoration on exterior.

**Deco:** Multiple horizontal bands along base, applied sprig-molded cartouche.

**Forms:** [See Cunningham and Figure 79] Probably both sherds from same tankard form Cunningham D10D#52 in Cunningham).

**Note:** Presence of applied rather than incised cartouche indicate a probable 17th century date. Probably from Kreussen or Hohr-Grezhausen (Gusset, 1980:150,157).
Figure 72 Cunningham Rim Typology (Cunningham and Drury 1985:2).

A Plain:
1. Round-topped; 2. Flat-topped; 3. Internal bevel; 4. External bevel
B Thickened:
1. Plain rounded; 2. Flat-topped, thickened on both sides; 4. Pointed thickened
C Bead:
1. External bead or rounded flange; 2. Large grooved bead
D Cavetto:
E Flanged:
F Bifid:
1. Lid-seating; 2. Hammer-headed
J Scalloped:
1. Piercet; 2. Scalloped
K Collared:
1. Simple; 2. Reeded or cordoned
L Composite

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Figure 74 Cunningham Vessel Typology (Cunningham and Drury 1985:4).
Figure 75 Cunningham Vessel Typology (Cunningham and Drury 1985:5).

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Figure 77 Cunningham Vessel Typology (Cunningham and Drury 1985:7).
Figure 78 Cunningham Vessel Typology (Cunningham and Drury, 1985:8).
Figure 79 Salterstown Stone Wares.

Rhenish Brown Stoneware
Bellarine Neck

Rhenish Gray Stoneware, Tankard Base & Eschulhorn

British Brown Stoneware, Tankard
Figure 80 Salterstown Stone Wares.

Vertically Incised White Salt-glazed Stoneware

Undecorated English White Saltglaze

5cm
Figure 81 Salterstown Stone Wares.
Figure 82: Gusset's Stone Ware Chronology (Gusset, 1980:158).

Chronology of the principal types of Rhenish stoneware

- Brown-glazed, sprigged and stamped Cologne-type stoneware
- Brown bellarmine with well-molded human face
- Brown bellarmine with deteriorated face (one example dated to the 1760s)
- Gray ware with sprigging, combed lines, blue and purple enamelling
- Embellished Hohr gray ware
- Westerwald gray ware, stamped blue floral devices, geometric designs
- Westerwald gray chamber pots

* Source: South 1971, Ceramics analysis tools (Table appended to article), "Evolution and Burial as Revealed in Ceramic Analysis" in Historical Archaeology.
Chronology of stoneware production at principal centres

SIEGBURG
white ware; sometimes unglazed; gray ware

RAVEN
brown ware; later, gray ware

colombo
brown ware

FRECHEN
white and brown ware

KREUSSEN
gray ware, enamel work

HÖXEL-GRONSHAUSEN
gray ware, enamel work
(Neukirchen)

FIRST ENGLISH WARES

ENGLISH SOVEREIGNS

Gusset's Stone Ware Chronology (Gusset, 1980:150)
The terms "Brown" and "Grey" stonewares refer to the surface color of the wares, not the color of the paste at the break of a sherd. Indeed, a potter could have used the same paste for each ware; by applying an iron-rich wash before firing, and then firing in an oxidizing atmosphere, Grey stoneware "becomes" a Brown stoneware. Since it is hard to control variations in atmosphere in the kiln, Rhenish potters tended to try and use a reducing atmosphere to minimize the "brown" effect (Gusset, 1980:144).

The characteristic salt-glazing is produced by throwing salt into the kiln at peak temperature. Heat volatizes the salt, then soda in the salt combines with alumina and silica in the clay to produce a thin vitreous coating with an "orange peel" surface texture (Mountford, 1971:xvii).

Both Brown and Grey Rhenish stonewares were developed in the 16th century from local industries in and around Siegburg (misnamed Cologne-ware), Raeren, Cologne, Frechen, Kreussen and Grenzhausen ("Westerwald"-wares) (Gusset, 1980:140-141). [See Figures 82 & 83].

The Brown stonewares were primarily from Raeren and Frechen, and tend to be more sparsely decorated than the Grey wares. The Brown wares may slightly predate the Greys in popularity, if not in actual development, and are usually of a distinctive bottle form. The so-called Bartmann or Bellarmine bottle form (two names for the same
thing) is named for the diagnostic relief of a bearded man's face on the shoulder of these bottles. The face is traditionally associated with a Cardinal Roberto Ballarmine (1542-1621), who attempted a counter-Reformation movement in the Low Countries. His timing could not have been worse, hence the satirical caricature on most of the ale and wine bottles in circulation for the period. The bearded man motif actually pre-dates the life of the unfortunate Cardinal, but the term Bellarmine was in use during the period, and should remain (Ibid.:147).

Bellarmines were used for wine exports, England being the principle market. Bottles were of standardized sizes, referred to as little pots (half quarts), pots (quarts), pottle pots (2 qt) and gallonier (gallons). In England, bellarmines of the 17th century were thought to have prophylactic properties against witchcraft and bad luck, possibly because of their anthropomorphic decoration (Ibid.:148). Holmes created a chronological seriation of styles for the bearded man motif; nine types running from the 1560's through to 1800 (Holmes, 1951:173-9).

Grey stonewares are first documented in 1614, although they almost certainly predate that production run. Grey stonewares have been found in North American contexts as early as the 1630's, yet are more often found in the second half of the 17th century. Production peaked during this latter period, yet continued at decreased levels
through the third quarter of the 18th century. Grey stonewares were apparently first produced in the Westerwald region around Grenzhausen. The potters at Raeren switched from producing Brown stonewares to Grey in the mid-17th century as demand increased (Gusset:149,157). At Hohr, grey stoneware production tends to date from the last quarter of the 17th century (Watkins,1960:37).

Grey stonewares were vigorously decorated with large medallions around the center of the piece, each with borders of frets, garlands, chains or festoons applied by sprig-molding. Necks and shoulders were often decorated with fillets/ grooves, probably created by a wooden template held against the still spinning pot.

The Grenzhausen Gray wares fall into two distinct periods of decoration; Grenzhausen I is the older, with sprig-molded decorations connected by sweeping comb-incised parallel lines. Around the 1680's this style is replaced by Grenzhausen II, with only incised decorations and stamped cartouches of English monarchs, complete with the appropriate initials; "WM" Wilhelmus Rex-c.1691 or later, "W III" 1694-1702, "AR" Anne 1702-14, "GR" various 18th century Georges (but possibly "Guilhelmus"-an earlier William) (Gusset:150). I suspect that sprig molded decoration continued into the 18th century at other Rhenish potteries.
Most of the grey stonewares were additionally decorated with blue cobalt, applied to the designs with a rag with varying degrees of precision. After 1660 an additional purple color was used alongside the blue by applying manganese (Gusset, 1980:157). Manganese will only yield purple if fired in a reducing atmosphere, which is why you will never find it on a brown stoneware.

**British Brown Stoneware**  
*Sherd Count: 1  Min.Vessel: 1*

**Paste:** Stoneware, dark grey (10YR5/1), very fine texture, unglazed interior fired to a yellowish brown (10YR5/6). Pronounced throw-rings on interior.

**Glaze:** Salt glaze over even-coated wash of dark yellowish brown (10YR4/6-4/4) with occasional darker flecks, glazed on exterior only.

**Deco:** Incised bands combed into acute angles, in other examples wash only extends along upper body (Noel-Hume, 1972:112).

**Form:** Probably a tankard/ mug [See Figure 79].

**Note:** Date c.1710 for analogous piece from St.John's Church, Burslem (Mountford, 1971:Plate 6).

It is difficult to distinguish Rhenish Brown stoneware from the English Brown salt-glazed stonewares produced in the last decades of the 17th century and the early 18th century. These English wares were produced primarily in Nottinghamshire and Staffordshire using a ferruginous wash and salt glazing in imitation of the older German product (Mountford, 1971:xvii).

The first patent for English salt-glaze stoneware was filed by John Dwight at Fulham in 1671, although significant production did not occur until the 1690's under Oswald in Nottinghamshire (George Miller, unpub.).
presentation 1990) and under John Astbury in the 1720's in Staffordshire (Gusset,1980:12). Dwight had to figure out both the salt-glazing techniques of the Rhenish wares, and invent a paste capable of withstanding the high firing temperatures of a stoneware. He eventually hit on using burned (calcined) crushed flint in an earthenware paste. Calcined flint had previously been used as a cheap substitute for kaolin to create the pale white slip used in decorating earthenwares (Gusset:13).

English stoneware developed in competition with the older Rhenish stonewares, the finer white Oriental Porcelains, and the Dutch and English tin-glazed earthenwares (which were also imitating the porcelains). As a result, the industry went in two directions, one seeking a satisfactory brown iron wash salt-glaze, and the other looking for as purely white a product as possible. Oswald in Nottinghamshire developed the English Brown salt-glaze stoneware. Production subsequently spread to Staffordshire (George Miller, unpub. presentation 1990).

The English Brown salt-glazed ceramics tend to be more finely potted than the Rhenish, often occurring in a mug form with straight sides. The English pieces are very rarely sprig-molded, although comb-incised annular cordons are fairly common (Above courtesy of S.Hurry and H.Miller; personal communication). On many English pieces the iron-bearing wash is only applied over part of the vessel,
creating a two-toned effect with the brown iron-wash above and either the off-white/ buff stoneware itself or a white slip appearing below, the whole then covered with a salt glaze.
Undecorated English White Stoneware
Sherd Count: 15 Min. Vessel: 1
Paste: Stoneware, white (10YR8/2) fine textured, very thinly potted.
Glaze: Salt Glaze directly over paste, not slip-dipped.
Deco: None
Form: Unreconstructable, [See Figure 80].
Note: Absence of slip indicates date no earlier than 18th century.

Vertically Incised Salt-Glaze Sherd Count: 8 Min. Vessel: 1
Paste: Stoneware, white (10YR8/3), slightly softer edges at the breaks than earlier stonewares.
Glaze: Salt glaze directly over paste.
Deco: Incised vertical lines 6/cm. extending nearly to the top of the vessel, single broad incised band under the rim.
Vessel: Vertical-sided 19th century English marmalade jar [See Figure 80](pers.comm.George Miller, 1990).

The white slip-dipped technique mentioned above was an early attempt to make English stonewares as pale as possible, to compete with porcelain and tin-glazed wares. This "Dipped" white stoneware, literally a slip decorated stoneware, was used to disguise the off-white stoneware paste. Before 1720, all English white stonewares were dipped in this fashion. Even with the advent of white flint-bodied stonewares, dipped stonewares remained in production until 1770 (Gusset, 1980:15). The Nottingham slip-dipped white stonewares apparently show a tell-tale white line in the profile of a sherd, much like a tin-glaze sherd (George Miller, unpub. presentation, 1990).

From c1700 until the 1780's one of the finest products of the English ceramics industry was White salt-glazed stoneware. Produced primarily between 1720 and 1770 in Staffordshire and Liverpool (Watkins, 1960:37 says 1740-
1770), these wares used ever-increasing proportions of flint or porcelain grog added to clay to achieve a fine white high-firing paste. Although most pieces were wheel thrown, after 1740 plaster molds allowed for both slip-casting and the press-molding of leather-hard green pots. Both of these techniques allowed for mass production by semi-skilled labor. Since the shapes were no longer limited by wheel-throwing, a variety of non-round forms were produced for the first time. White salt glazed stonewares were pushed out of the table service market in the 1780's by competition from true domestic porcelain and the new creamwares (Gusset, 1980:15).

As noted above, Salterstown yielded several varieties of English white salt-glaze, all in a random distribution of tiny sherds. Some are extremely fine-bodied, while the majority seem to all come from the same 19th century marmalade jar.

Salterstown Purple Striated-Paste
Sherd Count: 10    Min. Vessel: 1
Paste: Buckley-like marbling of a very hard-fired stoneware (10R4/2) "weak red", with grey marbled streaks.
Glaze: Black iron glaze running to glossy metallic "dusky red" (10R3/2) or a matt purple.
Deco: None
Form: Rim only, Cunningham Rim Type E3 [See Figures 81 & 72].
Note: May be unintentionally overfired Buckley or other striated earthenware. Late 17th-early 18th century.

Salterstown "Black Speckled"
Sherd Count: 6    Min. Vessel: 1
Paste: Dark grey (5YR5/1-4/1) with diagnostic small but ubiquitous black iron particles fused into paste.
Glaze: Very poor black to green glaze on interior only.
Form: Single vessel with Cunningham Rim Type E2#38, bowl or deep dish, possibly meant to be covered [See figure 72 & 81]. Date unknown.

Unidentified Stonewares

Sherd Count: 2
Min. Vessel: 2

A) Paste: Stoneware, light grey (10YR7/1), fine grained.
   Glaze: Broadly mottled dark brown (10YR3/3) over light grey.
   Deco: None
   Note: Too small to distinguish English or Rhenish provenance; probably e.18th century.

B) Paste: Stoneware, light grey (10YR7/1), fine texture.
   Glaze: Salt glazed over a mottled brown wash, dark yellow brown (10YR4/6) to a very dark brown (10YR2/2).
   Form: Rim of Tankard? Probably e.18th century.

The last stonewares described above have not been identified in the literature. As indicated above, the "Purple Striated Paste" may be simply an overfired Earthenware. The "Black Speckled Paste" is an incomplete vessel potted from a very dark grey stoneware with a thin lead glaze. The most obvious characteristic of this ware is the presence of large black inclusions in the paste, which appear like so many dabs with a felt-tipped pen across the breaking surface. The spots are probably fused impurities, most likely iron present in the paste. Although I have heard of a "speckle-pasted" English stoneware, that ware is named for its air pockets rather than impurities (H.Miller and S.Hurry, Unpub, 1989). At present I can give neither date nor provenance for this vessel.
Porcelain sherds: 2

- **Paste**: Porcelain, translucent, extremely fine textured, thinly potted.
- **Glaze**: Clear
- **Deco**: One undecorated rim; One relief decorated with 19th century floral pattern on rim.
- **Form**: Probably tea-wares
- **Note**: Very scarce on the site. Both modern.

Although Chinese porcelain had been imported as a caravan luxury into Europe since medieval times, the secrets of producing true porcelain evaded European potters until the 18th century. Meissen in Germany and Sévres in France developed true porcelains early in that century—Meissen while pursuing his profession as an alchemist. The English industry took off in the 1750's with centers at Bow, Worcester, Liverpool, and Caughley. These potteries produced tea-wares almost exclusively. From the 1750-70's these wares were decorated with an underglaze (usually blue) hand painted by experienced specialists from the declining tin-glaze industry. By the 1780's transfer printing accounted for most of the porcelain produced, although a tradition of hand painted floral and chinoiserie patterns survives to this day at the finer potteries (Noel-Hume, 1972:137 and George Miller, unpub presentation, 1990).

Porcelain is easily recognized in the field by its nearly pure white fabric, a fabric composed of extremely fine grains of nearly fused identical particles. Porcelain is usually very finely potted.
At Salterstown the very few sherds of porcelain came from disturbed contexts in a random distribution across the site, and seem most likely to be the result of 18th-20th century refuse scatter.

**The Tin Glazed Earthenwares**

Tin glazes are called different things in different countries; French "Faience", Spanish "Majolica", and both Dutch and English "Delft" are all Renaissance and Early-Modern earthenwares which have had a thick coating of a lead glaze mixed with tin oxide applied after an initial bisque firing. A buff or rose-pink soft earthenware paste and a white tin-enamel glaze thick enough to see in section are together diagnostic of the technique. The fabric must contain 25-30% calcium in order to accept the tin glaze (Britton, 1987:12). Suitable clays were shipped long distances to the potteries, making fabric-source analysis a real problem. The glaze is opaque, uncrazed, often pock-marked from escaping air bubbles, and chips easily while in use, or scales off of the underlying fabric after deposition.

Colorants could be mixed into a small amount of tin-glaze to produce enamels for hand-painted decoration. Cobalt yields blue, Manganese makes purple or a soft lavender, iron creates red, antimony makes yellow, copper makes green, while black is made with a combination of
manganese, copper and cobalt. The rare bianco-sopra-bianco is a pure white tin oxide (Britton, 1987:11,12).

The Dutch tin-glaze industry was underway in the 1570's, modelled on the earlier southern European industries. The English in and around London were producing tin-glaze earthenwares soon after; eventually tin-glaze potteries were also established in Liverpool and Bristol. Both the English and Dutch industries remained in production for the next two hundred years. Following a long, slow decline in production through most of the 18th century, the English tin-glaze earthenware industry died in the 1780's. The products of the two industries are largely indistinguishable to all but the determined specialist.

**Rose-bodied Tin-Glaze**  
Sherd Count: 4  
Min.Vessel: 1  
Paste: Rose-pink earthenware, "reddish yellow" (5YR7/6), soft, fine textured.  
Glaze: White tin oxide applied thickly to all surfaces, no crazing, chipped.  
Deco: none  
Form: all sherds from a single galley-pot, [See Figures 84-87: Noel-Hume, 1977:60,63,65].  
Note: all sherds from same feature (see distribution map in Appendix), both rose-body and vessel form indicate early to middle 17th century.

**Cream-bodied Undecorated**  
Sherd Count: 6  
Min.Vessel: 1  
Paste: Cream-white soft earthenware, "very pale brown" (10YR8/3), fine textured.  
Glaze: White tin oxide applied to all surfaces, no crazing, chipped. Very faint blue hue to glaze in some sherds.  
Deco: None  
Note: Unknown forms and only very broad date; 17-18th century.
Figure 84 Noel-Hume's Tin-Glaze Galley-pot Typology (Noel-Hume, 1977:60).
Figure 85 Noel-Hume's Tin-Glaze Galley-pot Typology (Noel-Hume, 1977:63).
Figure 86 Noel-Hume's Tin-Glaze Galley-pot Typology (Noel-Hume, 1977:65).
Figure 87 Salterstown Tin Glaze.

A 380 V

Tin Glazes

Rose-Bodied Tin Glaze, Gailey Pet

B

Blue Hand-Painted Plate Shoulder

5cm

C

Purple Spatter small Hollow-ware

D

Charger Rim
Blue-Dash
lead-backed Tin Glaze

E

Lead-Backed Tin Glaze

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Because the calcium requirement for the fabric of tin-glazed wares was so specific, and the sources so few, there is very little observable variation in tin-glaze fabrics. Both a rose-pink colored paste and a buff/white paste occur commonly. The rose fabric occurs in blue-dash chargers with lead backs from the St. John's Phase I (1638-c1660) at St. Mary's City, Maryland. Although buff/white pastes do occur in early contexts from St. Mary's City, the pink paste is far more common in the earlier contexts, and does not occur at all in the late 17th century and 18th century contexts (S. Hurry and H. Miller, personal communication, 1990). Unfortunately, these variations in paste cannot be attributed to specific kilns given our current knowledge.

Tin glaze wares take a wide variety of forms, particularly the Dutch products. Teawares, particularly cups, disappear quite early due to competition from more porcelain-like alternatives. Plates and galley pot "apothecary jars" remained the most common forms in the late 17th and 18th centuries, followed by inverted baluster urns (George Miller unpub. presentation, 1990). Noel-Hume has traced the changes in shape of the galley pots from an original tall slender form to the late 17th century squat jar as wide as it is tall (Noel-Hume, 1977:25-26) [See Figures 84-86].

Cream-bodied Blue Handpainted Sherd Count: 16
Min. Vessel: 3
Paste: Cream-white soft earthenware, "very pale brown" (10YR8/3), fine textured.
Glaze: White tin-oxide applied thickly to all surfaces, no crazing, chipped.
Deco: Cobalt Blue handpainted on one side, sherds too small to indicate design motifs.
Form: Shallow dish or bowl profile [see figure 87].
Note: Probably from several periods; no earlier than second quarter of 17th century, probably some 18th century.

Early examples of tin-glaze were decorated with hand-painted polychrome designs, often using Mannerist strapwork and Renaissance heraldic motifs. These polychromes are replaced in the second quarter of the 17th century by blue-on-white monochrome imitating fashionable Oriental Porcelains, although early oak leaf, pomegranate and "stepped triangle" motifs persisted until mid-century. Geometric designs with pinwheel or daisy centers, hook-ended frond brush strokes or lozenges were all popular at mid-century [as with sgraffito motifs?]. Between 1635-65 Biblical and Historical scenes were very popular, while royal portraits are big between 1660's and 1691. By the 1670's the older fertility symbol of the pomegranate was replaced by paired tulips, also a popular sgraffito motif. (Noel-Hume, 1977:25,45-6 and George Miller, unpub. presentation, 1990).

After studying collections of tin-glaze from well-dated contexts at St. Mary's City, Maryland, S. Hurry and H. Miller noted that most early tin-glaze is decorated with a more broad brush stroke than the later 17th century examples.
Unfortunately this is a relative measure requiring a large sample (Hurry and Miller, personal communication, 1990).

**Cream-bodied Purple Spattered**
- **Sherd Count:** 7
- **Min. Vessel:** 1
- **Paste:** Same as above.
- **Glaze:** Same as above.
- **Deco:** Purple manganese spattered over entire exterior surface.
- **Form:** Small hollow-ware with handle [see figure 87].
- **Note:** Shlasko, (unpub.) places this motif at c.1635.

Another popular decorative technique required sprinkling powdered manganese onto the surface of the vessel before final firing, yielding a purple or lavender "spattered" pattern. The earliest reference I have found for this technique is in the second half of the 16th century (Charleston and Towner: Plate 1). In her important study of stylistic variations based on Lipski's *Dated English Delftware*, Ellen Shlasko noticed that entire vessels of purple spatter dated from 1628-1673, reaching a peak in popularity c.1635. Purple spatter enjoyed a revival in the 1740's, when confined within bordered panels on otherwise white vessels (Shlasko, unpub. Masters Thesis, Wm. and Mary, 1989).

**Beige-bodied Lead and Tin-Glazed; Dash Blue**
- **Sherds:** 3
- **Vessel:** 1
- **Paste:** Beige earthenware, "very pale brown" (10YR7/3), slightly harder than the other tin-glazed pastes.
- **Glaze:** Clear lead-glazed exterior, white tin-oxide interior, no crazing on tin-glaze, chipped.
- **Deco:** Cobalt blue-dash at the rim, hand-painted blue interior.
- **Form:** Probably a "charger"/plate [See Figure 87].
- **Note:** Post 1635 and pre-1680's (Noel-Hume, 1977: 43, 46).
Since the back face of flatware is hidden, potters in England, the Netherlands and Germany often used a simple lead glaze on the back, reserving the tin-glaze for the front. This seems to have been a relatively early practice, already gone by the 1680's (Noel-Hume, 1977:43). Many of these lead-backed tin-glaze pieces were chargers with a tell-tale "blue-dash" cobalt decoration along the outside rim. Noel-Hume places these blue-dash chargers after 1635, and before 1680 (Ibid:46), although Wilcoxen says that they were in production in the Netherlands in the first quarter of the 17th century (Wilcoxen, 1987:62).

The Earthenwares

Analysis of the earthenwares was initially hindered by the fact that we encountered several varieties unfamiliar to the American excavators. These ceramic types turned out to be indigenous to Ireland. I refer to the Carrickfergus Brownwares and the "Everted Rim" tradition.

The Blackwares, Green-glazed wares, and the Slipped-ware are all 17th century survivals from late-medieval regional pottery traditions. These traditions go by a bewildering variety of names in the English archaeological literature, and I have purposely chosen the most neutral and descriptive terms in order to avoid confusion. Much of the following discussion is built on the work of Peter Brears.
Figure 88 "Midlands" Black Ware Types (Brears 385 and Gooder, 1984:171-2, in Mulholland:56).

The Midlands blackware Type-Series

1. Cup
2. Tyg
3. Posset
4. Mug
5. Cup
6. Jug
7. Chamber Pot
8. Mug
9. Baluster Jug
10. Tankard

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Figure 89 Barker's Blackware Types, page 68.
Figure 91 Barker's Blackware Types, page 70.
Figure 92 Barker's Blackware Types, page 71.
Figure 93 Barker's Blackware Types, page 72.
Figure 95 Barker's Blackware Types, page 74.
Figure 96 Barker's Blackware Types, page 75.
Figure 97 Salterstown Fine Blackware.

Fine "Midlands" Blackware

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Figure 98 Coarse Blackware Rims.
Black-glazed Wares

Fine "Midlands" Blackware Sherds:64 Min.Vessels:6
Paste: Dark brick red earthenware (2.5YR5/4-4/4), finely potted and well-fired.
Glaze: Thick deep black iron-bearing lead glaze, usually both surfaces glazed.
Deco: Multiple looped handles, occasionally with a return at base.
Forms: [See Figure 88 Brears and Figures 89-96, Barker]. Several basal fragments and handle loops indicate tygs/posset pots (Brears Type 7, and Barker, and Cunningham vessel type E12), while heavy ribbing of wall sherds may indicate Balusters or tall mugs (Brears types 2-4).
Note: 1.16th-e.18th century

Fine "Midlands" Purple Sherds:24 Min.Vessel:2
Paste: Same as above but often reduced to grey.
Glaze: Iron-bearing lead glaze burned very dark metal-flake purple "very dusky red" (10R3/2-2.5/2).
Deco: unavailable
Forms: Tygs, posset pots Cunningham Vessel Type E12, on sherd with waist similar to Cunningham vessel Type E11.
Note: Some question if Midlands Purple really just overfired/reduced Midlands Blackware.

Coarse Black-Glazed Redware Sherds:63 Min.Vessel:7
Paste: Variable red earthenware "yellowish red" (5YR5/6), darker on unglazed surfaces, thickly potted.
Glaze: Black iron-bearing lead glaze, thickly and often sloppily applied.
Deco: only glazing variations; 13 glazed on both sides, 14 on interior only, 1 on exterior only, most delaminated. Many sherds are heavily ribbed on the exterior.
Forms: Chamber pots, Cunningham vessel type X10, Gooder Blackware typology [see figures 89-96,98], other utility forms indicated by Cunningham rim form A3.
Note: Gooder indicates that these coarse wares are of the late Blackware tradition (Gooder,1984:171).

The Blackwares are usually fine-textured hard brick-red earthenwares, often finely potted, under a thick lustrous black iron-bearing lead glaze. They are usually smooth-turned rather than wire-cut at the base. They are
unusually uniform in glaze color and application, and display unusually accurate control of kiln temperature and atmosphere (Brears, 1971: 37). The fabric can vary to grey or a purple color, while the glaze is occasionally brownish rather than pure black (Haslan, 1978: 29), or takes on a metallic purple sheen (Hayfield, 1985: 191, and Mulholland, unpub: 16).

Although some American investigators have given Black-glazed red-ware a uniformly late (18th century) date, the tradition is actually an ancient one. The earliest variety of Blackware is the so-called "Cistercian ware", first identified by J.T.Micklethwaite in 1893 at a Cistercian monastery in York. The ware dates from an introduction in the mid 15th-early 16th centuries, continuing in an unbroken tradition into the 17th century Blackwares (Barker, 1986: 53). The largest concentrations occur in Yorkshire, arriving fully developed at kiln sites in Nuneaton, Warwickshire (Brears: 18), at Brill, 10 miles Northeast of Oxford (Haslan, 1978: 20), and at Humberside, Lincolnshire (Hayfield, 1985: 183). Cistercian ware eventually was produced in South Wales and the West Country (Barker, 1990: 2).

Because Cistercian ware was produced by a large number of potters over a broad geographic area for two centuries,

2. For an example of potential mis-dating in the American literature see Turnbaugh, 1983.
Figure 99  Brears' Cistercian Types (Brears:20).

The Cistercian-ware Type-Series
there is some variation in paste and glazing quality. According to Barker, Cistercian wares are identifiable by;

...a fine, often sandy fabric varying in colour from orange to a dark red or purple, sometimes fired to a near stoneware hardness, covered inside and out by a lead glaze whose colour varies from brown to black (Barker, 1986:52).

This description applies equally well to the later Blackwares.

Cistercian forms from the third quarter of the 16th century occasionally have a white slip-trailed decoration, or the rare "reversed Cistercian" white fabric with a black glaze and red slip (!). Common Cistercian forms include posset pots, multi-handled cups, tall two-handled beakers, costrels, pedestaled cups, chalices and figurines (Brears, 1971:18-20). [See Figure 99].

Brears dates "Midlands Blackware" (his term) from the beginning of the 17th century through to 1900, and posits a triangular geographic distribution from Yorkshire in the North to Herefordshire in the West to Kent in the Southeast. Since the Brears study, Blackware has been found from Essex to Ireland, so the "midlands" has been dropped from the name (Barker, 1986:58-9). Most published blackware-dominated assemblages date from 1640-1720, although Blackwares were certainly in production both before and after this period (Barker, 1986:59).

The Midlands Blackware grows directly out of the earlier "Cistercian ware" tradition to form a continuum of
development. Blackware retains the paste and glaze of Cistercian wares while increasing the potters' vocabulary of vessel forms with the addition of European stoneware forms, and forms borrowed from the pewterer's (Brears:37; Barker,1986:58). Barker has noted that the later Blackware is generally of more consistent quality than the Cistercian ware; it is difficult to distinguish high-quality Cistercian from poor quality Blackware except by analyzing dominant vessel forms in the assemblage (Barker,1986:58).


In Lincolnshire, a "Midlands Purple" has been identified by Adams as a late 16th-early 17th century ware with a mauve-grey fabric fired to purple-brown on the unglazed exterior surface, with a thick "treacle-brown" pimply interior glaze (Adams, 1977:42). At Salterstown several sherds were glazed on both sides, and appear for all the world to be overfired examples of Midlands
Blackware. Therefore the attribution of "Midlands Purple" to the Salterstown sherds may be mistaken.

Blackwares were more common in the Midlands. The potteries at Staffordshire had produced a Blackware from local clays in the first quarter of the 17th century, long before the "WR" cipher contexts usually associated with the advent of industrialization in that region (Mountford, 1971: 20). The Staffordshire Blackware has a slightly more pale red paste than other Blackwares, due to the local clays (Weatherhill, 1971: 12, 15).

Dr. Robert Plot's *Natural History of Staffordshire*, written after a tour in 1686, describes the potteries at Burslem:

They have many different sorts of Clay, which they dig round about the Towne, all within half a mile's distance,... and are distinguish't by their colours and uses as followeth 1) Bottle clay, of a bright whitish streaked yellow colour 2) Hard-fire clay of a duller whitish colour, and fuller interspersed with a dark yellow, which they use for their black wares, being mixt with the, 3) Red blending Clay, which is of a dirty red colour....(Plot, in Mountford, 1971: 17, emphasis mine).

The passage above demonstrates an apparent familiarity with Blackware as a general type, made from blended clays. The author Mountford believes that Plot is referring to Black iron-glaze, "..the so-called Cistercian ware which is recovered from almost every archaeological investigation within the mother town of Burslem" (Mountford, 1971: 18).
Josiah Wedgewood in 1765 compiled a list of potters working in Burslem for a regional history of the industry, in which he notes nine potteries producing both "mottled and black" in the years 1710-1715 (Mountford, 1971:19).

The 17th century "fine" Blackwares are seen as "reserved for drinking vessels by potters who were also making a wide range of other forms in clear-glazed fabrics" (Orton and Pierce, 1984:48). This would help explain why the red fabric of Blackwares is indistinguishable from the fabric of both clear/green glazed redwares and Metropolitan slipware from the Harlow, Essex region (Ibid:36). Blackwares were present in this region from the 16th century until c.1750, enjoying a peak in popularity between 1650 and 1680. In the Chesapeake, Blackwares apparently peaked in popularity much later, and are usually associated with 1680-1720 contexts at St. Mary's City although Blackwares continue in use in Maryland throughout the 18th century (Hurry and Miller, personal communication, 1990). Blackwares as a tradition eventually fell prey to competition from the more fashionable tin-glazed and Staffordshire tablewares (Brears:62).

At Salterstown most of the Blackwares appear to be from tyg forms of multi-handled cups, the handles often surviving the plow much better than the rest of the cup. These multi-handled tygs and posset pots were apparently a
Figure 100 Salterstown Reduced Greenware.
favorite form of the early 17th century Staffordshire Blackware potters, although multi-handled tygs were made right up to the 1740's (Charleston and Towner:Figs 50-1).

**Reduced Greenwares**

<table>
<thead>
<tr>
<th>Sherds: 96</th>
<th>Min. Vessels: 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paste: variable, reduced grey earthenware (10YR5/1), occasionally oxidized to red (5YR6/6) on unglazed surfaces.</td>
<td></td>
</tr>
<tr>
<td>Glaze: Green reduced lead glaze, no sign of added copper, variable from olive brown (2.5Y4/4) to olive yellow (2.5Y6/6).</td>
<td></td>
</tr>
<tr>
<td>Deco: No slip, Single sherd incised with parallel bands at base of interior wall.</td>
<td></td>
</tr>
<tr>
<td>Form: Several footed basal fragments indicate Jug or large Drinking vessels (Cunningham vessels type D6 or E12) although the surviving rims seem to be for shoulderless bowls (Cunningham vessel type B1). One chamber pot rim fragment [See Figure 100].</td>
<td></td>
</tr>
<tr>
<td>Note: An unreliable category, may be redware kiln mistakes mixed in with true greenwares. Delaminated sherds, 42; Glazed both sides, 35; Exterior only, 22; Interior only, 6.</td>
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</tbody>
</table>

The Green Glazed wares do not represent a tidy linear tradition across time, but are instead the common result of several regional potting traditions striving for a similar decorative effect in their coarsewares.

There are at least three ways of producing a green glaze earthenware: First, the potter can apply lead glaze over an iron-bearing earthenware and fire in a carefully reduced-oxygen atmosphere, producing a grey body with a green glaze. Second, by underfiring the piece, either at lower heat or for less time in the kiln, the potter can produce a similar effect but a weaker vessel. Third, the potter can use a pale, relatively iron-free paste, and add copper to a lead glaze, firing at high temperature in an
oxidizing atmosphere. This third technique produces a hard, tough earthenware. By using a white slip under the glaze, a potter using the third technique can produce a very bright decorative copper-green (personal communication, Pat McGovern, MASCA, 1990).

In counties north of the River Humber from the 13th century through the 17th century potters produced grey-bodied green glazed coarsewares using the first method described above. A reducing atmosphere gave their ceramics a dull olive green. Storage jars and cisterns with 2-3 broad vertical handles made of this ware were common throughout the North of England in the 15-17th centuries, with very little diversification in vessel form even in the 17th century. Wooden table services were still common in Northern England in the 19th century; Yorkshire was still producing reduced greenwares of the 16th century type in the 1840's (Brears, 1971: 17-18, 56).

Reduced greenwares from the North go under a variety of names. In Lincolnshire "Lincoln" ware and "Humber" wares have been identified with late 16th and early 17th century contexts (Adams, 1977: 42-3). Across the country in Chester there is a reduced greenware referred to as "Chester" ware (Nick Brannon, pers. comm., 1989). Reduced greenwares even made it to North America in the form of "Chalice" and "Chalice-like" wares identified in the mid-Atlantic Tidewater (Hurry and H. Miller, unpub. paper 1990).
Nearly every sherd of Greenware from Salterstown is from the "Reduced" tradition. However, the other methods of creating green glazes in the late-medieval and early modern periods developed into important new wares in the 17th century.

The other techniques for making green glazed ceramics were practiced in the Southeast of England around London, in Essex, Surrey, Hertsford and Hampshire. Again, several local traditions have been identified. These wares have in common a pale buff-to-white fabric color (though each from different clays), often covered in a white slip and lead glaze. They were usually fired in an oxidizing atmosphere, so it was necessary to add copper to achieve a bright green glaze.

Brears identifies this general tradition as "Tudor Green". Tudor Green developed in West Surrey in the e.14th century, was made in Cheam throughout the 15th century, and increased in popularity and in product variety in the 16th century under the influence of French Saintonge and Midlands Cistercian vessel forms. According to Brears, the Tudor Green/ "Surrey" ware tradition survived into the e.17th century in the South Midlands, the central south coast, and in London (Brears:23-25). This tradition was circulated alongside Cistercian wares, and both were imitated by Oxfordshire potters at Brill in the 16th century (Haslan,1978:20).
Recent excavations along the timber revetments of the Thames waterfront in London have established that the copper greenware tradition considerably predates Brears' "Tudor Green". These earlier wares are known as "Mill Green", "West Kent" ware, and "London" ware, and date from the late 13th century through to the middle of the 15th century. They are pale, finely potted, with white slip under a green copper glaze. The later forms show an unbroken tradition moving into the later Hampshire-Surrey Border wares (Pierce, Vince, et al. 1982:266-270).

In 1988 another major revision was published covering all of the "Surrey Whitewares", dividing them into three source areas; Kingston, the Hampshire border, and Cheam. Within all three source areas the investigators identified a minor product called "Tudor Green", identified by its fine potting, tableware forms, white paste and green glaze (Pearce, et al, 1988:7, 79, 190).

In the late 16th and early 17th centuries copper greenwares were produced along the Hampshire-Surrey Border; at Farnborough in the late 16th century, at Cove and Hawley circa 1620-50, and at Ash circa 1650 (Holling, 1971:69-71). At the same time, at the same kiln-sites, potters were producing a yellow glaze and a brown-mottled glaze for the same thinly-potted white fabric used for the greenwares (Orton and Pierce, 1984:35). Both of the alternative glazes to green were enthusiastically embraced.
in the 17th century, eventually becoming "traditions" of their own; the Surrey Yellow (or "Midlands Yellow") wares and the Mottled Manganese wares so common from Staffordshire and Buckley. These late greenwares and early yellow and mottled wares shared forms resembling Cistercian wares [See figures 99 & 101], and include conical or pear-shaped jugs, balusters, cooking pots, pipkins and drip pans (Pierce, et al, 1982:279; see also Pearce et al, 1988:84-90 and Brears:20,31).

There is so much reduced green-glazed ware at Salterstown, and so little chronological control on the site, that it is entirely possible that these wares were used there relatively late in the 17th century. Since
Figure 101 Brears' Midlands Yellow Types (Brears:31).

The Midlands yellow-ware Type-Series
reduced green wares die off in England earlier in that century (except in Yorkshire), it is conceivable that the reduced greenwares at Salterstown were locally produced (Brears:20,31). Alternatively, the majority may be English wares dating to the first half of the 17th century.

**Slipped Wares**

Although the copper green glaze of the Surrey traditions was discontinued, alternative glazes which had developed in the late 16th century continued to be manufactured using the same fabric (and many of the same forms) as the old copper-green wares. These newer glazing styles were also manufactured in other regions, becoming what we now call "Mottled Manganese" and "Yellow-wares". The yellow wares could be produced from either a yellow lead glaze over a white/buff paste, or from a yellow slip disguising the darker red earthenwares, covered with a clear lead glaze. The yellow lead glaze was probably created from arsenic impurities in the southern copper-bearing lead glazes. Pat McGovern, of MASCA, suggested this explanation of the yellow found in the copper-greenware tradition (McGovern, pers.comm.1990).

Yellow wares made from a Surrey paste have been found in St.John's Phase I (1638-c.1660) contexts at St.Mary's City in Maryland. There is some evidence of direct Dutch influence in the vessel rim forms (Hurry and H.Miller,pers.comm.1990). This variety of Yellow ware does
not occur in later contexts at St. Mary's City, although they remain in production until the early 18th century (Hurry and H. Miller, pers. comm. 1990; Brears, 1971:32). The Surrey yellow wares inherit Tudor Green forms, supplemented by new vessel types introduced from the Netherlands (Brears: 32).

Since yellow lead glaze requires a pale fabric in order to show, the more iron-bearing, darker clays of the North required dipping in a white slip under the lead glaze. Slipped yellow wares from Nottingham, Leicester and Coventry develop at the same time and at the same kilns where Midlands Blackwares are taking over the earlier Cistercian tradition (late 16th-early 17th centuries). They have therefore been given the name "Midlands Yellow wares". These slipped yellow-wares share very similar forms with the Blackwares, some inherited from the Cistercian tradition (Brears, 1971:32).

The Midland Yellowwares were produced with a vengeance by the potters of Staffordshire, and were distributed over a large area even in the early 17th century. Both Bristol and Ticknall used the same slipped techniques, with smaller, more local distributions (Draper, 1984:17; Barker, 1990:2).

The Staffordshire Slip-Wares
Paste: Earthenware, varies from pinkish white (7.5YR8/2) to pink (7.5YR7/4), moderately grainy with fine quartz and ochre inclusions, often slightly mottled, hard paste with clean edges at breaks.
Figure 102 Salterstown Staffordshire Slip.

Staffordshire Slips

Brown on Yellow Combto Slip

"metro" style

black int.

yellow unglazed

brown

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Glaze: Lead glaze over a variety of slipped decorations, glaze honey colored (7.5YR5/6) over the paste, variable colors over slip.

Deco: [See Figure 102]
A) Yellow Slip Sherds: 7 Min. Vessel: 1
   (5Y8/4) pale yellow with occasional flecks of bright copper green and canary yellow, interior only glazed.
B) Combed Slip Sherds: 10 Min. Vessel: 3
   Darker yellow (2.5Y8/8) combed with dark yellowish brown (10YR3/6).
C) Slip-Trailed Sherds: 4 Min. Vessel: 2
   Background slip of (7.5YR5/6) beneath trailed slip of pale yellow (5Y8/4).
D) Black-Slipped/ Yellow Trailed Sherds: 1 Min. Vessel: 1
   "Metropolitan"-style made with Staffordshire paste instead of darker redware of true Metro wares.
E) Yellow-Slipped Red Spatter Sherds: 1 Min. Vessel: 1
   A dark yellow (2.5Y8/8) slipped background with a red slip (2.5YR4/4) spattered over in random design.
F) Yellow-Slipped Exterior/Black Interior Sherds: 1 Vessel: 1
   Black iron-glazed interior with darker yellow (2.5Y8/8) exterior slip.
G) Unidentified Staffordshire Paste Sherds: 14 Vessels: 3
   Delaminated sherds

Note: "Yellow Slip" (A) was the only ware on site with copper added to produce green coloration, possibly early 17th century. The "Red Spatter" (E) is also possibly early 17th century (Brears, 1971:29). Other wares more likely date to middle or late 17th century or earliest 18th century.

The region of Staffordshire so completely dominated the English ceramics industry of the later 17th and 18th centuries that it requires a separate discussion. The term "Staffordshire" refers to products produced in Tunstall, Longport, Burslem, Cobridge, Hanley, Stoke-on-Trent, Fenton, Longton and Lane End.

The region's potteries had produced Blackwares, unglazed butter pots and brown slipwares from late-
medieval times, but began to grow both in volume of production and in ultimate distribution of products from 1660-1710. Most of this growth occurred 1674-95, except for brief recessions in 1678 and 1686 (Weatherhill, 1971:4). Although Dr. Plot discounted the potteries as a minor industry as late as the 1680's, by 1710-15 forty-seven separate potteries were employing 500 men in a 20 square mile area. By 1785 over 15,000 people were employed at the Staffordshire potteries, making the area one of the earliest centers of the industrial revolution (Thomas, 1971:3-5, 13).

Local clays were used in the early period. Dr. Plot's *Natural History*, quoted at length above, indicated the range of local clays available in the 1680's (Mountford, 1971:17). By the 1720-30's iron-free white "ball clay" was being delivered in half-hundredweight balls from Cornwall and Devon, as well as flint for creating slips, stonewares, and early refined earthenwares (Weatherhill:12).

The region flourished in the 17th century due to its highly successful slipped yellowwares. These wares shared a relatively hard buff fabric of variable grit, with occasional brown flecks or rose cast in the paste. The wares used a cream-colored (or "white") slip under a clear
lead glaze, giving the piece a yellowish color 3. Staffordshire yellow slipped wares are within the Midlands Yellowware tradition outlined above. Staffordshire potters were so successful that they were able to out-distribute and under-sell all other yellowware manufacturers (Brears, 1971: 32). The most recent estimates for dating Staffordshire yellow slipwares indicate a peak popularity between c.1650-1730, although the ware was produced both before and after those dates (Barker, 1990:2).

Aside from a popular plain slipped yellowware, a variety of decorative techniques were widely used. These included the deliberate introduction of particles of various impurities into the glaze to produce splotches of color. Green from copper and red from an unidentified mineral were popular on early 17th century yellowwares. These wares apparently imitate a decorative style from Holland and Germany around Wanfried-an-der-Werra dating from 1604-1632, and are relatively common around London (Brears, 1971:29). Several varieties of early 17th century French "Santonge" ceramics also use this splotched decorative technique.

3. Henry Miller of St. Mary's City, Maryland notes that usually the exterior of Staffordshire vessels are slipped and glazed while the interior is only glazed; the characteristic color of the Staffordshire paste is sufficient to give a honey color to the interior (Miller, personal communication, 1991).
Other popular decorative techniques included trailing thin runnels of semi-liquid slip into patterns of lines or dots in a clay color contrasting the white-slip background. Lines are referred to as "slip trailed" while the dotted examples are referred to as "jewelled". If the potter applied slip-trailed lines in a parallel pattern over a white slip which was still wet, he could then run a comb across the alternating colors of slip, creating a pleasing psychedelic effect called "combed" slip in the U.S. or "feathered" slip in the U.K.

Staffordshire produced a dark-background, light-slip trailed decorative style, which has formerly been called "metropolitan slip". I reserve that term for the more narrowly distributed products of the London area, to be discussed below. The Staffordshire version of this decorative technique is referred to here as "Metro-like".

Not all of these variations in slip decorating are precisely dateable, but there are a few guidelines. At Staffordshire black slip-trailing occurs only in pre-1650's pieces. By 1652 many Staffordshire plates show incised lines (presumably scribed from a template) used to guide the application of slip-trailing. This technique was still in use in the 1740's. Combed/feathered slip is very common in the third quarter of the 17th century, but probably begins much earlier (Brears, 1971:45-6). Watkins
suggests a revival of combed slip in the period 1730-1760 (Watkins, 1960:37).

The last form of slip decoration covered in this discussion is the "sgraffito" technique, whereby a pale slip background is applied over a dark fabric and allowed to dry. A design is then incised into the slip, revealing the darker fabric in the scratches. The whole is then sealed under a clear lead glaze.

Sgraffito was brought to Italy from the Eastern Mediterranean in the Middle Ages, spreading across Europe in the 16th century, and produced in North Devon late in that same century. It was probably brought to Devon from Beauvais, France by refugee Huguenots settling in Bideford and Barnstable (Grant, 1983:2).

Although Staffordshire did produce a sgraffito in the mid-to-late 17th century, with the tell-tale hard buff Staffordshire paste underneath, Staffordshire did not dominate the production of this style as it did so many others, and it is with the Sgraffito wares that we finally leave Staffordshire.

Non-Staffordshire Slip-Wares

**True Metropolitan Slip**

- Sherds: 1
- Min. Vessel: 1
- Paste: Earthenware, hard, finely potted red (2.5YR5/6), small throw rings visible on interior.
- Glaze: Clear lead glaze.
- Deco: Dark brown slipped background "very dusky red" (10R2.5/2) with a bright light yellow (2.5Y8/6) slip-trailed over [See Figure 103].
This ware has been identified with a characteristic slip-trailed decoration which has caused some confusion in the literature. The term "metropolitan" slipware was first coined by Newton, et al. 1960, but popularized by Mynard, 1969 and Mayes, 1968. The original term specified a hard, finely potted redware fabric similar to the blackware fabrics, which had a white slip-trailed decoration applied directly to the fabric without an intermediate background coating of slip, the total finished in a clear lead glaze. This ware was found in Harlow, Essex, and was named for its distribution throughout metropolitan London. Unfortunately the term was generalized to signify any ware on which a dark background slip was used to contrast a lighter slip-trailed decoration. Wares answering this description were common at mid-17th century from both Ticknall and Wrotham.
Figure 103 Salterstown Non-Staffordshire, True Metro Sgraffito #1.

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(Brears, 1971:47,49). The term is now being revised back to its original limited scope (Orton and Pearce, 1984:36), hence the use of the term "True Metropolitan".

Salterstown Yellow-Slip Sgraffito #1
Sherds: 10  Min.Vessels: 4
Paste: Red earthenware (2.5YR5/6), well mixed with fine texture, can be very thinly potted.
Glaze: Clear, very glossy lead glaze, tends to run, interior only.
Deco: Sgraffito on white slip at flange of chargers and shallow dishes, overall effect a very bright "brownish yellow" (10YR7/8).
Form: One vessel shallow dish Cunningham Vessel Type A2, with Cunningham Rim Type E4#42. One vessel a bowl with Cunningham Rim Type B2#19 [See Figure 103].
Note: This ware is extremely similar to sgraffito from St.Johns Phase III at St Mary's City, Maryland. Provenance unknown, Middle to late 17th century.

Salterstown Yellow-Slip Sgraffito #2
Sherds: 5 Min.Vessels: 2
Paste: Red earthenware (5YR7/8) with slightly reduced core, tiny quartz inclusions, very slight marbling in the paste.
Glaze: Clear lead glaze, interior only, finely crazed.
Deco: Exuberant sgraffito on white slip background (2.5Y7/6).
Form: One large charger/plate with heavily decorated wide flanged rim [See Figure 104].
Note: Possibly a North Devon product.

Unidentified Slipped Redwares
Paste: variable red earthenwares
Glaze: Clear lead glazes
Deco: A) SgraffitosSherds: 13 Min.Vessel: 5
B) SlippedSherds: 36 Min.Vessel: 4
Form: One sgraffito shallow dish Cunningham Vessel Type A2 with Cunningham Rim Type E4#42 [See Fig 104]. Other plain slipped forms include Cunningham rim type E5#44, E4#42, and E5#43 [See Figure 105].
Note: Delamination, post-deposition burning, etc. make these sherds unidentifiable. Some are probably from North Devon.

Sgraffito was produced in export quantities at Staffordshire and at North Devon, although local potters used sgraffito decoration all over Europe. In England it
Figure 104 Salterstown Sgraffito #2 and unidentified Sgraffito.

Salterstown Yellow-Slip Sgraffito #2

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Figure 105 Unidentified slipped redwares, North Devon

A-C Unidentified Slip-Decorated Redware
D-E North Devon Gravel Tempered

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was produced at Donyat in Somersetshire, but with green splotches under the lead glaze (Noel-Hume, 1972:104-5). At Carrickfergus, Northern Ireland the majority of the 17th century sgraffito was not from North Devon, but may instead be a local product. The North Devon Sgraffito found at Carrickfergus predates 1650 (Simpson and Dickson, 1981:84; Grant, 1983:103).

The North Devon ceramics industry centered in the area around Barnstable and Bideford. Devon produced yellow-slippered tablewares, usually plain slipped or sgraffito decorated. These wares are red earthenware rather than Staffordshire rose/buff, although the Devon paste often has a grey reduced core. The paste is generally very smooth textured. Tablewares were wheel-thrown using templates to shape a limited number of vessel profiles. Vessel forms include dishes, single-handled mugs with bulbous bodies and straight necks, baluster wine cups, pitchers with heavily ribbed necks, eating bowls and chamber pots. Sgraffito designs could be abstract geometric, birds, animals, portraits, ships, or a variety of floral fertility motifs. The undecorated slip-coated wares were produced alongside the sgraffito, using the same paste, glaze and vessel forms (Watkins, 1960:41; Noel-Hume, 1972:104-5).

The sgraffito wares were primarily a 17th century phenomenon, ceasing production c.1700, with the notable
exception of large presentation pieces known as "Harvest Jugs". These jugs were ceremonially passed around to the field hands in a ritual marking the end of the harvest season. Individual jugs were often passed down as heirlooms on family holdings. The harvest jugs were decorated with fertility motifs, early pomegranates replaced by tulips, birds and figures (Watkins, 1960:34). Harvest jugs were still produced in the 19th century; Mr. Henry Phillips, the last of the true North Devon Sgraffito potters, died in 1894 (Brears, 1971:53).

Unfortunately the Non-Staffordshire slip wares described above have not been provenienced to particular production centers. It seems reasonable that some of them (particularly "Sgraffito #2") are from North Devon, and it seems equally likely that some were local Ulster products.

Other Earthenwares

North Devon Gravel Tempered Sherds: 20 Min. Vessel: 2
Paste: Neutral beige "light brown" (7.5R6/4-7/4) with large, obvious quartz inclusions, can be reduced to grey at core.
Glaze: Interior only, lead glaze varying from olive green "light olive brown" (2.5Y5/6) to an olive yellow (2.5Y6/8), often with dark specks or tiny streaks in the glaze.
Deco: Raised band around interior of rim on one sample.
Forms: Probably Pan, Grant North Devon Vessel Type 3a or 3b, with Watkins Rim Form 12 or 21 [See Figures 105, 106, 107]. Also large coarse Watkins Rim type 4.
Note: Rim forms indicate provisional 1680's date (Watkins, 1960:56).
Figure 106 Grant's North Devon Types (Grant, 1983:136-7).

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Key: E = Eye, F = Foot, S = Shoulder, U = Unusual
Figure 107 North Devon Rim Types (Watkins, 1960:56).

- Rim profiles of North Devon gravel-tempered earthenware pots. All are from the fill around and beneath the Ne-Harrell site, drawn as Jamesroom constructed between 1644 and 1663 except those marked, as follows: A, from Angelica Knoll, Calvert County, Maryland, late 17th century to about 1675; B, from John Washington House site, Westmoreland County, Virginia, the period from about 1644 to about 1660; C, from "R. M." site, Plymouth, Massachusetts, about 1690; D, from site of George Washington's birthplace, near the John Washington house site; E, from Window site, Marshfield, Massachusetts, which was occupied from about 1653 to about 1659.
Alongside their slip-decorated products, the North Devon potters were also famous for an extremely coarse gravel-tempered rose-grey bodied utility ware. The fabric is instantly recognizable for the large water-worn quartz gravel inclusions, which account for between 15-25% of the composition of the paste. These wares were cooking and storage vessels, including several sizes of milk pans, pots, bowls, pipkins, baking pans and storage jars. [see Fig.105] This ware was first provenienced to North Devon by J.C.Harrington in the 1950's (Watkins,1960:21,51).

North Devon coarse-ware potters also produced a unique form of ceramic hearth-oven, beehive oval in form, with a trapezoidal framed opening fitted with a ceramic door. These hearth ovens are a Huguenot French and Low-Country marker common to those areas in the late 16th century (Grant,1983:2). They were drape-molded in sections joined at tooled or thumb-marked seams. The ovens were first produced at Devon in the late 16th century, and were still in production in the 1890's. They were widely distributed throughout Devonshire, Wales and Cornwall (Watkins,1960:31) American examples of North Devon bake-ovens include an early discovery at Jamestown (Bailey,1937:496), the John Bowne House in Flushing Long Island, and the John Howland House near Plymouth Massachusetts (Watkins,1960:19).
The North Devon ceramics were vigorously exported, due at least in part to local Devon merchant and factoring interests in Ireland, the Newfoundland fishing fleet, and the American tobacco trade.

The earliest recorded shipment to Ireland was from Barnstable to Dublin in 1601, while common destinations from 1617-39 included Kinsale, Youghal, Limerick, Cork, Galway and Waterford in the South, and Coleraine and Carrickfergus in the North (Watkins, 1960:27). Sir Arthur Chichester, Lord Deputy of Ireland from 1605-15, was a native of North Devon; while living at his "Joymount" estate at Carrickfergus he commissioned Devon potters to make tiles inscribed "Caricfargus 1615" (Grant, 1983:101). As early as 1620 seven ships were sailing full time just for the ceramics industry. No shipments from North Devon are recorded for Coleraine or Londonderry after 1650. However, between 1664 and 1690, 470 dozens of coarse earthenwares, or 45% of total North Devon exports, were shipped into Carrickfergus. This trade tapers off drastically in the 1690's due to competition from Chester and Liverpool, and presumable disruption from the wars of that period (Ibid:103).

The earliest recorded shipment to New England is 1635, although huge shipments continued up through the 1680's—the industry reaching its peak of popularity between 1660-1690 (Watkins, 1960:22, 24, 27). Noel-Hume notes that the
earliest North-Devon wares found in Virginia date from c.1650, while no archaeologically derived North Devon wares have been found post-dating 1769 in the U.S. (A dated jug found near Annapolis, MD, now in collections at St. Mary's City). At St. Mary's City, North Devon wares appear no earlier than 1650-80 in St. John's Phase II. The bulk of the excavated North Devon Sgraffito comes from after the 1680's, disappearing quickly with the turn of the 18th century (Hurry and Miller, pers. comm. 1990). This indicates either a 20 year lag time in the demand for ceramic styles between Ireland and America, or else the "dumping" of otherwise unmarketable styles on the American colonies.

The North Devon coarseware potteries did not shut down completely until the early 20th century; at Bideford, the Potter's Lane was still producing in 1906; the Crocker's Pottery stoked their kiln for the last firing in 1896- the same kiln had been in continuous operation since 1668 (Watkins, 1960:29).

**Mottled Manganese Wares**

*Staffordshire Mottled Manganese*  Sherds: 2  Min. Vessels: 1  
*Paste:* Same as above for "Staffordshire", very similar to "Pink-Buff Bodied".  
*Glaze:* Mottled, yellowish red background (5YR4/6) with runny dark reddish brown (5YR3/2) mottling.  
*Deco:* None.  
*Note:* May be synonymous with "Pink-Buff-Bodied" fabric, Mid-17th- early 18th century.
Figure 108 Salterstown "Lancashire" Mottled Manganese

"Lancashire" Mottled Manganese

handled chamber pot
\( \approx 10'' \) dia.

poss tankard

6'' dia.
"Lancashire" Mottled Manganese Sherds: 51 Min. Vessel: 4
Paste: Very pale brown (10YR7/3) or neutral off-white hard paste with tiny black inclusions at X15 magnification, slight marbling.
Glaze: Mottled manganese lead glaze or a thick black lead glaze, occasionally on interior only.
Deco: Thickened band below everted rim, horizontal handles.
Form: Chamber Pot, Cunningham vessel type X10, with Rim Type C2#25 [See Figure 108]. Also Cunningham rim type A1 and separate tankard base.
Note: Ware name does not necessary prove origin; many closely similar wares in Northwest England. 1.17th-e.18th century.

Mottled Manganese Redware Sherds: 4 Min. Vessel: 2
Paste: Medium hard red earthenware, "light reddish brown" (5YR6/4); very generic looking utility redware.
Glaze: Mottled manganese (5YR4/6) background with "dark reddish brown" (5YR3/2) mottling.
Forms: Utility hollow wares, one with handle.

Mottled Manganese is a glazing tradition practiced in several regions, each with its own underlying fabric type. Mottled Manganese wares are named for the mineral particles which give the lead glaze a rich walnut brown mottled effect. These wares may or may not have a white slip under the glaze. The brown mottling shows up in some of the Hampshire-Surrey Border wares of the early 17th century (Orton and Pearce, 1984:35). Mottled wares were produced in Staffordshire in the 1680's through the early 18th century, and are mentioned in Wedgewood's History for the years 1710-15 at Burslem (Mountford, 1971:19). Tavern tankards decorated in mottled manganese became a regional specialty of Lancashire from c.1700-1740 (Nick Brannon, pers.comm. 1989). American excavators will be most familiar with the late 18th-19th century Yorkshire...

At St. Mary's City, Maryland a mottled manganese vessel appears earliest at the Lawyer's Tenement dating c1670-90 (Hurry and Miller, pers.comm. 1990).

It should be stressed that the "mottled manganese" glazes were produced alongside Blackwares in Staffordshire and Lancashire, while the mottled manganese Redwares may indicate contemporaneous production with the lead-glazed redwares. The mottled glaze technique also occurs on Buckley and other "Buckley-like" striated fabrics of the very late 17th and early 18th centuries in the Northwest of England.

**True Buckley**  Sherds:10  Min.Vessel:2

**Paste:** Marbled red and white earthenwares, the white "very pale brown" (10YR8/3), while the red (2.5YR5/6). The swirled, incompletely mixed composite paste is very hard, with occasional fine grains of quartz and air pockets lying along plane of the marbling.

**Glaze:** Various; thick black running to shiny purple edges "very dark reddish brown" (2.5YR4/4), also single sherd pale yellow slip (2.5Y8/4) with a reddish brown wash (2.5YR3/4).

**Deco:** Brown and Yellow two-tone (see above); often cordoned rings around girth.

**Form:** Unreconstructable.

In the closing decades of the 17th century Buckley began to compete with Staffordshire and Devon for the coarsewares market, producing a variety of thickly potted, brown to black glazed utility wares with prominent throw rings. These wares are identifiable by their fabric, which
is marbled into linear striated bands of alternate colors of clay. This fabric is composed of a redware marbled with a buff yellow earthenware. The glazing ingredients come right out of the Blackware tradition, although glazing quality suffers, often running in the kiln or leaving purplish unglazed patches. Occasionally only the top half of the vessel was glazed, in imitation of early 18th century stoneware fashions.

Buckley first appears at St. Mary's City in the St. John's Phase III, 1680-1715 (Hurry and Miller, pers. comm. 1990). The Buckley potteries are at their peak between 1720 and 1770 (Watkins, 1960:37). In America, importation ceases after the Revolution, although Buckley remains in production for another decade (Noel-Hume, 1969:37).

The waters are muddied a bit by the apparent production of marbled, striated paste black-glazed utility wares at other sites besides Buckley. As a type, these wares are not as dramatically striated, and include a mottled manganese in their glazing repertoire. Buckley-like wares have been identified at St. Mary's City from late-17th and early 18th century contexts (Hurry and Miller, pers. comm. 1990). This "Buckley-like" fabric was also present in collections in Northern Ireland sorted by Maura Mulholland. She traced these wares (although this was not her primary objective) to a generalized coarseware
tradition around Liverpool; "The fabric of most of these wares from North West England was variegated with streaks of lighter coloured fabric" (Mulholland, unpub. 1988:16). As yet no one is certain whether true Buckley grew out of a regional fabric-preparation tradition, or vice-versa.

At Salterstown, there are sherds of true Buckley as well as several varieties of "Buckley-like" wares, including a mottled manganese over striated fabric. These sherds may point to an affinity between the Buckley potters and the nearby Lancashire wares of the early 18th century. It is only to be expected that Ireland would receive an increased amount of ceramics from Buckley and Lancashire in the post-1690's period, as indicated by the surviving import/export documents (Grant, 103:27).

**The Lead-Glazed Redwares**

**Salterstown Lead and Green Redware**
Sherds: 7  Min.Vessel: 2
Paste: Finely potted red earthenware "light reddish brown" (5YR6/4).
Glaze: High quality clear lead glazed exterior ((5YR5/8) with a reduced green glazed interior "olive" (5Y4/4).
Deco: Horizontal relief banding.
Form: Small bulbous hollow ware, delicately made.

**Salterstown Yellow Lead-Glaze/ Red Dot**
Sherds: 6  Min.Vessel: 2
Paste: Slightly reduced red earthenware "reddish yellow" (5YR7/6), with ochre inclusions.
Glaze: Yellow lead glaze, with no slip, and with reddish dots infilling the pores of the ware (2.5YR4/4).
Forms: Hollow ware, One rim like Cunningham's style E2#33, and one rim Cunningham E1#31 [See Figure 109].

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Figure 109 Salterstown Red-dot, soft orange, and buff paste.

Salterstown Yellow Lead Glaze/Red Dot

Salterstown Soft Orange Redware

Unglazed Buff Bodied Earthenware

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Figure 110 Salterstown unidentified redware rim forms

Unidentified Lead-Glaze Redwares

- Diameter unknown
- Diameter unknown
- 3"
Salterstown Soft Orange Redware Sherds: 8 Min. Vessels: 3  
Paste: soft earthenware, weathers easily at the break, no temper, reddish yellow (7.5YR7/6) paste of fine grain.  
Glaze: Honey-colored "strong brown" lead glaze (7.5YR5/6), usually flaked off.  
Forms: Unreconstructable, one basal sherd with band around foot, one rim Cunningham type A3#10 [See Figure 109].

Unidentified Red Earthenwares Sherds: 183 Min. Vessels: 15  
Paste: Variable red earthenware (5YR5/6) "yellowish red".  
Glaze: Variable from clear lead glaze to brown.  
Form: Five rim forms have been recorded [See figure 110]; Cunningham rim types D1, E1#30 (two rims), C2#25, A4, and A1.  
Note: Wares too exfoliated/delaminated or otherwise damaged to identify. Some may be Carrickfergus Brownware in an advanced state of decay.

Within the 17th century several dramatic changes occurred in the English ceramics industry. Fashion turned away from the green-glazed earthenwares; both reduced greenwares and copper greenwares were replaced. However, their replacements were not intrusive foreign traditions but instead logical descendants of these regional wares.

Potters discovered (or perhaps had always known) that by firing iron-bearing clays with a lead glaze in an oxidizing atmosphere instead of a reducing atmosphere, a brick red earthenware with a clear lead glaze is produced. What became the ubiquitous "lead-glazed redware" of the 17th-19th centuries was made from precisely the same fabric and nearly identical lead glaze as the late-medieval reduced greenwares. The only difference is an increased use of lead oxide rather than powdered galena in the glaze formula, and increased oxygen in the kiln.
Indeed some potteries were producing green and clear lead glazes contemporaneously (Draper, 1984:7, 10, 12).

By the late 17th century clear lead glazed redwares completely dominated the bottom end of the utility ceramics market, and were produced with minute local variations nearly everywhere there was a kiln. These locally produced wares were soon threatened by the more decorative mass-produced earthenwares of Staffordshire, but held the most utilitarian market share through the 19th century. The only regional alternative traditions which survived this threat were the North Devon gravel-tempered wares, and the Yorkshire reduced greenware mentioned above (Brears, 1971:61).

Irish Wares

Ulster post-medieval archaeologists have identified a locally produced ceramic type as "Carrickfergus Brownware", named for the excavations where it was first identified. Brownware is a regional variation of the late 17th century English (and American) taste for clear and mottled brown lead glazed oxidized earthenwares, or "redwares". The ware is clearly within the English ceramic tradition in construction, glazing and vessel forms, yet was apparently produced in Northern Ireland. The ware was in circulation between c. 1674 and c1750, probably reaching its peak production 1690-1730.
(Mulholland:28). These dates place Brownware production during the second Plantation period. Maura Mulholland has done the most extensive study of this ware to date; her Bachelor's Thesis is regrettably unpublished.

Brownware is named for the color of its glaze, a molasses-like lead glaze brushed on in a fast, haphazard manner, often running off to a purple sheen at the edge of the glaze. When first defined by McNeill in 1981, the brick red fabric was said to be "often laminated" (McNeill, 1981:80). In her more recent study, Mulholland intentionally excluded the Carrickfergus sherds with striations in the paste from her definition of Brownware, after tracing the striated paste to the area of northwest England around Liverpool and Lancashire (Mulholland:7,15-16). She concluded on the basis of vessel forms, glaze application and firing technique that the Carrickfergus potters were probably trained in the Midlands traditions of the Northwest, although the vessel forms more strongly resemble those of North Devon (Ibid:3).

**Carrickfergus Brownware**

- **Sherds:** 33
- **Min.Vessel:** 3

**Paste:** Very hard red (2.5YR5/6) earthenware with flecks of a cream-white grog mixed in at pottery; not marbled but occasional tiny to large unmixed lumps of this pale paste. Quartz, iron and basalt inclusions under X15 magnification. Paste breaks cleanly, high fired, obvious throw rings.

**Glaze:** Glossy lead glaze, reddish brown to dark reddish brown (2.5YR4/4-3/4), variable application changes color to dull matt purple "dusky red" (10R3/3).

**Forms:** unreconstructable--large hollow wares, some handled. One rim Cunningham type E1#31.
Figure 111 Carrickfergus Brownware Types (Mulholland:38).
Figure 112 Carrickfergus Brownware Types (Mulholland: 39-42).
Figure 113 Carrickfergus Brownware Types (Mulholland:39-42).

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Figure 114 Salterstown Pink Buff and Hard Redware

Salterstown Pink-Buff Bodied Earthenware

Salterstown Hard Redware: Striated

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Note: This and "Salterstown Hard Redwares: Striated" are the most likely candidates for "Carrickfergus Brownware". When confronted with a collection of this ware, Nick Brannon immediately identified it as a Carrickfergus Brownware (Personal Communication, Nick Brannon, 1990).

**Salterstown Hard Redware: Striated**  
Sherds: 10
Min.Vessel: 2

**Paste:** Very hard red (10R4/8) earthenware, slightly darker red than "Unstriated" wares, with faint marbling in paste from mixed-in pale cream colored grog; inclusions very similar to above. Obvious throw rings.

**Glaze:** Black to glossy reddish brown (2.5YR4/4-3/4), same as above. Purple at edges of running glaze.

**Form:** Basal fragment with identical profile to Mulholland's "Large Storage Bowl" in Carrickfergus Brownware (Mulholland, unpub. Fig.4) [See Figures 111, 112, 113].

Note: This paste is the color, hardness and texture of identified samples of Carrickfergus Brownware, except for the marbled-in pale grog. This ware is a likely candidate for Carrickfergus Brownware; see similarity in form, above. However, Mulholland defines Brownware as unstriated. Nick Brannon is uncomfortable including the striated hard red as a Carrickfergus Brownware but suspects that further study will establish that this is indeed within the "Brownware" tradition (Personal Communication, Nick Brannon, 1990).

At Salterstown we have many brown-glazed redware sherds, some with distinctly "Buckley-like" striations in the paste similar to the original McNeill description of Brownware, and some without these striations. I hesitated at first to firmly identify any or all of these sherds as Carrickfergus products, since they fit the description of so many utility wares of northwest England. They were instead provisionally identified as "Salterstown Hard Red: Striated" and "Salterstown Hard Red: Unstriated". In the summer of 1990 I took a selection of these wares back to
Ulster, showing them to other post-medieval archaeologists. Nick Brannon immediately identified the unstriated paste "hard red" as Carrickfergus Brownware, while provisionally identifying the striated "hard red" as a possible variation within the same tradition (Nick Brannon, personal communication, 1990).

Weatherhill's description of pale red-pasted Blackwares from Staffordshire fits very nicely with the technical description of "Salterstown Pink-Buff Body" described below. The fact that Staffordshire potters were producing a mottled ware from the same paste (Wedgewood's survey, in Mountford) also fits the description of decorative variations for the "Pink-Buff" paste identified at Salterstown. However, Nick Brannon of the D.O.E. Archae. Survey, Belfast has identified Salterstown Pink-Buff Bodied wares as a local Ulster product of the late 17th-
early 18th centuries. This identification represents an extension of the Blackware tradition into local Ulster production.

**Salterstown Pink-Buff Body**
- Sherds: 69
- Min. Vessels: 5

**Paste:** Pink-Buff "pink" (5YR7/3) earthenware with occasional black and ocher inclusions; slight subtle marbling.

**Glaze:** Variable; mottled manganese and black glazes which run off to purple at edges.

**Deco:** Two sherds have mottled manganese wash on only top half of exterior, creating two-toned effect, black interior. Often heavy horizontal ribbing on exterior.

**Forms:** Chamber Pots (Cunningham Vessel type X10) with Rim Type C2#25. Heavily ribbed surface of more finely potted sherds may be from balusters or tall mugs of Blackware tradition [See figure 114].
Note: Suspiciously like the Staffordshire pastes found with the slip-wares but slightly more pink. Strictly a coarse utility ware, but with possible affinities in form and glazing to Fine Blackwares. Nick Brannon recognized this type as a local Ulster product which is not Carrickfergus Brownware, dates roughly late 17th-early 18th centuries (Personal Communication, Nick Brannon, 1990). Sherd breakdown: delaminated 35; Mott.Mang. interior/black exterior 2; Brown wash dipped 2; interior glazed only 7; black glazed both sides 21.

"Everted Rim" Sherds:35 Min.Vessel:3
Paste: Hand built coarse earthenware with large quartz inclusions, friable, uneven breaks. Paste color variable from reddish brown (5YR5/4) to a very dark grey (5YR3/1). Usually exterior surface charred from cooking.
Glaze: None.
Deco: One sherd with incised/stippled dots around belly; two very questionable fragments of a single loop handle (*) [See Figure 115].
Forms: Belly shaped cooking pots similar to Cunningham vessel type C4 [See figure 115]
Note: Only ware on site manufactured by indigenous Irish. Unglazed red earthenwares may be mixed in here; particularly the handle.

^4. I have never seen a reference to loop handles on Everted Rim wares, which is why these fragments are in doubt.
Figure 115 Salterstown Everted Rim ware.
The third, and far older Ulster ceramic tradition represented at Salterstown is called "Everted Rim" ware, named for its diagnostic rim profile. Everted Rim ware dates from the medieval period, with affinities to the still earlier "Souterrain" and "Crannog" wares. Everted Rim is a ceramic tradition in the most general sense; 48 distinct fabric types have been identified, making positive identification difficult for the inexperienced.

By definition the rim is everted: Decoration where present is most often on the top of the rim but it may also be present elsewhere on the rim and occasionally on the body of the pot. Where rims are absent, the pottery may be distinguished by its black (although not uniformly so) appearance. Bases tend to be convex; grass marking is sometimes present. This pottery is never glazed, and was apparently always hand-built (McCorry and Harper, 1984:59).

The fabric tends to contain inclusions of minerals local to the area in which it is found, indicating many small production centers. Everted Rim ware is distributed throughout Northern Ireland (Ibid:59).

At Salterstown there were 33 sherds of a friable, often grass-marked unglazed black coarseware. None of these sherds show evidence for wheel throwing. Examination of these sherds in 1990 by local Ulster archaeologists confirmed that they were indeed within the Everted Rim tradition (Nick Brannon, personal communication, 1990). The sherds are not randomly distributed across the site, but instead seem to cluster in the western units of the excavations. Everted Rim sherds occur in sealed contexts.
in both F53, a trash pit, and F26, the well. Both of these contexts are roughly datable to the late 17th century, and both features also contain the later Irish utility ware, Carrickfergus Brownware, discussed above. It is the author's opinion that the Everted Rim ware on site is the result of late 17th century use rather than evidence for an earlier medieval occupation. Either Irish potters were providing coarseware to the English (or a product sold in Everted Rim containers), or else there were Irish occupants on the site. The presence of Everted Rim in sealed late 17th century contexts at Salterstown may represent the latest occurrence of that ware documented in the archaeological literature. It also represents the last vestige of a very ancient craft tradition in Ulster, which at the time of the site's occupation was being rapidly replaced by the English-inspired Carrickfergus Brownware.

**Iberian Storage**  Sherds:3  Min.Vessel:1  
**Paste:** Very coarse white (10YR8/2-7/2) earthenware with tiny black red and quartz inclusions, pale grey reduced interior, pronounced throw-rings on interior [See Figure 116].  
**Glaze:** Unglazed or possibly white slip wash.  
**Deco:** Undecorated

Many seventeenth century sites in America and Ireland show traces of trade with Spain (and/or Portugal) in the form of Iberian storage jars (also called "Spanish olive jars"); Salterstown is no exception. This ware is easily recognized as extremely coarse grained, with a white to slightly pink fabric and a thin white wash on the
Figure 116 Salterstown Iberian Storage and "Crucible" Wares

Iberian Storage

---

Vessel diameters unknown

Crucible/Oven

5 cm
surfaces. Individual sherds break so unevenly that they look for all the world like dog food. Noel-Hume dates these jars rather late, at c.1745-1780 (Noel-Hume,1972:143). At St. Mary's they appear in 17th century contexts (VanSweringen site). S.R.James has recently published a reassessment of the chronology and typology for these wares, giving them a date range from 1500-1850 (James,1988:45). At Salterstown three sherds occur in mixed contexts.

**Miscellaneous Utility Ceramics**

<table>
<thead>
<tr>
<th>Unglazed Buff-Body Sherds:9 Min.Vessels:2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paste: Soft earthenware reduced to grey (5YR6/1) to a faint pink (7.5YR7/5).</td>
</tr>
<tr>
<td>Glaze: None</td>
</tr>
<tr>
<td>Forms: Ware survives as two handles and a single rim [See Figure 109.</td>
</tr>
</tbody>
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<thead>
<tr>
<th>Terra-Cotta Sewer Pipe Sherds:5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paste: Brownish yellow (10YR6/6) with large iron-bearing inclusions, basalt and quartz. Unglazed, undecorated.</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>Crucible/Oven Wares Sherds:3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paste: Extremely coarse earthenware tempered with very high proportion of fine-grained quartz. Grey (10YR4/1) body with huge throw rings along interior surface. Ware variable to dull red and ash white.</td>
</tr>
<tr>
<td>Glaze: Melted glass or intentionally dribbled thick aqua-green, thin clear coating on interior.</td>
</tr>
<tr>
<td>Note: May be huge crucible; Ovens were drape-molded and therefore would not exhibit throw-rings [See Figure 116].</td>
</tr>
</tbody>
</table>

These unrelated wares occur randomly over the site; the unglazed buff-bodied sherds do not seem to be related to any other ware found on the site--date and provenance unknown. The terra-cotta sewer pipe only occurred in the
plow zone—no subsurface features have been interpreted as sewer or other utility pipelines.

The Crucible/Oven ware is probably not from an oven (as first thought), since such ceramic ovens were drape-molded and these sherds exhibit huge throw-rings. Each of these "Crucible" sherds has varying amounts of melted glass glazed onto its surface. Crucibles recovered from Bagot's Park, England were made of pink/brown/grey hard silicacious fire-clay, with interior diameters of 12-15", and exterior basal diameters of 14-15" (Crossley, 1967:65). This description, while possibly too vague to be conclusive, fits the Salterstown sherds very nicely. Taken together with the pontil-rod wastage discussed in the "Glass" section below, these sherds may be evidence for the Glasshouses referred to as in ruins in the Phillips Survey of 1622 (See Discussion under "Glass").

18TH- 20TH CENTURY MASS PRODUCED FAUX-CHINA WARES

**Creamware** Sherds:10 Min.Vessel:2
Paste: Uniform White (10YR8/2) refined earthenware, very hard.
Glaze: a cream-white (2.5Y8/2) glaze, thickly applied, nearly uncrazed.
Deco: One sherd pierced Openwork in negative diamond pattern [See figure 117]. All other sherds undecorated.
Note: Mid-18th century.

**Pearlware** Sherds:25 Min.Vessel:8
Paste: Uniform White (10YR8/2) refined earthenware, very hard.
Glaze: Clear white to faintly bluish where puddled in crevices, very fine crazing.
Deco: Polychrome hand painted 2, blue hand painted 6, blue transfer print 11, undecorated 6, and relief decorated 1.
18th C Crumeware, pierced openwork

19-20th C Whiteware Makers' Mark
Note: 1780's-1830's.

**Yellow-ware** Sherds: 6 Min. Vessel: 3
Paste: Uniform white (10YR8/2) refined earthenware, very hard.
Glaze: Bright yellow (10YR8/4-7/8) with fine crazing, occasional tiny brown flecks under X15 magnification.
Deco: Annular band along inside of bowl rim 2, Relief decorated with 4-lobed flower motifs repeated on shoulder 1, one relief decorated rim, remainder undecorated.
Note: early 19th century.

**Whitewares** Sherds: 168 Min. Vessel: 20
Paste: Uniform white (10YR8/2) faux china, very hard, very fine-textured.
Glaze: Uniform glossy white (10YR8/2) with crazing.
Deco: Wide variety including: "Willow" blue transfer print 19 sherds, Non-Willow blue transfer print 20, black transfer print 2, red and green transfer print 1, brown transfer print 1, yellow and brown transfer print 1, aqua transfer print 4, common cable 2, black annular 2, blue annular 1, red hand-painted 1, blue and brown floral hand-painted 1, pink-on-white relief molded 3, undecorated relief-molded 4, undecorated 105.

At Salterstown there are a number of sherds dating from the 1750's through the 20th century which occur in a random distribution across the site. These sherds are probably the result of kitchen compost scattered across plowed fields during manuring; they do not contribute much to the history of the village of Salterstown per se, other than to confirm that plowing occurred over the ruins of an earlier occupation by at least the mid-18th century. The sheer number of these sherds testifies to increased volume and variety of ceramics consumed by individual households with the advent of the industrial revolution. The also point to a modest prosperity for these Ulster farmers.
These sherds were disposed of by the same farmers that lost the late 18th century sleeve-link, and built the still-standing outbuildings attached to the ruins of the bawn (See "Metals").

Creamware was commercially developed by Josiah Wedgewood as a mass-produced substitute for the white salt-glazed stonewares and porcelains dominating the upper end of the British tablewares market in the mid 18th century (Noel-Hume, 1972:125). Immensely popular for at least the next 30 years, creamware was produced at Leeds, at Staffordshire, at Bristol, and in smaller factories from Devonshire to Scotland. Leeds became particularly well known for producing pierced openwork rims in the 1770's (Towner, 1957:22) (George Miller places these pieces in the 1780-90s). There is a single tiny fragment of this openwork creamware from Salterstown, indicating a modest prosperity on this late 18th century farm.

Wedgewood went on to produce a whiter product than his creamwares, which he termed "Pearl White". Pearlware went into production in the early 1780's, and was the first ware to be commonly transfer printed. Pearlware is one of the most common ceramics found on early 19th century sites, but was already in decline by the 1820's, with the introduction of a variety of hard white wares and semi-porcelains referred to collectively as "Whitewares" (Noel-
Hume, 1972:130). These wares in one form or another have remained in production to this day.

Salterstown has examples of these mass produced tablewares with shell-edged, willow-pattern, transfer printed, common cable, relief-molded and hand painted decorative styles, occurring in black, brown, aqua, blue and polychrome colors.

Discussion

The transition from late medieval to early modern ceramics can be broken down by watching the southeastern region and the north midlands each make their adjustments to new vessel forms from the continent and an increasing consumer demand for new varieties of decorative glazing. Each region responded to the same shifting requirements of fashion by creating unique wares. Yet these wares demonstrate a remarkable continuity in potting tradition.

In the North, Blackwares descend straight from Cistercian wares, while lead-glazed redwares were produced from reduced greenwares by simply introducing more oxygen to the kiln. In the South, the 17th century demand for a yellow glaze is accomplished by simply adding arsenic to a copper-bearing lead-glazed white earthenware with its roots in the 13th century. The North responded to this same demand by slip decorating their redwares, a technique which Staffordshire uses to dominate the upper end of the utility wares market in the late 17th century.
Medieval ceramic forms were of a very limited range; cooking pots, jugs and bowls dominating. One of the dominant themes of the late-medieval to early-modern transition is the diversification of vessel forms suddenly available at every local pottery. Based on continental models, these ceramics rapidly replace wood as the dominant material in tablewares. As late as 1552 a Drapers Company feast still used wooden bowls. Sixteenth century references to "Green pots" or "green cups" refer to this new use for ceramics by their traditional color (Brears, 1971:13). In the later 16th century there is a trend towards individual ceramic drinking cups or mugs. Individual table service was not common until as late as the 18th century.

The sudden increase in the vocabulary of forms available to the local potters, and the increased repertoire of tablewares found in everyday settings constitutes a dramatic shift in material culture—it is tempting to refer to a shift in the "Tudor Mindset".

The transition from the late-medieval to the early modern ceramics industry was not simply a change in fashion, but a change in the way goods were produced, distributed and marketed. At the close of the medieval period, potteries were grouped into semi-rural centers at points where clay, fuel and transportation were relatively inexpensive, and where other townspeople would not
Figure 118 Brears’ Pottery Distribution Map (Brears:16).

Potteries working in England, 1530-1630

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complain of the many unique odors generated by the kilns. The Brears map of known potteries 1530-1630 shows a 20 mile marketing radius for each potters' community (Brears, 1971:13,16). [See figure 118]. The change came in the 17th century. By the 1680's there existed an entire class of merchant professionals whose sole object was marketing. Wholesale distributors were arranging for the long-distance importation of raw clays and tempering materials into centers like Staffordshire and North Devon, while arranging for the transport and marketing of finished ceramics well outside of the traditional 20-mile radius. These merchants made far more money than the older local potters could have ever dreamed possible (Brears, 1971:41).

The direct result of inter-regional marketing was that many local ceramics traditions were obliterated. By 1700 the potteries in Lincolnshire, Cambridgeshire, Leicestershire, Bedfordshire, Oxfordshire and Northamptonshire had ceased production (Ibid.). Although the diversity offered by the many local late medieval potters was curtailed, the variety of products available at a reasonable cost to any one consumer increased.

We have already discussed the exponential industrial growth of the Staffordshire pottery industry between 1680 and 1780, a change from family run cottage production to a corporate enterprise employing over 15,000 people in one
valley. Devon was able to compete with the prodigious production of Staffordshire, not because of some quality inherent in the local clay (not to belittle that fine product), but because the potteries were well connected to the "factors" or financiers underwriting English expansion in both Ireland and North America. North Devon was a success story in colonial merchandising.

The local coarseware potters overrun in the late 17th century by Staffordshire wares reemerged in the 18th century when Staffordshire products begin to move upscale, leaving a vacuum at the bottom end of the market. Small, local coarseware pottery was once again sold directly from the kiln sites. The new locally produced coarsewares were now nearly always clear lead-glazed redwares. The few local exceptions to this trend are the Yorkshire reduced greenwares, the North Devon wares (which do not really qualify as "local"), and the brown mottled wares of the Northwest (and Northern Ireland ?) (Brears,1971:61).

Salterstown was occupied as a village during this period of ceramic transition. In the 17th century, all of the late medieval traditional wares were rapidly being eclipsed by the clear lead-glazed red earthenware more familiar to American post-medieval archaeologists. Although I would love to be able to say that these late-medieval survivals only occur in the initial occupation of Salterstown (1614-41), post-deposition stratigraphic
disturbance (also known as plowing) does not allow for such blanket assertions.

The Fine Blackwares, the Reduced Greenwares, several of the Slipwares, Stonewares and the Tin-Glazes all could date to the initial 1614-1642 occupation. Most of the Staffordshires and Sgraffitos probably date to the second occupation circa 1657-1689, while the Buckleys, Lancashires, British Stonewares and Faux-China are most likely post-Village plow scatter. The distribution maps for each ware are included in the appendix, and seem to support the argument made elsewhere herein that the earlier artifacts cluster in a westerly distribution, while artifacts from the second occupation cluster both at the well and in the eastern units of the site. The later 18th-20th century artifacts occur in the random distribution expected from plowing in household refuse with the compost.
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GLASS ARTIFACTS AND GLASSMAKING AT SALTERSTOWN

English Glass Industry of the 17th Century

It is a rare kind of Knowledge and Chymistry to transmute Dust and Sand (for they are the only main Ingredients) to such a diaphanous pellucid dainty Body as you see a Crystal-Glass is. -James Howell, 1620 (Godfrey, 1975:156).

The following discussion may seem unnecessarily detailed. There is hard evidence for glass-making at Salterstown, both in the documents and artifacts. This discussion is meant to provide an introduction to the state of the industry during that period, and also makes the case that Salterstown was the site of the hitherto unlocated Irish glasshouse of William Robson between 1614 and 1618.

Throughout this discussion the terms green glass, forest glass and Waldglas are used interchangeably to denote potash-lime metal produced in Northern European vessel traditions with medieval antecedents. These are the "small glass" wares referred to in contemporary accounts, and were the most decentralized sector of the industry. Cristallo refers to soda-lime metal produced in the Italian tradition, usually in fanciful Mannerist vessel forms in the facon de Venice [See figure 119 for examples of Waldglas forms, figure 120 for examples of facon de Venice forms]. Contemporary accounts refer to window-making as a separate enterprise, using several techniques discussed in detail below.
Figure 119 Waldglass forms (after Klein and Lloyd:95) and (after Godfrey, 1975: plate 2).

Sample Waldglas Forms

Enamelled
Michael Menborn
"Humpen"
1615
(Klein and Lloyd:95)

Pincered Foot / Wrythen Ribbing / Beaker c.1580-1615

Milled Foot / Vertical Ribbing Beaker c.1580-1640
Figure 120 A: Cristallo (after Phillips, 1981:125).

The 17th century glassmaking industry in England has traditionally been considered a backward and fitful enterprise plagued by often conflicting monopoly rights, a shortage of trained artisans, and expensive raw materials. This is primarily true of the luxury glass of the Italian cristallo tradition, as Waldglass furnaces had been in production throughout the medieval period. During the Elizabethan period window glass had been increasingly imported from the Low Countries. The medieval English "Forest Glass" glassmaking centers in the Wealden areas of Kent and Sussex had virtually ceased production (Phillips, 1981:130).

The mid-16th century was the low ebb in English glass production of any kind, while little or no window glass was ever produced in England until late in that century. This lack of domestic window glass is due to a very restricted demand. In the 1560's a single glasshouse could produce 400 cases of window glass per year-- this was more than the total importation of all types of glass per annum for the period. A 1565 import valuation for all types of glass amounted to less than the value of imported tennis balls or playing cards (Godfrey:13,185). As late as the 1630's, household drinking glasses (even in elite homes) were unusual enough to warrant comments in visitor's diaries (Godfrey, 1975:219).
Early in Elizabeth's reign one Cornelius de Lannoy obtained permission to produce glass and turn base metals into gold—the records do not indicate success in either endeavour (Godfrey, 1975:16).

In 1567 a refugee from the religious riots during the "Council of Blood" in Antwerp named Jean Carre obtained a patent for monopoly glass manufacturing rights. He produced window glass at two furnaces in Fernfold Wood, at Alford, Sussex. His workforce was Flemish and Lorraine-trained. Within four years Carre opened another glassworks within the Crutched Friars monastery grounds in London, specifically to produce fine cristallo for the Court of Elizabeth. He hired the famous Venetian Giacomo Verzelini to come to London from Antwerp to manage his new shop. When Carre died, Verzelini took over the glassworks. Verzelini obtained a patent which gave him absolute monopoly over all cristallo glass produced and imported, a monopoly he held for over 20 years (Phillips:130; Godfrey:17, 29).

Only "a dozen or so" examples of Verzelini's total production of cristallo have survived. They are recognizable by their characteristic diamond-point engraving, attributed to Anthony de Lysle. All known examples date from 1577-1590 (Phillips:130-31).

In the late 16th century refugee Huguenot glassmakers dominated English production. After Verzelini's arrival, another influx of refugees followed the St. Bartholomew's
Day massacre of 1572, still another followed the "Spanish Fury" (the sack of Antwerp) in 1576. The immigrants settled in London, Southampton and Rye; glassworks sprang up at each. The Huguenots started spreading inland in the 1590's, establishing centers at the Weald, Staffordshire and Gloustershire. Emigrant glassmakers formed a small but powerful sub-culture of intermarrying families with relatively high concentrations of merchant capital. They jealously guarded their glassmaking skills, despite provisions in various patents which stipulated the training of native English glass makers (Godfrey:21,33-4,211).

Lorrainers and Flemings soon dominated the market in English green glass. There were no restrictions of green glass under Verzelini's patent.

In the 1590's Queen Elizabeth began to realize that granting royal patents of monopoly was not only useful for promoting industries (a good mercantilist policy), but could also serve as a reward to favored courtiers at no cost to the Crown. There was a rising resentment among the impoverished nobility of Elizabeth's court towards the obviously prosperous "foreigners" controlling the English glass industry.

In 1592, in direct violation of Verzelini's patent, Elizabeth granted production privileges to Sir Jerome Bowes, former ambassador to Russia. Verzelini was allowed to continue production until the expiration of his patent,
and out-produced Bowes' operation many times over. With no experience in glass production, Bowes leased his patent rights to two "men of the City" for L 500/ year. These men were William Robson and William Turner, both of the Salters Company of the City of London. Robson became the most powerful man in the English glassmaking industry (Godfrey:39-41), and was to play a key role in the history of Salterstown.

There is no evidence that either man had glass-making experience, but they soon demonstrated skills which precluded that necessity. In 1598 the now elderly Verzelini's son Francis was tossed into prison for 10 years; his brother Jacob followed soon after. The charges were never made clear, although William Robson takes credit for pursuing their incarceration "at great personal expense" (Godfrey:42; Phillips:131).

Robson built a furnace at Blackfriars using Verzelini's old employees, while Turner evidently supplied the capital. The Blackfriars glasshouse was flourishing by 1601. Soon afterwards, the partners defaulted on their lease to Bowes, who then rewrote the terms of the lease, stipulating weekly rather than annual lease payments. His agents forced Turner to sign the new lease at swordpoint in 1605 (Godfrey:42-3).

Bowes' patent was due to run out, and since he was elderly there was some question as to whether he could
obtain a renewal. After vigorous lobbying and more "personal expense", Robson secured a new patent in 1606. The council also issued Robson open warrants to search and arrest anyone suspected of infringing on Bowes' patent (Godfrey:42,43). For the next four years Robson was in court constantly, either enforcing his patent or defending it. Meanwhile, the glassworks at Blackfriars was making large quantities of cristallo and selling at prices inflated well above the international market rate. In 1608 the Privy Council issued new open warrants to assist Robson in confiscations of imported glass at all ports (Godfrey:44-5).

Only a single wineglass of cristallo has survived from Robson's tenure at Blackfriars. The "Barbara Potters" stemmed glass has a tulip-shaped bowl and is inscribed "1602". It is now at the Victoria and Albert Museum (Godfrey:46). It is hard to say what range of vessels were produced at Blackfriars, although one of Robson's many court cases throws some light on the emically perceived distinction between facon de Venice and Waldglas vessel forms.

In 1608 a man named Edward Salter (not necessarily of the Salter's Company) and five partners set up a cristallo glassworks at Winchester House, Southwark. Recruited Italians made "cruets, trencher plates, salts, and stills" as well as "beakers and straight-sided beer glasses"
(Godfrey:46; emphasis mine). Robson sued Salter, his case pivoting on whether it could be proved that Salter was producing true cristalllo in the facon de Venice, as specified in the terms of Bowes' patent. The court decided that Salter was producing cristallo in violation of the patent, but the beakers and beer glasses were not in the facon de Venice. Although Salter won a partial victory, Robson immediately leased Salter's newly established production privileges and suspended production at the Southwark glasshouse. By 1610 William Robson had demonstrated complete control of the English cristallo market (Godfrey:46).

The episode above dramatizes the increasing demand for fine cristalio glass, not for sipping the wines of an elite, but for drinking popular ale. A popular vessel form executed in luxury materials may be evidence in the material culture for upward mobility--at least in aspirations.

By the early 17th century, there was an acute fuel shortage in England, and the enormous quantities of timber required for the glasshouses was resented. The timber shortage appears to have been real enough; in 1609 the land-rich/cash poor Sir Henry Percy, 9th Earl of Northumberland writes of selling the entire forest of his estate to a nearby glasshouse, in order to pay his debts from too vigorous pursuit of "..hawks, hounds, horses,
dice, cards, apparel and mistresses". I wonder which was most expensive? (Godfrey:48).

The rising cost of fuel met with three responses; a renewed interest in coal-burning furnaces, a series of attempts to relocate the industry to Virginia and Ireland, where wood was cheap, and a frenzy of competition for increasingly expensive fuel supplies. For years Forest Glass glasshouses had been located near rivers to cut transportation costs, particularly along the Severn River in Gloustershire. In the 17th century the cost of a cartload of wood doubled in three miles (Godfrey:51).

One man made a handsome profit speculating on glasshouse fuel while manipulating the supply (and therefore the price) of window glass into metropolitan London. Isaac Bungar controlled the window glass produced in the Weald for London. He owned two furnaces and controlled the fuel supply to the remaining seven glasshouses in the area. From a glut on the market in the late 1590's, Bungar was able to produce a shortage of window glass in London by 1610 (Godfrey:53,56-7).

The merchants of London tried to retaliate by investing heavily in the glassworks set up in 1608-9 at Jamestown, Virginia. Eight skilled Germans and Poles were soon producing window glass and Waldglas at Jamestown. Unfortunately the enterprise did not survive the "starving winter" of 1609-10. The second glasshouse of 1621 was,
according to the excavator, even less successful than the first (Harrington, 1952:9-10), although the story persists in the literature that beads were produced there for the Indian trade (Godfrey:60; Phillips:131; Hatch, 1941).

As early as 1589-90 George Longe suggested to Parliament that all domestic glassmaking be suspended to preserve the woods. He modestly proposed moving the entire industry to Ireland, and asked for the monopoly rights to Irish production. He argued that he had already produced small amounts of glass in Ireland, but that the glassworkers refused to stay (The site of this early glasshouse is unknown). Parliament turned him down, partly because the landed members were profiting from the sale of fuel to the glasshouses (Godfrey:52).

In 1606 Sir Roger Aston did obtain a monopoly patent for all Irish glass production, although he did not exploit it (Godfrey:53).

Meanwhile, after much experimentation, two men successfully converted a glasshouse to coal-firing. Sir Edward Zouch and Thomas Percival leased the abandoned glasshouse at Winchester House after Robson had shut it down circa 1609. Using closed crucibles, a raised fire grate with underlying flues, and probably a true chimney, Zouch perfected the design of the "wind furnace", a design which remained in use until the 19th century. Zouch received a royal patent in 1611 to produce green glass and
window glass by coal-firing. A royal proclamation in 1615 forbade the use of wood as glasshouse fuel in all of England (Godfrey:60,64,151; Phillips:131). Of course, our old friend William Robson commenced to throw a series of loud and righteous fits.

Between 1611 and 1615 Robson fought the coal patent tooth and nail. But while fighting the good fight at home, Robson began to cover his flanks. He knew that the coal patent would destroy Bungar's control of the window glass industry of the Weald. He also knew that glass made from coal would be slightly more expensive than wood-fired glass. Very early on, in 1611, Robson leased Sir Aston's patent rights to produce glass in Ireland. Robson paid Aston 100 Marks/annum (Godfrey:65).

Robson then began to put together a Company to exploit his Irish patent. He persuaded Sir John Levington (a Groom of His Majesty's Chamber), Humphrey Holloway, and his brother John Holloway (a Controller of Customs, conveniently enough) to invest in his scheme. The final member of the company was a relative of Robson's named John Hawys, who like Robson was a member of the Salter's Company of the City of London. Hawys had been trained in glassmaking at Robson's furnace at Blackfriars, and was chosen to manage the new Irish glasshouse. The Privy Council wrote to the Lord Deputy of Ireland announcing
Robson's complete control, and advised the demolition of any operating glasshouses. (Godfrey:65-6,169).

In July of 1613 Robson sent Hawys and an unspecified number of workmen to Ireland. Humphrey Holloway went to Ireland to assist Hawys after production commenced. Eleanor Godfrey, upon whom most of this discussion is based, said of Robson's Irish glasshouse;

Window glass was seen being produced in considerable quantities, and in 1614 frequent consignments of 100 cases were shipped to London. The glasshouse continued to operate until 1618...

It is curious that all of the details of this venture are noted except the exact location: 'Ireland' is all that is indicated (Godfrey:66,ft.66).

Both the timing of Robson's actions and his affiliation with the Salters Company seem significant 1.

In 1610 the London Companies, including the Salters, had contracted with the Crown to settle the newly created County of Londonderry, with the liberty to export all "prohibited wares" (Moody,1939:79). The next year, Robson leased the patent for all Irish glassworking. The Salters had had their Irish lands assigned to them by lottery in 1613, the same year Robson sent his Partner (another member

1. We know of Robson's Irish glasshouse through surviving court records. These manuscripts are in the Records of the Exchequer, Kings Remembrancer, Bills and Answers; they include:Holloway and Holloway v.Robson E.112/100/1122 and Mansell and Dowle v.Leeche E.112/99/1053.

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of the Salter's Company) to Ireland. The Salters Company work party under Baptist Jones arrived the following year, and are surprised that a Mr. Aubrey is already living on the site.

Robson's connection with the Salter's Estates in Londonderry are independently documented; in 1627 (long after the glasshouses had been closed) the Salters appointed Ralph Whistler to be the Company's leaseholder in Ireland. Ralph Whistler was the adopted son of Mr. William Robson, then serving as the second Warden of the Worshipful Company of Salters of the City of London (Watson, 1963:74).

According to the court records, Robson's Irish glasshouses are closed in 1618. Between December 1618 and March 1619 Nicholas Pynnar conducted a survey of the Londoners Plantations. He wrote of Salter's Town;

Here are also 9 Houses of Cage-work standing by the Bawn, being inhabited by British families; also a Sawing Mill for Timber; but the Glass Houses are gone to decay, and utterly undone (Pynnar, in Hill, 1877[1970]:588).

There is a discrepancy on the dates. The Salters received their land by lottery on the 17th of December, 1613 (new-style date; Curl, 1986:62). Robson sent men to Ireland in July 1613—he couldn't have known it would become Salter's land. I have no explanation for this contradiction, but I am willing to speculate. Perhaps Robson's crew was sent to reconnoiter the potential for glassmaking in the province, without actually beginning construction until the following spring. One of my more cynical crew members has suggested that the Lottery of Company Proportions was rigged, and Robson already knew which lands the Salters would receive. There is no data.
The excavations at Salterstown in 1989 turned up several artifacts of the glassmaking process, as well as high densities of broken window glass and several glass vessel fragments dating to this earliest occupation (details below).

Excavations established the presence of a fine white sand subsoil stratum underlying most of the site. This sand would require little or no refining for glassmaking. Coupled with the extensive oak forest which dominated the area in the 17th century, and the water access provided by Lough Neagh, Salterstown would have been a favourable location for a glass furnace.

In 1989, local oral tradition still refers to one of Mr. Purvis' silage fields as "Glass Fields". Mr. Purvis lives less than 1/2 mile from Salterstown.

From these admittedly circumstantial clues I contend that William Robson's Irish glass houses were at Salterstown.

Back in London, Robson tried to sue Zouch (the holder of the coal-firing patent). In one of Robson's only court setbacks, his lawsuit failed spectacularly. As a result of Robson's lawsuit, Zouch's patent was rewritten in 1614 to include all kinds of glass, including cristallo, and gave Zouch control over all imports (Godfrey:68).

Zouch turned around and sued Robson for importing glass from Ireland, contrary to the terms of Zouch's new patent.
Robson evidently also continued production at his Blackfriars glasshouse, for which he was held in contempt and imprisoned at Marshalsea. The Blackfriars glass furnace's fires were put out in October of 1614 (Godfrey:71-3).

In the months following Zouch's court victory over Robson, Zouch began to enforce his patent by suing practitioners of the more decentralized forest glass industry—the process took several years of litigation. In 1614 Zouch took on several new members to his company, one of which bought out all of the other shareholders within six months. The English glassmaking industry was now in the hands of Sir Robert Mansell (Godfrey:73).

As an ironic post-script, Robson, now deprived of his production privileges in England, became a lifelong employee of Robert Mansell. During the summer of 1616 a London merchant named Leeche had a consignment of glass confiscated by Mansell's men. The glass had been produced in Ireland at the Glassworks owned by William Robson (Godfrey:86). Both to maintain good relations with his new boss, and to stay out of court, Robson ordered the Irish glassworks closed in 1618, leaving his partners mad enough to take him to court about it anyway (Godfrey:169).

Sir Robert Mansell held and largely enforced a monopoly
patent for glassmaking from 1615 until his death in 1656 3. Under Mansell's administration coal exploration, crucible design, shipping and glass marketing were all vigorously pursued. Unfortunately not a single vessel can be securely provenienced to Mansell's workshops (Phillips:132).

After the Restoration of Charles II in 1660 the industry was controlled by the Duke of Buckingham. Under his control, a Frenchman named John de la Cam obtained the patent to produce glass at Greenwich. Additionally, Thomas Powlden, Martin Clifford, and Thomas Tilson all produced cristallo under the auspices of the Duke (Klein and Lloyd,1984:104).

The actual products of the English "monopolist" period have been difficult to verify; since all of the furnaces depended heavily on imported artisans, their products are usually identified as either Italian or Dutch, although they may have been produced at English sites. Both Mansell and Buckingham employed Italians; the names of two such artisans have survived. The plot takes an interesting twist when one studies the career of Antonio Miotti, who worked for Mansell from 1618-23. Miotti had previously been creating Italian cristallo in Middleburg, Holland, before moving to England. Thus we may have Italianate designs on

3. Klein and Lloyd (1984) say that Mansell obtained his patent in 1614, while Phillips (1981) says 1623. It is possible that Mansell held several patents or that a single patent was renewed several times.
Dutch forms produced in England. This is analogous to the situation for English and Dutch "delft" tin-glaze ceramic production, for the same reasons (Ibid.).

During the Duke of Buckingham's period of control, the London Glass Sellers' Company employed George Ravenscroft to create a rival to the cristallo metal. In 1671 Ravenscroft obtained a patent to create a new crystalline glass known as "flint" or "lead-crystal". This was produced by adding lead oxide to a potash-flux metal. Early lead-potash metals were unstable, and subject to crizzling. The metal could not be worked as finely as cristallo, and British glassmakers soon moved away from the flimsy stretched and pincered winged fantasies of the facon de Venice glasswares (Klein and Lloyd:107-8).

Ravenscroft ran two glasshouses, one called the Savoy, between the Strand and the river in London, and one at Henley-on-Thames. Only nine examples of Ravenscroft's crizzled craft have survived to this day. However, within 20 years over 100 glasshouses were producing lead crystal, and the British glass industry was off and running (Klein and Lloyd:106-7).

In Ireland, Christopher and Robert Fitz-Simon, in partnership with Patrick Hudson and a Captain Roche, opened the first lead-crystal glass house at Dublin at the turn of the 18th century, naming their works the Round Glass House (Phillips:133).
Furnaces

Foy is concerned that for the later Middle Ages and Renaissance we know very little about glassmaking furnace design; "Les fours utilisés par les verriers du Moyen Age et surtout de la Renaissance, nous sont un peu mieux connus" (Foy, 1989:143). One reason for our lack of definitive information despite numerous excavations is the constant reconfiguring of the openings into the siege-chamber of the furnaces due to perennial repairs while the furnaces were in production (Foy:148).

During the 16-17th centuries three major developments altered the design of English furnaces. The late-medieval forest glass tradition of the native English used a rectangular furnace with an insulation cavity between the sieges where the crucibles of molten glass sat and the outer wall of the furnace. This outer wall was pierced by access holes for reaching into the crucibles with blowpipes to gather the glass. The access holes could be blocked with ceramic covers to help control the draft [See figure 121a]. Excavated examples of such furnaces include Bagots Park, Staffordshire (c.1530), Blundon's Wood, Surrey (c.1350), and Knightons, Surrey (c.1550) (Crossley, 1983:147)

After 1567 increasing numbers of immigrants from the Netherlands, Lorraine and Normandy brought the so-called "winged" furnace design, which was flanged on the ends of the sieges to provide a slightly cooler work area for
Four Glass Furnaces:


b) Winged Furnace at Rosedale, Yorkshire from Crossley and Aberg, 1972 in (Godfrey, 1975:140).

c) Venetian Furnace from Agricola *De Re Metallica*, in (Charleston, 1978:28).

d) Coal Fired Wind Furnace from Diderot's *Encyclopedie* in (Charleston, 1978:31).
Figure 122

Glass Furnace at Jamestown, Virginia (Harrington, 1952:12,14).

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annealing and reheating vessels-in-progress [See figure 121b]. Excavated examples include Rosedale, Yorkshire (1590-1600); Buckholt, Hampshire; Woodchester, Gloucestershire; and the furnace at Jamestown, Virginia [See Figure 122] (Crossley,1983:147-50; Crossley and Aberg,1972; Harrington,1952).

A third type of glass furnace was in use in this same period in Italy and France for producing cristallo, a circular furnace of concentric stacked shelves covered beehive fashion and reenforced on the outside with radial buttresses (Charleston,1978). The only known example in England is Verzelini's London furnace (Crossley,1983:151). Such glass furnaces have been excavated in France at la Seube and Cadrix, and in 15th century Italy [Figure 121c] (Foy,1989:145,149,159,164).

Within 15 years of the coal patent of 1611, nearly every furnace in England was a coal-fired "wind" furnace, recognizable by a raised fire-grate with a sunken flue underneath. The fire itself was moved from the ends of the sieges to the middle of the furnace. Early examples may have also had true chimneys; later examples certainly did. Excavated examples include the first such furnace at Winchester House, Southwark (1611), Kimmeridge, Dorset (1617-23), and Denton, Lancashire (c.1615-53) [See Figure 121d] (Crossley,1983:152).

The last innovation to be discussed is the use of a
conical superstructure similar to a "bottle kiln" in ceramic manufacture. These cones were an independent structure from the furnace per se, and were used to regulate the draught. Examples include Roche's Dublin furnace of 1696, and the furnace at Gawber, Yorkshire (1730-40).

The glasshouses at Salterstown were built during the transition to coal-firing, but were probably built precisely to avoid that patent restriction. It is therefore most likely that the Salterstown furnaces were of the "winged" type.

At Bagot's Park the furnaces were surrounded by rubble and burned clay. The excavators recovered entire strata of burned glass in lenses around the furnace. The floor of the furnace was composed of "frothy fused glass" (Crossley, 1967:53, 65). At Rosedale the "winged" sieges were built of clay which had been faced in stone, and contained very little spilled glass (Crossley and Aberg, 1972:112).

Documentary evidence indicates that most wood-burning glass houses were fairly inexpensive to build—about £8 for the house and £4 for the actual furnace. The "great barn" over the furnace was about 40' square (Godfrey:180-81ft). Coal-fired furnaces were more elaborate, and therefore more expensive—approximately £35 (Ibid.).

The clay and stone furnaces themselves were unstable and liable to deteriorate rapidly from the high temperatures of
glassmaking; this was particularly true for potash-metal Waldglas furnaces, which required higher temperatures than soda-metal furnaces. The Waldglas furnaces were a low-budget enterprise anyhow, so there was a tendency for them to relocate when local wood supplies were exhausted, or after cleaning and repairs of the furnace became a liability. Godfrey estimates the average working life of a Waldglas furnace at approximately three years (Godfrey:143-4). The Glasshouse at Salterstown, if it was Robson's, was in production for about 4 years.
The Salterstown Glass

VESSEL GLASS

It is understood that optimal cataloguing procedure for glass would break the specimens down by glass-making materials—the actual compounds which compose the metal; "Soda-lime", "Potash-Lime", "Potash-Lead", "Lime", etc. Determining these fluxes and stabilizing agents requires specialized chemical analysis, or minimally fluorescent ultra-violet testing, neither of which are available for this investigation (Jones and Sullivan, 1985:10,12). I have therefore fallen back on the traditional but notoriously unreliable method of cataloguing by color, supplemented by vessel form and rim/base finish where such evidence is available in the collection.

17-18th Century Table Glass

Colorless: A) 8 unidentified hand-blown fragments, MNV 2. B) 1 fragment, MNV 1; Stemmed glass with bladed knop and finished pontil; probably late 18th century. C) 1 fragment, MNV 1; vial kick-up with pontil scar.

Grey Crizzled: 14 hand-blown fragments, MNV 1; unidentified form, metal may be crizzled early potash-lead. Late 17th century.

4. The ultra-violet test is the less reliable; lead glass will fluoresce blue, while soda glass will appear yellow at the rim. Chemical analysis requires cleaning an unobtrusive (read "expendable") portion of the glass fragment, then dropping a minute amount of hydrofluoric acid onto its surface. A second drop of sulphide of ammonia is then applied directly over the first. The reaction will show a white spot for the presence of soda and a black spot for lead (Bickerton, 1971:32).

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Very Pale Green: A) 7 fragments, MNV 1; rim fragments of vertically ribbed mold-blown table glass. Vessel a cylindrical beaker, first 1/4 17th century.
B) 2 fragments, MNV 1; rim fragments of different profile than above, also vertically ribbed/mold-blown.
C) 1 Fragment, MNV 1; diagonally ribbed "wrythen" mold-blown, rim fragment, early 17th century.
D) 1 fragment, MNV 1; same as above (wrythen), different rim profile, early 17th century.

Green: 18 fragments, MNV 9;
A) Stemmed Table Glass, MNV 4 [See figure 123]; folded basal rims, slight kick-up.
B) Cylindrical Beakers, MNV 3 [See figure 123]; Applied foot around base, 1 milled decoration on foot, 1 applied vertical "gadrooning" on foot, 1 pincered foot. First quarter 17th Century.
C) Unidentifiable; 2 shallow kick-ups; 4 vessel rims, thickened but not folded; 2 unid. handles; no MNV available.
D) Mug form, MNV 1: with elaborate handle, handle has return at top [See figure 124].

Silica, the major ingredient in glass, fuses at too high a temperature for practical glassmaking. The temperature at which silica fuses can be lowered by introducing an alkaline flux. Medieval and Early-Modern Mediterranean glass used burned marine plants for flux, creating "soda-lime" glass. Northern Europeans of the same period used potash made from burned beechwood and other plants, creating "potash-lime" glass in the Waldglass tradition. By removing impurities (mostly iron) from the silica and flux, 13th century Venetian glassmakers were able to produce a clear "cristallo" glass. Imitations of Italian cristallo produced elsewhere in Europe were called "a la façon de..."
Salterstown Free-blown Basal Rims, stemmed and unstemmed

Figure 123

Stemmed

Unstemmed

Pincer-touched
Salterstown Free-blown Rims and Handles.

Glass: Free-Blown Rims + Handles

vert. rib

arrowhead

thickness exaggerated

Handles

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Venice" (Jones and Sullivan, 1985: 10-11). Most of the stemware listed from Salterstown is probably a la façon de Venice unless otherwise noted.

Early attempts to purify the glassmaking metal resulted in an inconsistent finish called "crizzling". This was cured by introducing stabilizers to replace the impurities which had helped to "temper" the earlier metals. Lime and Lead were popular stabilizing agents. Lime was used by the cristallo tradition, but was an expensive import to England, as it had to be shipped in from Spain. In 1676, George Ravenscroft developed potash-lead metal as an alternative to soda-lime cristallo. Lead "crystal" glass fluoresces ice-blue under ultra-violet (Ibid). The "Grey Crizzled" Salterstown fragments listed above are either an early lead crystal or a very poor quality cristallo. The beaker bases are of both green forest glass and what may be a poor quality cristallo soda glass.

The turned/rolled edges so common in the Salterstown vessel glass was apparently the most common treatment for hand-made glassware, and could occur on the vessel rims as well as at the base (See Foy, 1989: illust.). The vessel edges composed of a simple soft thickened edge occur in early cristallo and continue through to the present--they are not diagnostic of period.

Footed Beakers
Footed cylindrical beakers enjoyed high popularity in Germany and the Low Countries in the late 16th century. The German versions, (called Humpen) were usually decorated with polychrome enamels, and came in a variety of volumes, including the tall thin Passglas, and the smaller Hofkellereiglas. Humpen were often covered with finialed lids, decorated in matching enamels [See figure 119].

The Humpen vessel form dates roughly from the mid-16th century to the late 18th century, although descendants of the form are still in production (Klein and Lloyd, 1984:93-97). The Humpen were first produced as late examples of the medieval Waldglass tradition of glassmaking, a tradition which died in the 17th century with increased prohibitions against wood-fired glass furnaces (Ibid:47). The vessel form outlived the glassmaking tradition in which it first appeared.

The popular Roemer form of beer-drinking vessel will be familiar to post-medieval archaeologists from 16-17th century Dutch genre paintings. It has been named for an amateur glass engraver, notable as one of the few famous female artisans of her period, Anna Roemers Vischer (1587-1651), (Klein and Lloyd, 1984:102). The Roemer form is still in production today, albeit now machine made [See figure 120b].

The Waldglass footed cylindrical beaker may owe its design to the earlier Mediterranean glassmakers. At
Rougiers, Avignon, Planier, Petit Palais and Nans these forms have been consistently found in late 13th century French contexts [See Figure 125] (Foy, 1989, Forme B5:211-12). The technique of mould-blowing vertical or wrythen ribs into the body of the vessel also dates from that period in France [See Figures 119 & 124]. This technique is more formally known as "pattern molding", and cannot be duplicated by machinery (Jones and Sullivan:31).

The Roemer form also seems to have developed out of earlier mediterranean forms seen in France; the "Verres a piedouche tronconique" [Forme E3 of the 14th and 15th centuries, Foy:261, Figure 125 & 120b].

A third vessel form, related to both the Humpen and Rhoemer, was particularly popular in the Netherlands and England. This form is a simple footed cylinder, often with a very slight convex curve to the body and molded ribbing.

At the glassworks of Savenel, in the Brabant region of the Netherlands, excavators discovered over 90 specimens of footed cylindrical beakers dating from between 1580-1615. As the excavators described them:

All of the beakers are formed essentially as plain glass cylinders given stability by a slight kick of the base and an applied cordon of glass round the basal angle, often flattened in the plane of the base to give a stable surface, and normally milled, probably with the edges of the "pucellas", but possibly with a "rigaree" resembling a pastry cooks wheel. The beakers are left plain; or decorated with vertical ribbing or with a diaper of raised lozenges, both patterns being left as they came from the mould or twisted out of the vertical ("wrythen") in subsequent working (Terlinden and Crossley, 1981:183).
Figure 125

Medieval Glass Vessel Types (Foy, 1989:211, 212).

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Of ninety beakers, 81% were between 51–55mm in diameter at the base. This diameter, plus the flattened and milled feet, plus the vertical and wrythen ribbing on the bodies, all find matches in the Salterstown collection [See figures 119 & 124]. This close match dates the Salterstown pieces to the first quarter of the 17th century, early in the first period of occupation on the site.

"Wrythen" or diagonal ribbing in tablewares are found in late 16th century English glassmaking sites at Hutton and Rosedale (Crossley and Aberg, 1972:139, fig. 61).

In the first quarter of 17th century England, footed beakers and beer glasses were made in both crista.1 lo and Waldglas metals. They were described by a contemporary as "...six or eight inches in height and being of one bigness from the bottom to the top" (in Godfrey: 218). These straight-sided beakers were usually decorated with mould-blown ribs, either in vertical or wrythen (sweeping diagonal) patterns. They could also have applied glass trails or applied prunts [See figure 120b]. They tended to be pale green varying to a dark and blue-toned olive green (Ibid.).

At the 17th century rubbish pit excavation at Black Gate, Newcastle-upon-Tyne, several cylindrical beakers were recovered, each with a applied-glass coil foot and a small kick-up to recess the pontil-scar. The applied feet were either left undecorated, or decorated with vertical ribbing.
or "gadrooning" (Ellison, et al. 1979:170, fig. 7). A basal fragment with similar vertical ribbing on an applied foot to a beaker was recovered at Salterstown [see figures 119 & 123]. Note that the footed cylindrical beaker form does not occur in later 17th century English glassmaking contexts (Ashurst, 1987).

**Glass-making Debris**

- **Grey Tubing:** 1 fragment, MNV 1 [See figure 126]; handblown, 1/2" diameter, possibly laboratory glass known to be used in glassmaking.

- **Green Tubing:** 1 fragment, MNV 1 [See figure 126]; handblown, 1/4" diameter with slight curve—possibly laboratory glass known to be used in glassmaking.

- **Moils:** 2 fragments, MNV 2 [See figure 126]; the waste glass left on the blow-pipe after product has been removed (Phillips, 1981: 291). Hard evidence for glass-making in the vicinity. The moils from Salterstown were first recognized as such by George Miller, before he had been informed of the documentary evidence for glassmaking on the site.

The hand-blown glass tubing from Salterstown may be laboratory glass used either for glass-making or for distilling. At Rosedale, several fragments of glass tubing were recovered in association with the glassworks;

Fragments of tubing, sometimes plain, sometimes with rib-molding, are frequently found on 16-17th century glass-making sites, and no doubt represent one side of glass-manufacture at this period which gets less discussion than it deserves— the provision of apparatus for the alchemical or manufacturing laboratory (Crossley and Aberg, 1972:141).

Tubing from glass-making sites is most often c.3/4" in exterior diameter. Some tubing may be curved and slightly
Glassmaking Debris and Misc. Pontils + Tubes

Glassmaking Debris

[Diagrams of various glassmaking debris items]

blow-pipe end of pontils

pincered melted glass

Molded Tubes: Glass

[Diagrams of molded glass tubes]

Misc. Pontils
flattened in section for use with an alembic, usually c.1/4" in diameter (Ibid). These figures very closely match the dimensions of the tubing recovered at Salterstown. Hand-blown glass tubing may be related to distilling and other alchemical procedures of the period (Moorhouse, 1972:79-122). Additional glass-making debris from Salterstown may include the "crucible/oven" ceramic sherds discussed in "Ceramics".

17-18th Century Bottle Glass

Dark Green: 18 fragments, MNV 1; 1 kick-up
Olive Green: 21 fragments, MNV 2; 1 kick-up
Exfoliated: 6 fragments, may be from other color category, therefore no MNV available.

Before the 1650's, bottles were light, fragile, and thinly-blown of a pale metal. They were usually blown into square molds, creating the familiar "case-bottle" form (Godfrey:229). After the 1630's, bottles were free-blown and marvered into onion-shaped bodies with long necks. There followed the sequence of forms outlined by Noel-Hume twenty years ago (Noel-Hume, 1969:63-68). These post-1630's bottles were thick, relatively tough, and blown in a very dark green ("black") metal. It has been suggested that this metal is an indirect result of the switch to coal-fired furnaces in the period 1615-1630 (Godfrey:229). The Salterstown bottle glass is too broken up to allow vessel type descriptions.
Figure 127 Fike's Neck Finishes (Fike, 1987:8).

Fig. 2 - NECK FINISHES: 2.1 Double Ring; 2.2 Double Oil or Mineral; 2.3 Bead; 2.4 Stove Pipe; 2.5 Wide Prescription; 2.6 Sheared Ring (occasionally ground); 2.7 Flat or Patent; 2.8 English Ring, Deep Lip or Facker; 2.9 Prescription; 2.10 Reinforced Extract; 2.11 Ring or Oii; 2.12 Wine or Brandy; 2.13 Globular Flare; 2.14 Flare or Triangular; 2.15 Sheared or Blow Over (usually ground); 2.16 Small Mouth External Thread; 2.17 Wide Mouth External Thread; 2.18 Champagne; 2.19 Crown; 2.20 Blob; 2.21 Grooved Ring; 2.22 Flared Ring; 2.23 Stacked Ring; 2.24 Collared Ring; 2.25 Straight Brandy or Wine. Shapes and names are compiled with information from Cumberland Glass Co. Catalog, 1911; Sommers Bros. Co. Catalog, n.d.; Illinois Glass Co. Catalog, 1917; Skinner Bros. Westall Tally Glass Co. Catalog, 1883 and 1892; James (1967); Whiting Glass Co. Catalog, 1904 (Rahman 1973).
Modern Vessel Glass

**Brown:** 4 fragments, minimum number vessels (MNV) 1; crown finish "beer bottle" Fike type 2.19/Crown; (See Figure 127).

**Colorless:**
A) 4 fragments, MNV 1: Jar with molded thickened rim and flat finished base; slight flair in body sides; 4 fragments.
B) Unidentified colorless modern vessel glass: 14 fragments, MNV 2.

19th Century

**Dark Green:**
A) Case Bottle: 16 Fragments, MNV 1; Case bottle with lead-foil seal over a hand-made neck finish Fike Type 2.11/"Ring or Oil", known generically as a "whiskey" lip; vertical striations on exterior surface indicate wooden box-mold.[See Figure 128].
   Note: Vessel found in wall of S.E.Flanker of Bawn, demolished in Jan.1988—important implications for dating fabric/repairs of flanker.
B) Case Bottle: 2 Fragments, MNV 1; neck finish identical to above with lead-foil seal, chamfered corners to molded bottle.

**Olive Green:**
A) Torpedo Bottle: 1 fragment, MNV 1; probably a ginger-ale bottle like Ross's or Cantrell & Cochran.
B) Bottle rim: 1 fragment, MNV 1; rim finish Fike Type 2.11/"Ring or Oil", also known as "whiskey" lip.

**Agua:**
A) Patent-medicine bottle: 4 fragments, MNV 1; neck finish Fike type 2.10/"Reenforced Extract".

**Colorless:**
A) 5 unidentified fragments, 1 embossed, MNV 1. May be modern.

**Purple:**
1 unidentified fragment, MNV 1. Date based on color.

In the 18th and 19th centuries various processes were invented for producing a more pure, inexpensive soda than could be made from burned plants. Using common salt or ammonia, these techniques soon made earlier plant-derived fluxes obsolete (Ibid). With the advent of machine casting techniques in the 19th century, the quality and variety of
Figure 128

Cara Bottle

19th c. Handblown into Medin Mold

Lead Seal over Neck Finish

Colorless Blade Knop Stem
inexpensive glass vessels made glassware ubiquitous in even poorer households for the first time. Since the modern and 19th century glass found at Salterstown post-dates the site itself, I have minimized my discussion.

The case bottle fragments from Salterstown are the latest examples of this form I have ever heard of— their early 19th century date is based on the rim finish. Case bottles are more usually found in 17th and 18th century contexts (Noel-Hume 1969:62,69). The early 19th century date of the vessel found in the wall of the Bawn Flanker may have a big impact in our dating of repairs and alterations to that Plantation-period structure.

The "Torpedo" bottle is a 19th century design in response to the growing carbonated waters industry of that period. The bottles cannot stand upright; therefore the cork closures could not dry out, preserving the carbonation. The Ulster ginger ale companies were an export industry; Cochran and Cantrell torpedo bottles have been found in 1870's contexts in the silver mining ghost town of Silver Reef, Utah (Schuyler,1984).

Amethyst or purple glass is a by-product of ultra-violet sunlight discoloring an originally colorless metal. In the period from c.1870-1915 a small amount of manganese was sometimes added to counteract iron impurities, after a few months of "solarization" this glass turned amethyst. Different fragments of the same vessel may be very
different shades of purple depending on their exposure to the sun (Jones and Sullivan, 1985:13).

Brown "beer bottle" glass is made from iron impurities in the metal, which is melted in an oxidizing atmosphere; various amounts of iron melted in a reducing atmosphere produces green—when manganese is introduced to this same mixture the very dark green "black" glass of wine bottles is produced. For a more detailed discussion of glass colorants see Jones and Sullivan, 1985.

Window Glass

Two methods of making window glass were popular in the 17th century. Crown glass was produced by twirling a hollow gather of molten glass on a rod until it spread out like tossed pizza dough. Crown glass is thicker at the center (the "bullseye") and thins out to the edges. The air bubbles trapped in the spinning glass settle into a concentric pattern visible in the finished, hand-cut window panes. These panes were usually diamond-shaped "quarrels", 4- 6" to the side. The alternative technique, now called "Broad" glass, required slitting a hand-blown cylinder of molten glass along its length, and then spreading the sides of the cylinder out to form a flat sheet. The air bubbles in broad glass tend to align in one direction, while the sheet produced is of relatively uniform thickness. Crown glass dominated 18th century window glass production. An improved clear-metal Broad glass technology was introduced
in the early 19th century, allowing broad glass to outlive the popularity of Crown glass. Broad glass is probably the older technique, dating to at least Roman times (Godfrey, 1975:5). No crown-technique window glass was identified at Salterstown; where air bubbles were identifiable through the weathering, they were aligned in the fashion of broad glass of the older, 17th century variety 5. In the 16th and 17th centuries window glass was referred to by glass men as "broad" glass regardless of technique, and was also called "great glass". Waldglas vessels were called "small glass" (Godfrey:5).

GLASS BIBLIOGRAPHY

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Charleston, R.J.

5. A caveat is necessary here. Very few of the window glass fragments from Salterstown were large enough to be certain that the air bubbles did not radiate away from a center point. If the fragments were of Crown glass, such an alignment would be increasingly difficult to detect the further from the bullseye the quarrel was cut.

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<table>
<thead>
<tr>
<th>Year</th>
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<tbody>
<tr>
<td>1953</td>
<td><em>Glassmaking at Jamestown</em>, Dietz Press, Richmond.</td>
</tr>
</tbody>
</table>
Jones, O. and Sullivan, C.  

Klein, D. and Lloyd, W.  

Moody, T.W.  
1939  *The Londonderry Plantation*, Wm Mullen and Son, Belfast.

Moorhouse, S.  

Noel-Hume, I.  

Phillips, P.  

Schuyler, R.L.  

Terlinden, A.M. and Crossley, D.W.  

Watson, J.S.  
FAUNAL ANALYSIS

During the 1988 and 1989 field seasons, 2,401 faunal specimens were recovered, weighing a total of 18,902 grams. Most of these specimens had been fragmented by years of plowing, with the result that the majority are the size and consistency of dog food pellets. Of 2,401 specimens, 708 are identifiable by species, or 29% of the total specimens recovered. Because the larger, heavier samples are more likely to be recognizable, 10,902 grams, or 59% of the total faunal weight are identified.

Although the catalogue lists only Ovis, it is possible that some of our sheep bones were actually Capra. The faunal distinction between the two species is very slight. Where cranial sutures have survived, they are uniformly those of a sheep. Ribs are only provisionally identified by species, and have only been included where noted in the figures which follow. Teeth which remain attached to their mandibles or maxillae are not included in the specimen count, although appropriate dimensions and aging data are

1. All faunal identifications were made by the author. Prof. Harold Dibble of the Archaeology Laboratory in the Anthropology Dept. of the University of Pennsylvania graciously provided me with counter space in the laboratory, which contains a valuable comparative collection of catalogued and labelled faunal specimens. I would also like to thank Jessica Neuwirth and Tom Johnson of the Historical Archaeology Program at Penn for their assistance and support during the somewhat tedious process of cataloguing the faunal collection. The author assumes complete responsibility for any errors in attribution or analysis.
noted in the catalogue. A nearly complete housecat skeleton from a single animal accounts for the high percentage of *Felis* specimens recovered. No attempt has been made to attribute the sex of the specimens, due to the small and fragmentary nature of the sample.

Of the identified specimens, 448 or 63% are *Bos* (cattle). This number does not include possible *Bos* ribs, which could add another 82 fragments, bringing the *Bos* contribution to the total assemblage to 61.2%. The number of individual specimens (NISP) for all identified species is:

<table>
<thead>
<tr>
<th>Species</th>
<th>NISP</th>
<th>% of Total</th>
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<tbody>
<tr>
<td><em>Bos</em></td>
<td>448</td>
<td>51.0%</td>
</tr>
<tr>
<td><em>Ovis/ Capra</em></td>
<td>152</td>
<td>17.6%</td>
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<tr>
<td><em>Felis Cattus domesticus</em></td>
<td>67</td>
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<tr>
<td><em>Sus</em></td>
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<td><em>Gallus domesticus</em></td>
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</tr>
<tr>
<td><em>Anser</em></td>
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</tr>
<tr>
<td><em>Equus</em></td>
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<tr>
<td><em>Canis familiarus</em></td>
<td>2</td>
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<tr>
<td>poss. <em>Bos</em> ribs</td>
<td>82</td>
<td>10.2%</td>
</tr>
<tr>
<td>poss. <em>Ovis/Capra/Sus</em> ribs</td>
<td>41</td>
<td>4.0%</td>
</tr>
</tbody>
</table>

In addition to the specimens defined by specific species:

unidentified Avian(4) 0.5%
unidentified ungulate(29) 3.3%

[See Figure 129].

The following is a catalogue of anatomical part, handedness, and number of specimens, broken down by species. *Bos* Metatarsus (whole) Right(1)

(MNI 6) (prox) Right(2), Left(1)

(distal) Right(1), Left(6), ?(1)

*Metacarpus* (Prox) Right(6), Left(4), ?(2)

(MNI 6) (distal) Right(1), Left(2), ?(1)
Scapula (distal) Right(5), Left(2), ?(1)
   (MNI 5) Right(1), Left(2), ?(1)
   (blade) Left(1), ?(2)

Humerus (prox) Right(1), Left(1)
   (MNI 3) Right(3)

Tibia (prox) Right(3), Left(2)
   (MNI 11) Right(11), Left(1), ?(2)
   (shaft) Left(1)

Ulna (whole) Left(1)
   (MNI 2) Right(2), Left(2)

Radius (prox) Right(3), Left(2), ?(1)
   (MNI 3) Right(2), Left(2)

Acetabulum (MNI 3) Right(1), Left(3), ?(2)

Ilium (MNI 1) (shaft) Left(1)

Innominate (MNI 4, frags) Right(1), Left(4), ?(8)

Femur (prox) Right(4), Left(0), ?(2)

Os Centro Tarsale (MNI 3) Right(3), Left(1)

Os Carpale 2+3 (MNI 1) Left(1), ?(4)

Interm. Radial Carpal Right(1), Left(2)
   (MNI 2)

Interm. Tarsal (MNI 1) Left(1)

Astragulus (Talus) Right(2), Left(1), ?(7)
   (MNI 2)

Calcaneus (MNI 3) Right(3), Left(3)

3rd Tarsal (MNI 1) Left(1), ?(1)

Os Malleolare (MNI 1) ?(2)

1st Phalanx (MNI 3) ?(18)

2nd Phalanx (MNI 2) ?(16)

3rd Phalanx (MNI 2) ?(16)

Mandible Frags (MNI 4)
   Condyle Process Right(3), Left(3), ?(5)
   Coronion Right(1)
   Diastema Right(1), Left(2)
   Infraental ?(1)
   Horiz. Ramus Left(1), ?(5)
   Tooth Row Right(4), Left(3), ?(4)

Maxilla tooth row (MNI 1) Left(1), ?(2)

Cranial Frags (MNI 1) Right(15), Left(1), ?(5)

Vertebrae (MNI 3)
   Atlas3
Axis 1
Cervical16
Thoracic8
Lumbar12

Ribs (only probable bovine)82 frags

Teeth (MNI 10)

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<th>Upleft</th>
<th>Up?</th>
<th>Low Right</th>
<th>Lowleft</th>
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<td>PreM.3</td>
<td>1</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.1or2</td>
<td>2</td>
<td>1</td>
<td>26</td>
<td>4</td>
<td>2</td>
<td>22</td>
</tr>
<tr>
<td>Molar3</td>
<td>13</td>
<td>3</td>
<td>9</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deciduous</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N.B. Tooth count in graph above includes those in Mand/Maxilla tooth rows.

Patella (MNI 1) Left(1),?(1)

MNI for BOS: 11 (right distal tibia), or 10 (Lower right 2nd premolar).

Ovis/ Capra

Cranium (MNI 2)
  Foramen Magnum, basion(2)
  Frontal (horn root)(1)
  Horn Core(2)
  Occip./Frontal suture (1) (strictly Ovis)
  Otion (1)
  Facial Tuberousity(1)

Vertebrae (MNI 1)
  Atlas (1)
  Cervical(1)
  Thoracic(1)
  Lumbar (1)

Ribs (32) (poss Sus)

Scapula (MNI 4) blade Right(3), Left(4), ?(3)
  shaft , Left(1)

Humerus (MNI 4) distal Right(3)
  proximal Right(4)
  shaft , Left(2)

Radius (MNI 1) proximal Right(1)

Femur (MNI 1) proximal Right( ), Left(1), ?(1)
Tibia (MNI 5) distal Right(5), Left(2)

Metacarpus proximal, Left(1)
(MNI 1)
Metatarsus proximal Right(2), Left(1)
(MNI 2)
Calcaneus (MNI 1) Right(1), Left(1)
Os CentoTarsale (MNI 1) Right(1)
Phalanx, 1st (MNI 1) (1)
Phalanx, 2nd (MNI 1) (1)
Phalanx, 3rd (MNI 1) (1)

Mandible (MNI 4)
Condyle Process Right(4)
Vert. Ramus Right(5), Left(2), ?(2)
Infradental Right(1), Left(2)
Horiz. Ramus, Left(2), ?(1)
Tooth Row Right(4), Left(2)

Teeth (MNI 14)
Up Right Up Left Up Low Right Low Left Low?
Incisor 0 0 0 5 0 0 0
Prem.1 0 0 0 0 1 0
Prem.2 0 1 0 3 1 1
Prem.3 0 1 2 2 0 0
Molar1 7 2 0 8 4 1
Molar2 5 8 1 7 14 1
Molar3 4 1 0 3 3 0
Deciduous 0 0 0 1 3 0

MNI Ovis 14 (Lower Left 2nd Molars), or 5 (Right distal Tibia).

Anser
Radius, whole Left(1)
Ulna, proximal Right(1)
distal Right(1) same bone as above
Humerus, distal Right(1)
Femur, distal Right(1)

MNI Anser anser 1.

Gallus domesticus
Radius, whole Right(1)
distal Left(1)
Corocoid, whole Right(1), Left(1)
Ulna, distal Right(1)
Sternum, frag. ?(1)
MNI *Gallus domesticus* 1

**Canis familiarus**
- Calcaneus, whole Right(1)
- Atlas (1)

--- N.B. Dramatic size difference in two mature dogs, therefore:

MNI *Canis familiarus* 2

**Equus**
- Teeth
  - Canine, Upper Left(2)
  - P.Molar3, Upper Left(1)
  - Molar1, Upper Left(1)

--- N.B. Horse teeth may be natural loss from living animal, post-occupation.

MNI *Equus* 2 (Upper Left Canine).

**Sus**
- Cranium
  - Lower Orbit Left(1)
  - Maxilla Right(2), Left(1), ?(1)
  - Mandible Right(2), Left(2)
  - Scapula Left(1), ?(1)
  - Ribs (2) N.B. May be others confused with Ovis/Capra.
  - Metatarsus Left(1)

**Teeth**

<table>
<thead>
<tr>
<th>Incisor</th>
<th>UpR</th>
<th>UpL</th>
<th>LoR</th>
<th>LoL</th>
<th>Lo?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canine</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PreM.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PreM.2</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PreM.3</td>
<td>1</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PreM.4</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Molar1</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Molar2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Molar3</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

MNI *Sus* 4 (Lower 3rd Molars), or 2 (Maxilla/Mandibles).

**Felis cattus domesticus** (one articulated animal, in F53).
- Cranium
  - Frontal Orbit Right(1)
  - Mandible frags Left(3)
  - Teeth Lower Incisor(1)
  - Premolars (2)
  - Molars (1)
- Vertebrae (20)
- Ribs (11)
- Scapula Right(1), Left(1)
- Humerus, proximal Right(1)
- distal Right(1)
This section has established the number of individual specimens (NISP) for each of the eight species identified at Salterstown. An estimate of the minimum number of individuals (MNI) for each species has also been generated. The results are presented side by side below.

<table>
<thead>
<tr>
<th>Species</th>
<th>MNI</th>
<th>NISP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bos</td>
<td>11</td>
<td>448</td>
</tr>
<tr>
<td>Ovis</td>
<td>14</td>
<td>152</td>
</tr>
<tr>
<td>Sus</td>
<td>4</td>
<td>24</td>
</tr>
<tr>
<td>Felis</td>
<td>1</td>
<td>67</td>
</tr>
<tr>
<td>Anser</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Gallus</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Canis</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Equus</td>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>

The NISP index is very sensitive to bone fragmentation, an obvious problem on a plow-zone site. The MNI index is included here to help control for this fragmentation. Taken together the two indices give us a reasonably accurate picture of relative species abundance on the site. However, neither the MNI or the NISP can tell us how the animals were being used.

The MNI and NISP figures give us a fair idea of which species contributed the most to the diet. Discounting the
Horse, Dogs and Cat from our analysis, there is overwhelming evidence that Beef was the primary meat in the diet. Although there were fewer cattle than there were sheep, a cow yields far more meat than a sheep. Mutton was the next most-represented meat, with Pork following as a very distant third. The Goose and Chicken may have been kept more for their eggs than their meat. No wild game was identified in the Salterstown faunal materials.

This profile of meats is only slightly different from that found on English sites of the same period in the Chesapeake Tidewater of North America. After an early 17th century dependence on pork, the early colonists of Maryland switched by the 1660's to predominately beef production. It was only in the 1680's and 1690's that significant numbers of sheep appeared in Maryland (H. Miller, 1988:178-9). The Marylanders evidently ate far more wild game than their counterparts in Ireland. Since sheep and cattle had been raised in Ireland before the arrival of the 17th century English, it is not surprising that the English "frontier" settlements in Ireland would reflect a different profile from Maryland. The question then becomes, which breeds of sheep and cows were being used?

In order to establish how the animals in our assemblage fit within an overall scheme of agricultural production we need to ask four questions: What breeds were represented? How old were the animals when they were slaughtered? Which
parts of the animals are represented? How were the carcasses cut up?

The kinds of bones represented for each species are presented above. This information is usually used to establish whether the animals were butchered on-site, what cuts of meat were preferred (or shipped away), or whether some specialized industry such as horn tool making or leather production was present.

Unfortunately, the variety of bones recovered is often more directly a result of the sheer size of a particular species than a result of any particular industry. For example, even though an entire articulated house cat was recovered from F56, there were more kinds of sheep/goat bones recovered from the site, simply because gracile cat bone does not survive in the soil as well as more robust sheep/goat. Similarly, there were more varieties of cattle bones than their were of sheep/goats, even though there were more individual sheep/goats on site.

The real value of examining the variety of anatomical parts represented for a particular species comes when one compares the variety from one site with that of another. For this reason, Klein and Cruz-Uribe recommend establishing the MNI for each kind of bone, not just for each species on site (Klein and Cruz-Uribe, 1984:34). These anatomically-specific MNI figures provide a profile of the site which can be readily compared with other sites. Since
Bos and Ovis/Capra are the only butchered species on site occurring in any numbers, I have provided an MNI figure for each kind of bone for those species (see inventory above).

Both the Bos and Ovis/Capra bones are varied enough to indicate on-site butchering rather than imported cuts of meat. The relatively high MNI figures for teeth may be the result of tooth-loss from living animals, perhaps pastured on-site after the site was no longer occupied, rather than a true index of carcasses. More likely the teeth simply persevered better in the ground than did other bone types. Neither species in the collection shows the dramatic rise in frequency for any one bone type which would indicate a specialized use of the carcasses. The collection is possibly too small to pick up nuances of carcass use based only on anatomically-specific MNI's.

Our next question must therefore be; How were the carcasses cut up? Of 448 identified Bos bones, 209, or 47% showed obvious chopping scars inflicted by an axe or heavy cleaver. No saw marks were found on any of the faunal remains at Salterstown. Vertebrae and crania were split axially, indicating that the animals were suspended for dressing out, rather than butchered while lying on the ground in the medieval fashion (Armitage, 1982:98). Ribs were chopped, and long bones were chopped approximately 7-10cm from the ends. Most long bone shafts had been subsequently split, presumably for marrow extraction.
Mandibles, Metapodials, Phalanges consistently showed butcher marks, indicating that lesser cuts of meat were also used. Fewer than 5% of the recovered sample showed evidence of fire. Only four bones preserved the delicate parallel scars of a knife running across the ends of the shaft, indicating de-fleshing operations.

The Ovis/Capra bones were butchered in the same manner as the Bos bones; skulls and vertebrae were split, ribs and long bones were chopped, jaws, ankles, feet were evidently used just as often as prime cuts. Of 152 NISP, 55 bones, or 36% show obvious chopping marks.

The overall impression of the Salterstown faunal assemblage is one of subsistence husbandry rather than industrial meat or leather production. This is supported by the documentary evidence. The total number of cattle shipped from Londonderry City in 1679 was 32 head; Belfast shipped no cattle in that same year. IN 1680 Belfast shipped 33 head, while Londonderry shipped none (Woodward, 1972-3: 521). Another way of approaching the question is to establish how old the animals were at the time of death. Cows raised for dairying and sheep raised for wool may live to a ripe old age before slaughter, whereas animals grown primarily for their meat or hides will be harvested soon after (or immediately before) reaching maturity.
There are two commonly accepted methods of "ageing" faunal specimens. The first is by studying the amount of epiphysial fusion for long bones, and comparing the collection with known rates of fusion for each bone for each species. This method assumes a constant rate of fusion for every animal within a given species, whether of modern breed or not. This method will only sort mature and juvenile specimens, not ages for mature animals. For epiphysial fusion aging, I have used the published fusion rates of Silver, 1963:252-3, 262-3 [See Figures 130 & 131].

The second method of aging bones is by examining tooth eruption sequences and subsequent tooth wear patterns. This method has the advantage of determining the age of mature animals. However, the rate of tooth wear is dependent on the amount of sand and grit in the diet, so samples from different sites are not strictly comparable. The two methods taken together give a fairly accurate approximation of the age of the animals at death.

Tooth wear has been analyzed using Grant's 13-stage ("A"-"N") system as published in Cunliffe, 1975:438-440 [See Figures 132 & 133]. Although Grant's system is intended for use with nearly complete mandibles, I have assigned stages of tooth wear based on her drawings to individual teeth. Payne has pointed out that although teeth within the same mandible will show different stages of wear according to eruption sequence and chewing habits, measuring individual
teeth may still yield an approximation of the kill-off pattern on the site (Payne, 1973:285). Neither Payne or Grant are willing to assign actual ages at death based on tooth wear alone; the tooth wear data is meant to establish relative ages within the assemblage from Salterstown.
### TABLE A

**Ossification centres and ages of fusion in post-cranial skeleton of domestic animals.**

<table>
<thead>
<tr>
<th>Bone</th>
<th>Ossification Centres</th>
<th>Fusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertebrae</td>
<td>Body 1</td>
<td>Home, ex-body and arch fuse at just after birth; body ossifies with epiphyses at 3 years.</td>
</tr>
<tr>
<td></td>
<td>Arch 3 + Spines 1</td>
<td>Pig, sheep, dog — body and arch fuse at 3-6 months.</td>
</tr>
<tr>
<td></td>
<td>Epiphyses 2</td>
<td></td>
</tr>
<tr>
<td>Axis</td>
<td>4</td>
<td>Horse and ex-wings not fused till 6 months.</td>
</tr>
<tr>
<td>Atlas</td>
<td>7</td>
<td>Epiphysis between body and odontoid in horse open till 3-4 years.</td>
</tr>
<tr>
<td>Sacrum</td>
<td></td>
<td>Body epiphyses may never fuse.</td>
</tr>
<tr>
<td>Coxa</td>
<td>1</td>
<td>Unite with each other before uniting with body.</td>
</tr>
<tr>
<td>Femur</td>
<td></td>
<td>Sternal centres fuse early except in last members of remnant which remain at 2 years till old age.</td>
</tr>
<tr>
<td>Manubrium 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sternum</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Anterior end of axis becomes a furrow in old horse. |
† Basis of spines fuse in old horses. Spines fuse in young adult cattle and sheep. |
†† Ossify or calcify commonly in old age.

---

**Table A continued:**

<table>
<thead>
<tr>
<th>Bone</th>
<th>Ossification Centres</th>
<th>Fusion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Horse</td>
<td>Ant.</td>
</tr>
<tr>
<td>2nd Phalanx</td>
<td>Premax. 1 epiphysis</td>
<td>7-8 mo.</td>
</tr>
<tr>
<td></td>
<td>Dorsal epiphysis</td>
<td>Before</td>
</tr>
<tr>
<td>3rd Phalanx</td>
<td>No true epiphysis</td>
<td></td>
</tr>
<tr>
<td>Pelvis</td>
<td>Fusion of false bones</td>
<td>1-2 yrs.</td>
</tr>
<tr>
<td>(or intervertebral)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scapula</td>
<td>Epiphysis</td>
<td>At 4-5 yrs.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humerus</td>
<td>Proximal epiphysis</td>
<td>2-5 yrs.</td>
</tr>
<tr>
<td></td>
<td>Distal epiphysis</td>
<td>5-8 yrs.</td>
</tr>
<tr>
<td>Radius</td>
<td>Proximal epiphysis</td>
<td>4-5 yrs.</td>
</tr>
<tr>
<td></td>
<td>Distal epiphysis</td>
<td>2 yrs.</td>
</tr>
<tr>
<td>Patella</td>
<td>Ossification</td>
<td>3-4 yrs.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Femur</td>
<td>Proximal epiphysis</td>
<td>1-2 yrs.</td>
</tr>
<tr>
<td></td>
<td>Distal epiphysis</td>
<td>3-4 yrs.</td>
</tr>
<tr>
<td>Tibia</td>
<td>Proximal epiphysis</td>
<td>2-3 yrs.</td>
</tr>
<tr>
<td></td>
<td>Distal epiphysis</td>
<td>2-3 yrs.</td>
</tr>
<tr>
<td>Fibula</td>
<td>Proximal epiphysis</td>
<td>2-3 yrs.</td>
</tr>
<tr>
<td></td>
<td>Distal epiphysis</td>
<td>2-3 yrs.</td>
</tr>
<tr>
<td>Fibular Talus</td>
<td>Proximal epiphysis</td>
<td>Before</td>
</tr>
<tr>
<td></td>
<td>Distal epiphysis</td>
<td></td>
</tr>
<tr>
<td>Calcaneum</td>
<td>Proximal epiphysis</td>
<td>Before</td>
</tr>
<tr>
<td></td>
<td>Distal epiphysis</td>
<td></td>
</tr>
</tbody>
</table>

* Inaccurate radio-occlusive ligament ossifies in horse 2-3 yrs. |
† Radio-occlusive ligament ossifies in dog at 2 yrs. |
‡ Metacarpals 3 and 4 of manumax are fused by cartilage at birth. |
§ Ossification occurs at 4 yrs. (old figures give 2-3 yrs.). |
¶ In old boars the basal cartilage may only form false bone. |
** At union epiphysis at 3rd Trachea in horse ossifies variably from 3 to 4 yrs. |
---

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### TABLE D
Tooth eruption ages in the ox.

<table>
<thead>
<tr>
<th>Tooth</th>
<th>Deciduous teeth</th>
<th>Permanent teeth</th>
<th>Commercial Cowed teeth</th>
<th>Ranck teeth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incisors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 central 0/1</td>
<td>Present at birth</td>
<td>16-25 mo.</td>
<td>18 mo.</td>
<td>20-24 mo.</td>
</tr>
<tr>
<td>2 middle 0/1</td>
<td>Present at birth</td>
<td>17-36 mo.</td>
<td>30 mo.</td>
<td>30-36 mo.</td>
</tr>
<tr>
<td>3 lateral 0/1</td>
<td>Present at birth or in first 2 wks</td>
<td>22-40 mo.</td>
<td>42 mo.</td>
<td>36 mo.</td>
</tr>
<tr>
<td>Canine 0/1 (w Wesiform crown)</td>
<td>At birth or in first 3 wks</td>
<td>32-48 mo.</td>
<td>54 mo.</td>
<td>43-48 mo.</td>
</tr>
</tbody>
</table>

### TABLE E
Tooth eruption ages in the sheep.

<table>
<thead>
<tr>
<th>Tooth</th>
<th>Deciduous teeth</th>
<th>Permanent teeth</th>
<th>Modern figures (improved breeds)</th>
<th>Semi-wild, hill sheep, old figures (1790)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incisors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central 0/1</td>
<td>Birth to 1 wk</td>
<td>12-18 mo.</td>
<td>15 mo.</td>
<td></td>
</tr>
<tr>
<td>Middle 0/1</td>
<td>Birth to 1 wk</td>
<td>18-24 mo.</td>
<td>30 mo.</td>
<td></td>
</tr>
<tr>
<td>Lateral 0/1</td>
<td>Birth to 2 wks</td>
<td>27-36 mo.</td>
<td>42 mo.</td>
<td></td>
</tr>
<tr>
<td>Canine 0/1 (corner inner)</td>
<td>Birth to 3 wks</td>
<td>33-48 mo.</td>
<td>50 mo.</td>
<td></td>
</tr>
</tbody>
</table>

* MR: Miller and Robertson.

Evidence that the system under which the animals were kept afforded good protection against weather and periodic starvation. Some features not obvious from the table are given below:

- Birth to 3 months: Incisors crown overlap.
- 6 months: Incisors are side by side.
- 1 year: Spaces between incisors, heavily worn.
- 2-3 years: 2 pairs permanent incisors in wear.
- 3-4 years: 3 pairs permanent incisors in wear.
- 4-5 years: 4 pairs permanent incisors in wear with some overlapping of teeth.

5-10 years: Progressive wearing of incisors and reduction of overlap with eventual almost complete loss of crown leaving root stumps with "tips" of enamel only.

12-14 years: Widely separated stumps of incisors.

14-16 years: Gradual closing up of stumps of incisors.

Separate incisor teeth can be placed as young if the labial surfaces bear longitudinal wavy lines, or aged if these are absent. The incisors are at first convex in outline and are levelled by wear. The wear removes enamel to expose a line of yellow dentine. Within this a darker streak appears later (the secondary dentine) which changes in shape with age; from being long (transversely) it shortens then widens into a square and finally becomes oval in the pulp.

It is evident from this list that the permanent of the lower jaw is very large in ruminants and has 3 cups. It may be easily mistaken for a permanent tooth.
Figure 132
Tooth Wear Stages for Cattle (Grant: 438).

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Some wear stages last longer than others; this partially accounts for the large number of *Bos* teeth in stage "F", and the *Ovis* teeth in stages "F" and "G". Since this is so for all tooth types it does not necessarily skew the results.

Since premolars erupt before molars, they will be in a more advanced stage of wear than the molars on the same animal. For the graphs of tooth wear stages presented below, [See Figures 134 & 135], lines dividing age groups within the assemblage are drawn on a diagonal to reflect this expected difference in wear stages between different teeth on the same animal. Since wear stages do not translate directly into specific ages, the age group divisions are somewhat arbitrary, highlighting the clustering of wear stages. For this reason, percentage statistics representing a particular age would be spurious, and are not presented.

For both *Ovis* and *Bos*, very few immature animals are represented, indicating limited use of lamb and veal. The majority of the cattle were slaughtered soon after reaching maturity, indicating that they were used primarily for meat rather than dairying. However, there is a significant cluster of very worn 2nd molars which argue strongly for at least some dairying. The tooth wear data for the sheep shows less clustering; there are slightly more old sheep than young mature sheep, indicating that sheep were used almost
Figure 134

Salterstown Bos, teeth by wear-stage.
Figure 135

Salterstown *Ovis*, teeth by wear-stage.
equally for wool and mutton.

There were not enough *Sus* teeth in the assemblage to justify elaborate analysis. However, I would draw attention to a single mandible which displays dramatic differences in wear stages between the remaining teeth (15S2W.2). While the 3rd Molar was still erupting and unworn, the 1st Molar was worn nearly down to the roots, while the second molar was worn to an intermediate stage. This is probably the result of high grit content in the feed, and may indicate that the pigs were put into the woods to forage for themselves (Grant, 1975:449). This technique of pig husbandry is known as pannage, and was widely practiced by settlers in 17th century New England.

The epiphysial fusion data can now be used to either support or weaken the conclusions on aging reached using the tooth wear analysis. These data are reported in Figure 136.2

Of the 448 *Bos* bones recovered, only 14 of them were unfused. However, these 14 bones come from a minimum of 4 individuals (4 unfused right proximal femurs), out of a total *Bos* MNI of 11. In other words, 36% of the cattle were slaughtered before they were 3.5-4 years old. At least one of these 4 cattle was slaughtered before 12-18 months of age (unfused proximal radius).

2. I am indebted to Dr. Henry Miller of St. Mary's City for tabulating these data into a standard format.
Figure 136

Percentage of Cattle Killed By Age Range, Salterstown, North Ireland

<table>
<thead>
<tr>
<th>Fused</th>
<th>Unfused</th>
<th>Element</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>0-18 Months</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>Radius, Prox.</td>
</tr>
<tr>
<td>18</td>
<td>0</td>
<td>1st Phalange</td>
</tr>
<tr>
<td>16</td>
<td>0</td>
<td>2nd Phalange</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
<td>Humerus, Distal</td>
</tr>
<tr>
<td>97.6%</td>
<td>2.38%</td>
<td>%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24-36 Months</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
<td>Metacarpal, Distal</td>
</tr>
<tr>
<td>8</td>
<td>4</td>
<td>Tibia, Distal</td>
</tr>
<tr>
<td>8</td>
<td>0</td>
<td>Metatarsal, Distal</td>
</tr>
<tr>
<td>82.6%</td>
<td>17.4%</td>
<td>%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>36-48 Months</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>Humerus, Prox.</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>Femur, Prox.</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Radius, Distal</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>Ulna, Prox.</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>Tibia, Prox.</td>
</tr>
<tr>
<td>60%</td>
<td>40%</td>
<td>%</td>
</tr>
<tr>
<td>Bone Type</td>
<td>Total MNI/bone type</td>
<td>Unfused</td>
</tr>
<tr>
<td>-----------</td>
<td>---------------------</td>
<td>---------</td>
</tr>
<tr>
<td>Humerus</td>
<td>prox: 3 right</td>
<td></td>
</tr>
<tr>
<td>Femur</td>
<td>prox: 12.5-3yrs</td>
<td></td>
</tr>
<tr>
<td>Tibia</td>
<td>dist: 1 right</td>
<td></td>
</tr>
<tr>
<td>Calcaneus</td>
<td>left</td>
<td>1</td>
</tr>
<tr>
<td>Vertebrae</td>
<td>lumbar: 13-6months</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>cervical: 1</td>
<td></td>
</tr>
</tbody>
</table>

Of the 152 *Ovis* bones recovered, 8 were found to be unfused. These 8 bones represent an MNI of 3 sheep (proximal right Humerus), out of 14 sheep MNI for the entire assemblage. Of this tiny sample, 21% were slaughtered before reaching maturity, while at least one lamb died before reaching 6 months old (the vertebrae).

Obviously, the sample size is far too low to take these conclusions very seriously—Crabtree has said that one needs 10,000-50,000 identified fragments to perform a statistically respectable analysis of age-at-death (Crabtree, 1987:242). We have 866 identified fragments. However, even within our limited sample, there seems to be a pattern of animal use. There are more mature and elderly animals than immature animals represented in the assemblage. This holds true for both sheep and cattle, although the sheep sample has proportionately fewer immature animals than the cattle sample. The maturity of both animal groups is attested to by both the tooth wear analysis and the epiphysial fusion count.
When we try and establish the relative age of the mature animals we have to rely on the tooth wear analysis. The *Bos* sample shows a definite clustering of age groups; the majority are young mature animals with a significant proportion of elderly cattle. This supports the tentative conclusion that the stockmen of Salterstown were raising their cattle primarily for beef, while keeping some of the cows into old age for dairying. The *Ovis* sample does not cluster as clearly as the *Bos*, showing instead a continuum of ages from mature to elderly. This probably indicates wool production with a small mature herd from which animals were slaughtered for mutton as the need arose rather than according to some policy of scheduled kill-offs.

The final question we need to ask of the faunal assemblage is, "What breeds were represented by the mature animals?" During the 14th and 15th centuries cattle breeds in England began to increase in size, attaining over 90% of their modern stature by the mid-18th century [See Figure 137] (Davis, 1987:185). We know that some of the English...
Figure 137


8.7 Size changes in British cattle: their average withers heights in centimetres. (a) Mesolithic, Neolithic and Early Bronze Age male and female aurochs. (b) Earlier Neolithic domestic cattle, 2600 bc. (c) Late Neolithic, Beaker, and Early Bronze, 1150 bc. (d) Middle Bronze Age, 1000 bc. (c) Iron Age, 300 bc. (f) Romano-British, first-fourth centuries AD. (g) Anglo-Saxon and Scandinavian, seventh-tenth centuries AD. (h) Saxo-Norman and high medieval, eleventh-thirteenth centuries AD. (i) Later medieval, fourteenth-fifteenth centuries AD. (j) Tudor, late fifteenth-sixteenth centuries AD. (k) Modern, late eighteenth century AD. From Grigson, 1982; and Arnitage, 1952.

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planters of the 17th century were introducing these large English cattle into Ulster (McCormick, 1984:4, Woodward, 1972-3:491). We also know that Irish cattle of the 17th century probably retained their medieval stature. At the time, Irish cattle were considered by the English to be "scrawny, their meat tough, their butter inferior, and their hides lank and thin" (in Woodward, 1972-3:491). It is therefore no surprise that cattle of the "English" stature were found at Pottinger's Entry, Belfast—an urban and presumably English context of the late 17th and early 18th centuries (McCormick, 1984).

As late as the Rebellion of 1641, the Irish were themselves well aware of the distinction between imported English breeds of cattle and their own native stock. In a letter to the Lord Lieutenant shortly after the outbreak of the rebellion, one witness complained of the Irish:

Nor is their malice towards the English expressed only so but further, even to the beasts of their fields and improvements of their lands, for they destroy all cattle of English breed, and declare openly that their reason is because they are English, so great is their hatred not only for the persons of the English but to every species of that nation (Ormond Mss, N.S., 1903, II:35, as quoted in McCormick, Charlotte Quay, unpub.).

I believe that by carefully comparing standardized bone measurements from several sites, it can be tentatively concluded that there were small cattle of a medieval Irish breed on site in late 17th century Salterstown.

Philip Armitage has been able to establish the size range for several key faunal measurements diagnostic of
17th century "improved" cattle from London. This is due primarily to his work with faunal material from Aldgate, reviewed in two different articles, although the actual catalogue remains unpublished (Armitage, 1982 and 1984).

Unfortunately there is as yet no large and carefully documented collection of 17th century Irish cattle remains published. This is not to say that faunal collections dating to the 17th century have not been excavated. A massive faunal collection from Carrickfergus remains unpublished due to the untimely death of the primary investigator. During the spring of 1990 Nick Brannon has excavated a large faunal sample from the ditch adjacent to the 17th century city walls of Belfast. Analysis of this collection is now in progress.

Finbar McCormick has done most of the work on the Ulster faunal problem to date, relying on cattle sizing measurements dating from 13th, 15th and 16th century Irish sites (McCormick, 1984). Therefore the sizing criteria used for establishing whether a mature animal of 17th century provenience is of "Irish" or "English" breed stock must for the time being remain tentative.

Figure 138 is a chart comparing several key indices for Irish, Scottish, English and Modern American cattle breed sizes. All sizes indicate mature animals—to my knowledge, no study undertaken thusfar has been able to control for sexual dimorphism within the samples. Presumably the
### Comparative Measures of U.K. cattle breeds of the medieval and late-medieval periods.

The "English" measurements are from 16th century Coventry, in Holmes, 1981 except for the MetaCarpal measurements, which are taken from 17th century Aldgate, in Armitage, 1982. The Scottish figures are from 17th century Tron Kirk, Chaplin and Barnetson in McQ Holmes, 1975. The Irish figures are a combined range taken from 15th century Greencastle, Co. Down, 13th century Drogheda, Co. Louth, and 13th-e.14th century Limerick (in McCormick, 1984a, b, and unpub.). The Pottinger's Entry figures are from 17th century Belfast, McCormick, 1984a. The Modern figures were taken by the author from a mature cow, Specimen #28 in the Penn Comparative Faunal Collection.

<table>
<thead>
<tr>
<th></th>
<th>MedIrish</th>
<th>17cScot</th>
<th>17cEng</th>
<th>Mod PotEntry</th>
<th>Salttown</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MetaTars</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>GBd</td>
<td>45-50</td>
<td>44-53</td>
<td>51-56</td>
<td>60</td>
<td>44-51</td>
</tr>
<tr>
<td>GBp</td>
<td>37-50</td>
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<td>GL</td>
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<td>208-214</td>
<td>208-214</td>
<td>262</td>
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</tr>
<tr>
<td><strong>MetaCarp</strong></td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>GBd</td>
<td>49-59</td>
<td>43-50</td>
<td>60-80</td>
<td>67</td>
<td>55-62</td>
</tr>
<tr>
<td>GBp</td>
<td>48-55</td>
<td></td>
<td>70</td>
<td></td>
<td>44-57</td>
</tr>
<tr>
<td><strong>Phalanx.1 GL</strong></td>
<td></td>
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<tr>
<td></td>
<td>52-65</td>
<td></td>
<td>69</td>
<td></td>
<td>50-55</td>
</tr>
<tr>
<td><strong>Phalanx.2 GL</strong></td>
<td></td>
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<tr>
<td></td>
<td>36-44</td>
<td></td>
<td>46</td>
<td></td>
<td>33-38</td>
</tr>
<tr>
<td><strong>Radius GBp</strong></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
<td>71-73</td>
<td>68</td>
</tr>
<tr>
<td><strong>Astrag. GBd</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>GL</td>
<td>57-63</td>
<td></td>
<td>36-43</td>
<td></td>
<td>55-59</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>57-68</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Calcan. GL</strong></td>
<td>115-132</td>
<td></td>
<td>116-119</td>
<td>109-117</td>
<td></td>
</tr>
</tbody>
</table>

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measurements from a single site representing only one breed will display a bimodal distribution based on sexual dimorphism. Such a distribution does not necessarily indicate the presence of two different sized breeds.

Again, all measurements are in accord with the conventions of Von Den Driesch, 1976. The statistics presented in Figure 138 are assembled from disparate sources. Such a motley collection of metrical data taken from several different centuries of tiny archaeological samples can only be considered exploratory—a gesture in a promising direction.

The Salterstown collection shows bos specimens consistently smaller than all but the Medieval Irish and Scottish materials, occasionally grazing the lower range of measurements from other proveniences. These cattle were tiny. It is therefore possible to tentatively conclude that the Medieval cattle of Ireland (and Scotland?) were still in use in rural County Londonderry in the last four decades of the 17th century, the period from which most of the associated artifacts at Salterstown date.

These small cattle bring up an interesting question; were the cattle actually raised by English planters, or were the planters being supplied by Irish stockmen? Woodward maintains that the Irish were forced to "commodify" their livestock production in order to pay the exorbitant rents exacted by the English planters.
(Woodward, 1972-3:489-90). There is no evidence from Salterstown to support the specialized production and export of animal products—this was a subsistence faunal collection. Of course, if a surplus of cattle was marketed from the site "on the hoof", there would be no trace left behind for the archaeologist. We find small local cattle either raised by the household or delivered "on the hoof" to be slaughtered on-site. We know this from the consistently wide variety of anatomical parts represented. Given the variety of ages found in the collection, it seems likely that the decision of when to slaughter was made on-site. Thus the occupants were probably not merely consumers of someone else's production. Neither were they producing an archaeologically visible surplus.

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LEATHER

At the bottom of the well (F26: strata I and J) were found 36 pieces of well preserved leather. The leather was kept moist and assigned preliminary field catalogue numbers. Since shipping organic remains back to the States for conservation and study presented enormous logistical difficulties, we contracted Marie Neill, on the high recommendation of N. Brannon of the D.O.E, to study the leather goods recovered from Salterstown following their conservation. Her report has been included here in its entirety, supplemented by my own occasional clarifications, indicated by [bracketed text].

Mr. Fry of the D.o.E. Archaeological Survey of Northern Ireland performed the conservation of the leather. The following are his own words;

Conservation was accomplished by first impregnating the cleaned leather in a 30% aqueous solution of Polyethyleneglycol (PEG), made up of two parts of PEG 1500 to one part of PEG 4000, and then vacuum freeze-drying it. Afterwards, in order to help retain the shape and suppleness long-term, a dressing consisting of a mixture of Pliantine Special G and Bavon ASAK-ABP in 1-1-1 trichloroethane was applied by brief immersion (Fry in Neill, personal comm.1990).

Those shoes/brogues which could be reconstructed by extrapolation have been drawn as if complete in Figure 139. In that figure are references back to the drawings of the actual fragments, to be discussed in detail below.

Serendipitous puns are the only variety forgivable in academic writing.
Figure 139 Reconstructions of the Salterstown Footwear by M. Neill.

Fig. 150

Fig. 151

Fig. 152

Fig. 148

Fig. 140

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Following M. Neill's report is a brief synopsis which reviews the implications of the Neill report, both for the interpretation of the site, and for the reconstruction of late 17th century life at Salterstown.2

The Salterstown Leather Report
by Marie Neill

Introduction

Few studies of Irish footwear can be undertaken without some reference to Footwear in Ireland, by Dr. A.T. Lucas (1956). This pioneering work remains one of only a few published articles on the subject and yet it incorporates both archaeological material and the folklore record of leg covering and footwear throughout the country from the Early Christian period until this century. Much reference is made to the tradition of going barefoot whilst wearing a "footless stocking" or knitted tube running from the knee to the ankle, and held in place by a thread wrapped around

2. I am indebted to several people for this section; certainly Marie Neill is at the top of that list. I would also like to thank June Swann, a footwear historian, curator and consultant who was kind enough to guide the dating of the Salterstown leather. Al Saguto, a professional cordwainer and living history interpreter at Colonial Williamsburg, also contributed to the following analysis. Finally I would like to dedicate this section to Herb Perry, who in 1973 took me into a formal apprenticeship as a leatherworker in Colorado, a profession I followed off and on for the following 8 years. It is fitting that Herb, now in his 70's, managed to visit the Salterstown site in 1989. I am sorry he did not get to see the shoes.
the big toe. Not everyone went barefoot however, as Lucas' five types of known Irish footwear attest. He held that all early footwear types were made from a single piece of leather, folded up and stitched to the shape of the foot, and that the composite shoe (multi-piece) was not introduced into Ireland until the 16th century AD. Recent excavation at Deer Park Farms in Co. Antrim (Neill, unpublished) has proved that finely stitched and decorated multi-piece shoes were being made as early as the 7th century, AD. predating recent finds in Dublin which had suggested a Viking introduction for the composite shoe form.

Though Lucas' chronology of early shoe development is now somewhat out of step in the light of recent discoveries his paper includes a substantial body of oral and written evidence for Irish footwear practices, county by county, since the 16th century. This wealth of traditional/cultural sources, historical references and archaeological material must still form one of the main constituents of any discussion on Irish footwear undertaken today.

Broques

3. After receiving the Neill report, I learned that the Brogue tradition of laced leather thong construction found at Salterstown in the 17th century also occurs at Wood Quay, Dublin in the 12th century. Thus the Salterstown shoes represented a 500 year old construction tradition at the time they were produced (Personal Communication, Debbie Caulfield, Wood Quay, Dublin:1990).
Despite placing the advent of the multi-piece shoe in Ireland in the 16th century, much of what Lucas recorded is of immense importance in the study at hand. The leather from Salterstown suggests two distinct methods of footwear manufacture, that of the shoe and the brogue. The numerous historical sources do vary in their definition of the native (as it became known) Irish brogue, some describing it as "stinking rawhide" or untanned (Lucas, p. 360 no. 26), whilst others talk of "...the patent of restraint for tanning and broguemaking" (C.S.P.Ire. 1647-1660 p. 310) and the destruction of large timber, "...by the broguemakers who have stripped off the bark 3-4 ft from the root, which caused the trees to decay as they stand" (C.S.P.Ire. 1671:184), See also section on tanning, p. 9-14.

As well as being described as single-soled, unlined, sharp toed and unheeled, they [brogues] are equally described as being of welted construction (multi-soled) and stout. Luke Gernon, second Justice of Munster, noted in 1620 in his Discourse of Ireland that "His broges are single-soled, more crudely sewed than a shoo, but more strong, sharp at the toe and a flap of leather left at the heele to pull them on" (Litton-Falkiner: 357) [See figure 140]. Some 78 years later John Dunton remarked on a party he met;

They were a parcell of tall lusty fellows with long haire, straite and well made, only clumsy in their leggs, their ankles thicker in proportion to their calves than the English, which is attributed to their
Figure 140 Salterstown Leather, M. Neill.
weareing broags without heels (MacLysaght:357).

From the 16th century onward this Irish tradition is noted as being particularly unusual. Despite a variety of contradicting descriptions, on one point they are all agreed, and that is the stitching together of brogues by leather thong and not with flax or hemp. In 1598 a great deal of debate arose when it was suggested that English troops in Ireland should be supplied with Irish mantles (cloaks), stockings and brogues; "...the soldiers may have 3 pair of Irish brogues for the price of one pair of shoes viz at 9d the pair of brogues" (C.S.P.Ire. 1598-1599:251). In a detailed breakdown of winter apparel for each rank, an officer would have, among other items such as a lined cassock trimmed with lace, canvas doublet with silk buttons, two shirts and "...three pairs of neats leather shoes, 5s.3d". The common soldier's apparel would include a cassock of broadcloth, two linen shirts and "...three pairs of neats leather brogues which will be warmer for the winter and more servicable for the country, 5s." (C.S.P.Ire. 1598-1599:296) With heavy Irish mantles and Irish brogues a disdainful Sir Robert Cecil said of these new proposals, "Our difficulty in this article is that by this means the English shall become in apparel barbarous, which hath hitherto been avoided" (C.S.P.Ire. 1598-1599:251). [Note that both footwear and cloaks are here
used as ethnic markers, defining the boundary between groups].

Further reference to the cheapness and durability (due to thonging) of brogues is made in 1627, in a memo to the Duke of Buckingham on the cost of raising more men for Ireland: "...stockings will cost 9s. the dozen. Shoes will cost 2s.6d. the dozen. Brogues 1s." (C.S.P.Ire. 1647-1660:107).

In response to the Irish rebellion of 1641, 13 shoemakers in Northampton led by Thomas Pendleton were given a contract for 600 pairs of boots and 4000 pairs of shoes for the army going to Ireland in 1642. As late as 1651 the shoemakers complained that payment of £208 was still outstanding. It is probable that the buyers were unprepared to pay for the troop of horse sent with the shoes to London to ensure their safe arrival (Swann, 1986:8).

Subsequent visitors to Ireland seeing this native type of footwear for the first time were to remark upon the stitching method:

1673 "...the common sort of people, both men and women wear no English shoes, but things called Irish brogues, thin-soled, somewhat like our pumps and sowed altogether with leather" (The Present State of Ireland, 1673:152).

1690 "Very little clothing serves them, and for shoes and stockings much less. They wear brogues being quite plain without a heel and all sowed with thongs, and the leather not curried so that it grows hard as a board, and therefore many always keep them wet, but the wiser that can afford grease them often and that makes them supple" (Stevens, in Murray:139).
1812 "In the neighborhood of Tarbert is a holy well at which I saw upward of 50 persons on their knees doing penance. The brogues of the common people are made like pumps, with thick soles, but instead of being sewed with waxed thread, they are worked together with leather thongs" (Wakefield, vol.2:763).

1840 "The regular brogue was of two sorts; the single and double pump. The former consisted of the sole and uppers only; the latter had a welt sewed between the sole and upper leather which gave it a stouter appearance and stronger consistency" (Hall, vol.1:189-90).

Another form being; "...sewing the welt on an inner sole and then attaching the sole to it in shoe fashion" (Ibid.)."...formerly were neither hemp, wax or bristles used...the sewing all being performed with a thong...made of horsehide, prepared for the purpose, and it was no mean part of the art, the cutting and pointing of the fong (thong) for use"

These men "...pride themselves on the antiquity of their trade and boast over the shoemaker whom they consider only a spurious graft on their more noble art" (Ibid.).

Despite the "antiquity" of this "noble art", it is curious that the majority of Irish shoes of truly early origin, especially those of the Early Christian period, are finely stitched. At Deer Park Farms this stitching material was identified as being of animal origin (gut or sinew) with no evidence for thonging other than for the addition of repairs to the sole or heel (Neill unpublished) [Note footnote #3].

Taking all the sources into consideration, the Irish brogue, marvelled at and ridiculed equally by visitors, was a hard wearing, single or multi-soled, straight shoe (i.e. could be worn on either foot) fastened across the instep and sewn together by the broguemaker with leather thongs.
The Development of Lasting Techniques

Despite the antiquity of the wrap-around one-piece shoe (Swann, 1973: p. 4), and its survival in Ireland into the early 20th century on the Aran Isles in the form of a *pampootie* (raw-hide moccasin), the shoe has undergone several important changes in lasting technique. "Lasting" refers to the method by which the uppers and soles are attached together. Though there have been changes in fashions over the centuries in the form of decoration, laces, buckles, and toe shape, etc., which have led to complicated typologies, the fundamental technological changes in manufacture number only four, and are briefly discussed below.

When the Roman armies left Britain in the 5th century AD their expertise in shoe and boot making left also. True nailing techniques were not to re-emerge until the end of the 18th century. It was with the influx of Scandinavians into Dark Age Britain that we see the introduction of the *turnshoe*. The shoe, made from three pieces, the sole, upper (vamp) and heel part (quarter) were sewn together with a leather thong inside out (the distinctive Iron Age method; Swann, 1973: 17). [See figure 141a]. Here the thong passes into the flesh side of the sole and re-emerges from its side, before passing into the thickness of the upper. With the aid of a shoe last the general shape of the foot was ascertained and once completed the shoe was turned right-
Figure 141 Lasting Techniques, M. Neill.

**TURNSHOE**

- **A**
  - sole
  - upper

- **B**
  - upper
  - rand
  - sole

**TURN-WELT**

- **C**
  - upper
  - rand
  - insole
  - sole

**WELTED CONSTRUCTION**

- **D**
  - upper
  - welt
  - insole
  - sole
side out, so concealing the seam on the inside of the shoe. The turnshoe was often found to include a rand. This wedge-shaped strip of leather was sewn between the sole and upper and helped to keep the shoe watertight. [See figure 141b].

At some point the potential of the rand was realized and by simply sewing in place a wider rand, it was possible to attach a new sole. This is known as the turn-welt method [Figure 141c], as the shoe still had to be turned, but it remained the main technique until the beginning of the 16th century.

The true welted shoe [Figure 141d], came into existence when it was realized that by placing the rand (now the welt) outside the seam, rather than within it, the shoe need not be turned and any number of additional soles could be added.

Since the development of the welted shoe all combinations of soles, welts, insoles, and middle soles have been tried. In the 17th century with the addition of stacked heels, buckles, elaborate heel and tongue forms and the use of small iron tacks and wooden pegs to consolidate the soles, the sight of the Irish brogue to the fashionably shod English was indeed worthy of note.

Tanning

By the 17th century the English leather industry (as it had become) involved a multiplicity of skills and crafts and was subject to rigorous legislation. This dictated how
the leather was to be tanned, by whom, and to whom it was to be sold. The extent of State control over the industry underlines its importance to the economy, the only other trade to be equally constrained being that of woolen textiles. The leather industry met some of the most basic needs of an agrarian society. The products were wide-ranging, but included among others were shoe and boot making, saddles and horse harness, gloves, clothing, military equipment, drums and materials on-board ship.

The tanning process itself was quite involved and could take from 18 months to 3 years, depending upon the final use for which the leather was destined. The following is a very brief outline of this process, which began with the washing of the newly arrived hides (from the butcher) with water to remove the remaining dirt, dung and blood. The primary concern (pre-tanning) was to remove the hair and remaining flesh and fat by allowing the hides to partially putrify. This was achieved either by stacking them to encourage a build-up of heat, with the addition of urine to speed the process, or by placing them in pits of lime wash. When the hair became loosened, the hide was spread over a beam and both sides were scraped with a blunt knife. A further re-liming or "scudding" ensured that the last of the hair and fat was removed. Then, in order to counteract the effects of the lime, the hides were subjected to an alkaline or acidic treatment. The former involved the hides
being immersed in a bath of bird droppings and dog dung. It is now known that it was the presence of certain bacteria and enzymes in this mixture which produced a softer leather. The acidic treatment involved the hides being added to a bath of fermenting rye, barley and other waste vegetation as well as stale beer and urine. [I wonder if they enlisted the cleaning services to local fraternity houses for supplies of these substances]. Both processes caused the leather to swell, whereupon they were washed and worked over a beam once more and were finally ready for tanning.

The hides were given a short pre-soak in pits or tubs of tanning solutions to give them a uniform color and then transferred to "layaways". The bottoms of these pits were filled with oak bark and alternate layers of hides and bark were built up. The whole pit was then filled with a liquor or "ooze" (an infusion of ground bark and water). The hides remained here for 1-3 years with occasional changes of liquor.

Once the tanner was satisfied with his product it was taken out of the ooze, washed and allowed to dry very slowly. He could then in accordance with local by-laws, certify the quality of his work and sell it directly to the shoemaker.

Once leather had been tanned it passed into the hands of other craftsmen for finishing and dressing. The shoemaker
having bought his tanned hides would have given them to a "currier" who, under contract, would produce hides of even thickness and softer finish by shaving them with a sharp knife and pummeling them with mallets. He further softened the hide by impregnating it with "dubbin", composed of cod oil, tallow and blubber, and coloured it with natural dyes. These hides were then returned to the shoemaker for his use.

Cattle hides were classed as "heavy leather", whilst the skins of sheep, goats and deer were defined by law as "light leather". The "fellmonger" could acquire the skins of sheep, sell the wool and then sell the skin to a "whittawayer" who worked with oil and alum rather than tan bark. The whittawayer by law was to use "casualty skins", skins or pelts resulting from animals which had died naturally, and which, after treatment were sent to the glovemaker who could also prepare his own skins (Thompson:171).

With such diversification of crafts, and such a basic need for leather goods, it is not surprising that the industry flourished, with tanneries established in even the smallest towns. In London, "the place of greatest concourse for tradesmen dealing in leather", there were 3000 shoemakers in the city and the surrounding area in the early 17th century, with equal numbers of glovers and leather dressers (Clarkson:27). The West of England was
particularly successful in the light leather industry as they had a plentiful source of Irish sheep and lamb skins (Clarkson:28).

As stated earlier, the local by-laws and national legislation ensured a degree of quality control and security within the different trade guilds. Leather "searchers" were appointed within the boroughs to oversee this quality control on a local level. These stringent controls were duplicated in the new American colonies where the early settlers' need for leather products was facilitated by an abundance of hides, skins and pelts, and most importantly, unlimited tan bark.

In some colonies including Salem and Charlestown, tanning was well underway prior to 1650 (Welsh:5). A law passed in 1642 in Massachusetts appointed "searchers" in each town with a tannery. Similarly, Connecticut fixed the prices of raw hides and finished leather and gave further directions to tan yards to clean away the foul smelling rotting offal, hooves and horns which inevitably built up in these areas as a by-product of the pre-tanning process. In 1680 Virginia passed active legislation to encourage the building of tan houses in every county, and by 1682 expressly forbade the export of any hide or pelt (Welsh:4).

The 17th century saw an increase in the number of tanners and shoemakers in New York and New England, encouraged first by the Dutch and later by the English. New
York's governor Andros gave the tanners and leather workers a trade monopoly in 1676;

...no butcher be permitted to be (a) currier shoemaker or tanner, nor shall any tanner be either (a) shoemaker or butcher, it being consonant to the laws of England, and practice in the neighbor colonys of the Massachusetts and Connecticott (Welsh:6).

Whether during the English plantation of Ulster leather working was run in accordance with these same guidelines and laws is unclear. We know that tanning did take place, as hinted in the sources quoted in an earlier section. I shall repeat them here. In 1671, among suggestions made to the King that he "will in regard to them treat Ireland with clemency" was the following:

Patent of restraint for tanning and broguemaking limited to two in every shire from whom all in the trade must get their licence; these practices which have no ground of law to maintain them and are used to enrich the farmers rather than the King (C.S.P.Ire. 1671:184).

And in the same year; "All the large trees have been spoilt by the broguemakers who have stripped off the bark 3 or 4 feet from the root, which has caused the trees to decay as they stand" (Ibid.). A similar reference is made to this stripping of bark in the Barony of Loughinsholin, where under the tenure of Gabriel Whistler (1670's) tanners could strip the bark of oak trees which were then left to die, and became known as "pearsns or rand pikes" [See Cultural Landscape Chapter]. The inhabitants of Salterstown (ideally situated within this Barony in a heavily wooded landscape),
must have had access to a tannery nearby for their basic needs, though nothing is known of its whereabouts today.

Though surveyed and published nearly 150 years later, (1832), on the First Edition of the Ordnance Survey 6-inch map of this area is the site of a tan yard. It is situated in Carraloan Glebe townland at a place called the Grove, some 6.5 km north of Salterstown. It is within the Barony in the parish of Ardtrea. It is not clear whether its origins lie solely in the 19th century or whether they could be much earlier. The tan yard is not represented on the second edition of the O.S. map.

Catalogue

The following is a catalogue of all the leather found at Salterstown. The features of each fragment are described and measured and where possible the hide is identified. When the outer surface of a hide or skin is prepared for tanning the hair, wool or spines are removed leaving the empty follicles. These follicles form a pattern or "grain" which is unique to each animal.

The assemblage from Salterstown would appear to be Cow/calf, though some was much too worn for a sure identification. A "full-substance" cow-hide is 4-5mm thick, and as little leather of this thickness was in evidence it is possible to conclude that most of the fragments are "grain or flesh splits" (layers). Leather from archaeological contexts is often found to be
"delaminating", whereby it separates into thin layers usually as a result of the uneven impregnation of tannins. This layering can often lead to confusion, as it is often difficult to differentiate between leather which has "delaminated" and that which has been purposely split to provide suitably fine leather for use as uppers.

When this material arrived for conservation each piece was given the laboratory number "89/44" and an attempt was made to tie each piece to a list of fragments made on-site, as they had become muddled before reaching the lab. It was possible to tie most leather with its original on-site number and this is given at the beginning of each entry, for example, lab no. --"89/44" part 33--, Site no.. Since this material had lain in a waterlogged environment for so long it is not surprising that much of the sewing material (probably waxed thread), had decayed, and that associated pieces of leather had become separated. It was possible by close study to bring together pieces of leather from the same shoe which upon excavation had been given separate numbers. In order to avoid confusion I have numbered each fragment of leather from 1-36, bringing together the stray parts of original shoes with their lab and site numbers.

Where stitch length is noted in the catalogue, it refers to the distance between the center of one stitch hole and the centre of the next. In the illustrations, where it is
visible, the grain surface is drawn uppermost. Where no grain surface is distinguishable or where there was more detail on the flesh side an "F" will follow the catalogue number.

Only shoe leather was represented in this assemblage, and all of it was either worn out, or had been re-cut for use at a later date. The Salterstown material is clearly part of a cobbler's cache of scrap leather, which was eventually discarded. There is no direct evidence for the manufacture of shoes at Salterstown in the form of leather cut-offs, other than that given for tanning in the documentary references.

<table>
<thead>
<tr>
<th>No.</th>
<th>Lab #</th>
<th>Hide Description</th>
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<tbody>
<tr>
<td>1</td>
<td>89/44pt?</td>
<td>calf 76x60mm. A very thin fragment, heavily worn and with one stitch-hole. [Figure 142]</td>
</tr>
<tr>
<td>2</td>
<td>89/44pt?</td>
<td>? 48x20mm. Well worn fragment of leather with grain-flesh stitches 5mm long. Re-cut after use. [Figure 142]</td>
</tr>
<tr>
<td>3</td>
<td>89/44pt?</td>
<td>calf 33x20mm. Well-worn fragment with a row of grain-flesh stitches 4.5mm long. Re-cut after use. [Figure 142]</td>
</tr>
<tr>
<td>4</td>
<td>89/44pt?</td>
<td>? 40x25mm. Well worn fragment with no grain visible. Four grain-flesh stitches 5-8mm long. [Figure 142]</td>
</tr>
<tr>
<td>5</td>
<td>89/44pt?</td>
<td>? 108x24mm. Originally part of a welt with evidence for bracing still visible. The stitching is erratic and confusing. Re-cut after use. [Figure 142]</td>
</tr>
<tr>
<td>6</td>
<td>89/44pt?</td>
<td>? 66x56mm. No grain surface visible and well worn on both sides. Erratic grain-flesh stitches, and possibly a repair. [Figure 142]</td>
</tr>
</tbody>
</table>
Figure 142 Salterstown Leather, M. Neill.
7 89/44pt? calf 139x18mm. Part of a welt with bracing stitch-holes visible. Row of stitches 8-10mm long for attaching it to the upper and insole, and a second row 4-5mm long through the thickness of the welt, for attaching the middle sole and sole. The welt has been snipped around one end so it would bend more easily. At the other end is evidence for a small thong for attaching one end of the welt to the other. [Figure 142]

8 89/44pt? calf 139x18mm. Part of a welt with bracing stitch-holes visible. Row of stitches 8-10mm long for attaching it to the upper and insole, and a second row 4-5mm long through the thickness of the welt, for attaching the middle sole and sole. The welt has been snipped around one end so it would bend more easily. At the other end is evidence for a small thong for attaching one end of the welt to the other. [Figure 142]

9 89/44pt? ? 106x2-5mm. Piece of sewing thong or lace.

10 89/44pt? calf 139x69mm. Well worn fragment.

11 89/44pt? calf 70x42mm. Well worn fragment.

12 89/44pt33 ? 70x56mm. This may be a flesh split as there is no trace of a grain. Both sides are well worn and suggest that it may be part of a sole repair. Some thonging is present in the form of grain-flesh stitches 17mm long. The underside of the stitches are missing, as though they were cut away from whatever they were attached to.

13 89/44pt? calf 45x43mm. This fragment looks as though it belongs to a shoe, but exactly where is uncertain. On 3 edges are grain-flesh stitches varying from 5-8mm long. The grain surface is quite worn and indeed it may be a grain split. It was also re-cut after use. [Figure 143]

14 89/44pt? calf 123x61mm. and 94x57mm. Both fragments resemble quarters but without any evidence for stitching. Though very well worn on both sides they are probably deliberate grain splits.
Figure 143 Salterstown Leather, M. Neill.
Figure 144 Salterstown Leather, M. Neill.
Each has a grain-flesh hole where laces may have been threaded through. [Figure 143]

15 89/44pt37 calf 2 pieces, both 66x64mm. Scrap material. One is a grain split and has evidence for a whip stitch 4-5mm. long. The second is a flesh split with no evidence for stitching. Both from separate pieces originally, though placed and re-cut together. [Figure 143]

16 89/44pt27 calf 39x44mm. This is made up of two grain splits, the lower of which is well worn on the right edge, and so both may belong to insoles from a right shoe. Both were originally stitched together with grain-flesh stitches 4mm. long. When these became worn it is possible that they were re-cut and used as lifts (along with #17 below), and attached with tiny wooden pegs and a single larger peg or iron nail [Figure 144].

17 89/44pt28 calf 41x52mm. This may originally been part of an insole as it has fine grain-flesh stitches around its edge (though not matching those of #16 above, which were used with this piece as lifts). All the pieces were probably attached together with little wooden pegs. It was re-cut at a later date.[Figure 144]

18 89/44pt35 calf [dimensions?] This is a left quarter which is quite worn, both sides of which are delaminating. The lasting margin is almost gone (as is the vamp seam), except for a small fragment at the heel. Here the seam was made using a thong, with stitches 9-10mm. long. The quarters were originally joined at the heel with a butt seam using edge-grain stitches (similar to edge-flesh stitch except the stitches are visible on the grain side). This seam was also sewn with a thong with stitches 4-5mm. long. There is evidence for one lace hole, but the end of the quarter is badly worn. The upper edge of the quarter appears to have been cut very low, as though it had been re-cut at a later date.[Figure 144]

19 89/44pt38 cow 134x58mm. Heavily delaminated on both grain and flesh surfaces. This resembles the sole of a brogue attached to the rest of the shoe with a running thong 2-3mm. wide. [Figure
This running stitch is illustrated in Figure 151.

Calf 40x39mm. This could be part of a very small composite insole. The grain side is uppermost and well worn, whilst the flesh side is delaminating badly. The would appear to be the portion of the sole which sits under the heal of the foot (seat). Evidence for a fine transverse butt seam with stitches 5mm. long suggests that the remainder of the sole was attached at this point. Around the curved edge of the piece are grain-flesh stitches 9-10mm. long and probably sewn with a thong. There are three small holes near the straight edge and a very tiny hole toward the back suggesting lasting holes. [Figure 145]

4. [Composite insoles were common in the Late Medieval English cordwaining tradition (Friendship-Taylor, et al. 1987:23)].
No.    Lab #    Hide Description

21 89/44pt36  108x71mm. Part of a sole, although extensively worn. Some small grain-flesh stitches on one edge, though the remainder are much larger and suggest the attachment of a clump. This was probably attached by means of a thong, though at least 4 small wooden pegs are clearly in evidence. [Figure 145]

22 89/44pt?  102x53mm. Heavily worn example of an insole from a brogue, with traces of the running stitch which held the sole, welt, and upper together. On this example there is evidence for another sole/repair thonged in position. [Figure 145]

23 89/44pt29 calf 50x47mm. This is a grain split, delaminating on the flesh side. It was part of a middle sole, and has fine grain-flesh stitches 4-5mm. long. Impressions of the welt are clear in the uppermost surface. It has been re-cut at a later date as an interrupted stitch hole attests. In the centre are 5 grain-flesh holes which may belong to the attachment of the sole, heel or subsequent repairs. [Figure 146]

24 89/44pt23  147x60mm. Heavily worn and delaminating, this may be part of a small insole with fine grain-flesh stitches 5-6mm. long on one edge. Along the other edge is some thonging which may represent what remains of the attachment of the uppers. There are several holes in the area of the heel. The underside of these thonged stitches are missing, which suggests that they were cut away from whatever they were sewn to. [Figure 146]

25 89/44pts21&34 cow Adult size 5 (38), Tread 84mm. wide, Waist 59mm. wide, Seat 74mm. wide. This is a full-substance middle sole (in 2 pieces) from a right shoe. It is well worn and delaminating on the flesh side; on the grain side which is uppermost are the impressions of the welt bracing. There are grain-flesh stitches 4-5mm. long around the edge. Around the seat is another row of larger stitches 15-20mm long, associated with the attachment of the heel. Around the tread on the inside of the grain-flesh stitches are more haphazard stitches

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Figure 147 Salterstown Leather, M. Neill.

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<td>possibly associated with the later addition of clump soles. Tiny wooden pegs 2-3mm wide can be seen at the tread and waist. Larger holes at the seat may have been for larger nails or pegs. [Figure 147]</td>
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<tr>
<td>26</td>
<td>89/44pt8</td>
<td>cow 244x26mm. The welt belonging to the middle sole above. Probably a grain split. Bracing stitch-holes are clear. A row of flesh-grain stitches 5-8mm long is present, by which to attach the welt to the uppers and insole. A further two rows (not visible in the illustration) of grain-flesh stitches 4-5mm long run through the thickness of the welt for attaching the middle sole and sole. [Figure 147]</td>
</tr>
<tr>
<td>27</td>
<td>89/44pt7</td>
<td>Child's Size 2 (18) 138mm long Insole, Middle sole and Sole of a square-toed right shoe. Tread 50mm wide, Waist 44mm wide, Seat 50mm wide. cow Insole. Probably a grain split with the grain side uppermost and worn where it has been in contact with the foot. It has several small holes which may be lasting holes, but they do not go through to the sole below. cow Between the insole and the sole is a smaller fragment of a seat, which is all that remains of a middle sole. It lies flesh side up. ? Sole. The sole is very heavily worn on the underside with no sign of a grain surface remaining. [Figure 148]</td>
</tr>
<tr>
<td>28&amp;29</td>
<td>89/44pt24&amp;25</td>
<td>calf 96x37mm. Both left and right quarters associated with the soles above. They are well worn on the outside and delaminating on the inside. The quarters were sewn together with edge-grain stitches 2-3mm long, forming a butt seam. The lasting margin is made up of grain-flesh stitches 5mm long. The vamp-wing seam is also a butt seam with edge-flesh stitches 4-5mm long. One latchet has been cut to a point, the other one is squared off and both have lace holes. All three layers of soles were stitched together at the same time as the quarters were attached, using flesh-grain stitches 4-5mm long. The unusual aspect of this particular shoe is that of its</td>
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Figure 148 Salterstown Leather, M. Neill.
construction method, known as Veldtschoen. Here the edges of the quarters (and probably the vamp if it had survived), are turned outward and stitched to the soles, forming a flange. Usually the seam is protected on the inside of the shoe (see Figure 141a-c). The use of this method may have something to do with it being a small child’s shoe. Hard seams on the inside of the shoe would cause great discomfort to little feet. The method is traditionally a South African one, though it was used in the 15th century to finish off the extreme points of Poulaines, (very long and curled-up toes; Thorton and Swann:23). [Figure 146]

30 89/44pt10 cow 114x59mm. Insole, probably a grain split, with characteristic edge-flesh stitches 7-8mm long. Grain side is uppermost showing wear and 3 repair (?) holes. The underside has clear impressions of the bracing from the welt (now gone).

cow111x69mm. This is a portion of a middle sole, with the grain-side uppermost. It too bears traces of the bracing and the welt. Grain-flesh stitches 4-5mm long are visible around the edge and these would have been sewed to the welt placed above, and the soles below. [Figure 149].

31 89/44pt12 cow Intermediate Sole, Sole and Heel. 168mm long, 59mm at Waist, 69mm at Seat. Intermediate Sole, Very thin and worn, probably a grain split. Grain-flesh stitches similar to the stitching on the middle sole above. There is a further row of stitches on the outer edge of these, for attaching the heel.

cow Sole. Full substance hide with the grain side uppermost. Stitch holes similar to those on the intermediate sole above. A row of stitch holes across the tread represent where the half-sole was attached.

Heel. There are at least 6 full substance lifts held together with thong stitches running from the intermediate sole.

Lift. This is a circular piece of leather with 8 large holes 8-9mm wide. The central one contains a wooden peg which does not penetrate the 6 lifts above. There are a further 3
fragments which were probably lifts, but are now much worn. An iron nail runs throughout the entire seat section from the insole and bends under the bottom lift. This cannot have been comfortable to walk on and suggests that it may have been put in place after use to keep all the parts together. The heel (approximately 40mm high) lifts were placed together and the entire piece pared to form a rounded section tapering to approximately 56x50mm.[Figure 149]

32 89/44pt19 cow Left Shoe/Bрогue, 245mm long, 97mm wide at tread, 70mm wide at waist, 79mm wide at seat. Adult Size 4 (37).

Vamp. Square toed with the flesh side outward to give a suede effect, it is attached to the insole with a running thong of stitches 10mm long. The tongue is cut straight across with evidence for what seems to be a butt seam. There are two larger holes on the instep through which the laces would have passed. The slits along the vamp edge are sewn together with a thong, whilst there is a butt seam at the vamp wing, where the quarters are attached with fine edge-flesh stitches 4-5mm long.

Quarters. These are also flesh-side outward and attached to the insole as is the vamp. Only the left quarter retains its latchet which is a separate piece of leather attached with a thong. The back seam is a butt seam with edge-flesh stitches 3-4mm long.

Insole. This is attached grain-side uppermost to the vamp and quarters with a running thong. At the seat are holes caused by the pegging and nailing of the heel.

Welt. This is much less like a welt than a rand. It is simply a thin strip of leather attached to the middle sole and two subsequent soles.

Middle Sole. Grain side downward and similar to the insole with holes at the seat.

First Sole. This sole is stitched to the sole and middle sole and is of full substance at the heel end only.

Second Sole. Similar to the first sole and similarly attached to the welt and middle sole. The welt, middle sole and both soles were thonged together and seem to be attached.
to the uppers and insole with random thonged stitches at the tow and waist. They were also nailed together from below, the ends of the nails bent outward and over the welt.
A further two half-soles were attached by tunnel stitch. [Figure 150]

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<tr>
<td>33</td>
<td>89/44pt26</td>
<td>Heel. The is part of the shoe described above, but was cut away at a later date. It has been tacked together with iron nails and is substantially worn on the underside. [Figure 150]</td>
</tr>
<tr>
<td>34</td>
<td>89/44pt39</td>
<td>calf Shoe/Brogue fragment. Vamp. The grain side is outermost and the tongue comes to a point. Below this on the instep are two holes through which the laces would have been threaded. None of the lasting margin remains. The vamp-wing seems to have been sewed into the inside of the right quarter with a thong which passed into the thickness of the leather, but not through it (this was not visible from the outside of the quarter). [See figure 151 for detail]. Similar to #36, Figure 140. Right Quarter. With the grain-side outermost it was attached to the sole with a running thong. The back seam is a butt seam with edge-flesh stitches 5mm long. It tapers to a latchet with a single hole for a lace. ?Sole. 146mm long, 76mm wide at tread. No grain surface is clear as it is very worn. Attached to the uppers with a running thong as shown in detail in Figure 151. The larger thong may be associated with a later repair.</td>
</tr>
<tr>
<td>35</td>
<td>89/44pt4</td>
<td>Child's Left Shoe or Brogue, Size 11 (29), 196mm long, 86mm wide at tread, 69mm wide at waist, 73mm wide at seat. Heavily worn on the inside face. The vamp on the right side is badly torn and worn out. calfVamp. Delaminated into two pieces. The flesh side is outermost for a suede effect. Similar vamp pattern to that shown in figure 150. The vamp-wing is attached to the quarter by edge-flesh stitches 4mm long forming a butt seam. On the inside of the vamp on the right side is a semi-circular repair patch thonged in place.</td>
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Figure 150 Salterstown Leather, M. Neill.
35 89/44pt4 (continued)
calf Right Quarter. Again for a suede effect the flesh side is outermost, and like the vamp it is delaminating into two layers. The latchet has a slightly pointed end and hole for a lace. The butt seam at the heel is made of edge-flesh stitches 4-5mm long. The left quarter was completely cut away.

? Insole. With the grain side uppermost, it was sewed to the uppers and welt with a running thong. The welt itself was very narrow, and beneath it at the seat end was a heel lift. Only then was the sole attached by thong to the welt. The underside of the sole was very worn, with evidence for a half-sole and possibly a clump. There were a further 2 lifts at the heel and both were worn out. They, like the half-sole are held on with a series of small wooden pegs driven into the thickness of the seams, and some can be seen on the insole.

36 89/44pt20 240mm long, 75mm wide at tread. A very strange assortment of pieces. This is quite clearly made up of the remains of a shoe/brogue being attached to a new sole (?).
cow Quarters. One single piece of leather with the grain side outermost, and delaminating into two pieces. Though there is no backseam, the leather does extend upward at the heel, to form a tongue. This has been given a decorated serrated edge. The latchet ends both have two small holes at the ends for laces. On the inner face of the quarter there is evidence for the attachment of the vamp, similar to that in figure 151.
Welt. This is sewn to a sole/insole with a running thong. There was no attempt to attach a larger sole to this welt which acts here much more like a rand. The remainder of this sole/insole was cut away at the waist. What remains of the vamp is so delaminated that we have no throat or side seams. Only fragments of the lasting margin are left and this seams to have been very haphazardly attached to a full substance piece of leather which was awkwardly cut and barely sewn, with a tunnel stitch. Whether this ever functioned as footwear is very doubtful.
**Discussion**

Two distinct types of shoe manufacture seem to be present at Salterstown, and there is a strong temptation to see all those examples of thong-sewn shoes as Irish brogues, described in the sources quoted in section One. It would be equally tempting to attribute these brogues to the Irish inhabitants of the village, several hundred of which (Royal Commission Survey, 1629) were readily accepted as a convenient source of labor and an already housed body of tenants. This assumes also that the native Irish were present again in the resettlement of Salterstown after 1641, as the entire leather assemblage was retrieved from a well dated by dendrochronological means to 1663 (+/- 9 years).

Similarly, to see all of the examples of finely stitched shoe fragments as belonging to the shoes of the English planters alone, would be to assume that both types of footwear mentioned were culturally exclusive. There may have been an English shoemaker present in the village, a craftsman like those carpenters who arrived in 1614, who may have made shoes according to the techniques he knew and the fashions he had witnessed in his town of origin. Though such a man could have catered for the needs of the villagers there is no evidence to suggest that he did exist. As the sources tell us, Ireland had both shoemakers.
and broguemakers, two distinct crafts. An inquiry into a disturbance at Cork in 1625 records:

He took up a stone and flung it at King, and then went to a broage-makers hard by, for safety...the captain of the fort had Sarsfield brought out from the broage-makers's house that he might see him (C.S.P.Ire. 1625-36:112-3).

Later, 1838, it is noted that in the Barony of Upper Fews in Co.Armagh, "There are tradesmen of the following to be found in this barony,...viz. shoe and brogue-makers" (Donaldson:62).

It is likely that the Irish shoemaker was competent in making the latest footwear fashions for those who could afford them. It is equally clear however that the brogue was cheaper and more durable than the shoe, and it may have remained the most practical protection for the working man and soldier in the Irish countryside. Wherever the sources talk of the Irish wearing no "English shoo", the phrase is merely the technical distinction between the native Irish technique and the finely-sewn multi-soled technique, and is not meant to imply an exclusive racial embargo on both English and Irish wearing either type of shoe.

Though writing much later in 1840, Hall recalls watching a broguemaker at work and adds;

They (brogues) are considered by the country people more durable for field labor, being less liable to rip in the sewing than if put together with hemp and wax; and being in more general use, although there are few people, particularly females, who can afford, who do not keep shoes for Sunday and holiday wear (Hall:190).
It is interesting to note that the almost intact shoes recovered from the well were all thong sewn (the thonging being tanned as well). The remainder, though not complete shoes, had become separated over time as the waxed thread disintegrated.

Overall the majority of the shoes were stout and functional, without decoration or buckles. The only real concession to fashion was the shoe fragment in Figure 149, with its stacked heel. The shoe sizes ranged from a child's size 2 (18) to an adult's size 5 (38). It was not possible to tell whether the adult shoes belonged to men or women.

As noted throughout the catalogue every piece of leather was either worn out or re-used, forming a typical cobbler's cache of waste material. This is exactly the same as the Deer Park Farms assemblage, though this was of Early Christian date. As at Deer Park, the Salterstown leather tells us that for some reason leather itself was probably scarce or expensive. It seems it was a necessity to keep the most worn of fragments and to recut even these for further use. Those pieces of leather which best fit the definition of Brogue given in the sources are numbers 32, 34, 35, and 36 [Figures 150-153]. Numbers 34 and 36 show evidence for a very unusual method of attaching the vamp-wing to the quarters. Here the vamp is overlapped with the quarter on the inside of the shoe and attached using a thong which is sewn into the thickness of the quarter but
not through it [Figures 151 and 140]. Similar to a tunnel stitch this stitching is not visible on the outer face of the quarter. This technique seems to resemble one described by Wilde (1857:326-7) of a bog body found at Killery in Co. Sligo in 1824. Lucas (381) describes how this body was dated by its clothes to the 17th-18th century. These articles included a woolen cloak and trews with yellow plaid legs. The footwear was described as:

...the upper of each shoe is joined on the inside of the quarters...The sole is composed of many pieces and attached to the welt with woolen threads (?). The stitching at the edge of the sole includes four plies, the sole, insole, welt and upper (Wilde in Lucas:381).

Regardless of whether the Salterstown shoes are classified as shoes or brogues, they are all of welted construction [Figure 141d]. The only other leather finds which are even broadly contemporary are those from the Dublin Castle excavations, supposedly of 17th century date but as yet unpublished. In a Northern Irish context, the leather from the excavations at Carrickfergus may have some relevance to this particular paper. Though unpublished, a brief note in the Archaeological Leather Group Newsletter #2, 1986-7 by Diana Friendship-Taylor suggests that of approximately 200 leather shoes, the majority belong to the period 1610-30. Only one seems later than that at about 1660. She adds that there is only one instance of a shoe with a thonged bottom.
Glossary

Bracing Used when lasting together the UPPERS, INSOLE and WELT. Cord or tough thread is used to lace up in a criss-cross fashion the edges of the WELT. The impression of this bracing is often found on INSOLES and MIDDLE SOLES.

Brogue Used in an Irish context to mean footwear stitched together with a leather THONG and without a built-up HEEL.

Butt Seam [Figure 153] Seam used to join two pieces of leather edge to edge. An EDGE-FLESH stitch is most frequently used and this is usually not visible on the GRAIN side.

Closed Seam [Figure 153] Two pieces of leather are placed together face to face and sewn along one edge with a GRAIN-FLESH stitch. Once finished the pieces are opened out and pressed flat along the seam.

Clump [Figure 153] A HALF-SOLE attached to a worn SOLE as a repair.

Delaminate This occurs when the tannins have not fully penetrated the substance of the leather and caused it to split into layers.

Edge-Flesh Stitch [Figure 153] This stitch is usually found on leather soles. The needle enters the leather near the edge, on the FLESH side and emerges from the thickness of the leather, without passing through to the GRAIN side. This stitch is also used in a BUTT SEAM.

Flesh This is the inner face of a HIDE, which is attached to the animal's body.

Grain This is the outer face of the HIDE which bears the hairs, spines or fleece. When these are removed, the empty follicles form a pattern which is unique to each type of animal. By studying these grains it is possible to say what animal the HIDE came from.

Grain-Flesh SEAM [Figure 153] This stitch is used in a CLOSED SEAM and is formed by the needle passing directly through from the FLESH side to the GRAIN side.
tongue
quarter
vamp

instep
tread
waist
seat

edge/flesh stitch
butt seam
grain/flesh stitch
closed seam
running stitch
whip stitch

clump sole (repair)

Tunnel stitch

flesh side

edge/flesh stitch
grain/flesh stitch
torn/worn edge

wooden peg
iron nail
Half-Sole

This is often in the form of a repair or CLUMP. It is stitched beneath the TREAD.

Heel

This is added to the rear of the sole or the SEAT in the form of several pieces called LIFTS and JUMPS, to create a STACKED HEEL.

Hide

The pelt of a large animal such as a horse or cow. The word "skin" is used to describe the pelt of a smaller animal like the sheep or goat.

Insole

This is the surface upon which the foot rests, and is found above the WELT.

Instep from

[Figure 153] That area of the foot running the toes to the ankle joint, upon which the TONGUE rests.

Jump

A piece of leather, smaller than a LIFT used to build up a STACKED HEEL.

Lace

This is often in the form of a THONG passing through the LATCHETS and VAMP THROAT to fasten the shoe.

Lasting Hole

The small holes (usually two) which were caused by tacking the SOLE to the wooden last to ease the sewing together of the SOLE and UPPERS.

Lasting Margin

This is the edge of the shoe UPPER which is turned in and sewn to the SOLE.

Latchet

The extensions of the QUARTERS which sit over the INSTEP as straps and have holes through which LACES are threaded.

Lift

A piece of leather or wood used to build up or heighten a HEEL.

Middle Sole

This is placed between the INSOLE and SOLE and usually found below the WELT.

Quarters

[Figure 153] The sides of the shoe which are attached to the VAMP, either side of the foot and run behind the HEEL. This can be a single piece of leather [see Figure 140] or two separate pieces sewn together behind the HEEL.
Usually their were four pieces of leather or "quarters" for each pair of shoes.

Rand [Figure 141] Usually a wedge-shaped strip of leather between the SOLE and the UPPERS in a TURNSHOE to waterproof the seam.

Running Stitch[Figure 153] This is based on the GRAIN-FLESH stitch. The needle passed through the leather and then back again a little further on. This was often used around the upper edges of shoes and pouches, whose edges needed to be drawn together or rucked.

Sole That part of the shoe on which the foot rests. Normally the GRAIN side is in contact with the ground.

Split The term used when describing how a piece of leather has been purposely separated into various layers. Leather can be described as being GRAIN or FLESH split.

Stacked Heel A HEEL built up of LIFTS and JUMPS.

Stitch Down See Veldtschoen.

Stitch Length The distance between the middle of one stitch hole and the middle of the next.

Straight This describes a shoe which is symmetrical, and when new could be worn on either foot.

Thong A thin strip of leather used as stitching material for BROGUES and for LACES.

Throat The central portion of the rear end of VAMP resting on the INSTEP of the foot.

Tie-hole Holes found on LATCHETS through which the LACES were pulled.

Tongue [Figure 153] An extension of the VAMP throat which rests on the INSTEP.

Tread [Figure 153] This is the widest part of the SOLE situated behind the toes.

Tunnel Stitch[Figure 153] This is often found as a way of attaching a CLUMP to a SOLE to avoid the stitching wearing out on the ground, or where the stitching was to be invisible. The thong
or thread passed into the thickness of the leather but did not penetrate the other side, emerging instead on the same side further along. It then repeats this stitch into the repair and so on.

Turnshoe
[Figure 141] This type of shoe was sewn inside out, concealing the seams on the inside.

Turn-Welt
[Figure 141] Here the RAND is wide enough for a separate or repair SOLE to be added to the shoe. It is still a TURN SHOE.

Upper
A term which incorporates several pieces of leather which form the covering of the foot, including the VAMP, and QUARTERS.

Vamp
[Figure 153] This is the front part of the shoe UPPER which covers the toes and INSTEP.

Vamp-Wing
This is the area where the edges of the VAMP meet the front of the QUARTERS.

Veldtschoen
Also called "Stitch Down". A lasting technique whereby the edges of the UPPER are turned outward and sewn to the SOLE, creating a flange around the shoe. Originally a South African method, it was used in the medieval period for attaching patches to worn areas.

Waist
[Figure 153] This is the narrowest part of the SOLE which is between the TREAD and the SEAT.

Welt
[Figure 141] Begun around 1500 AD, when the RAND became widened and numerous SOLES could be added without having to turn the shoe. This became known as welted construction.

Whip Stitch
[Figure 153] Used frequently to neaten edges, this is similar to the RUNNING STITCH except the thread or THONG passes over the edge of the leather and back through the thickness again.

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End, Marie Neill Report
Synopsis and Discussion of Neill Report

From 36 shoe fragments, some composed of more than one piece of leather, only five shoes are intact enough to permit reconstruction. Each of the five shoes is unique in style and construction technique. In addition, a sixth style is represented by only partial remains. These differences in style and construction technique are thought to represent distinctly English and Irish shoemaking traditions as well as unique combinations of the two traditions as they survived in late 17th century Ulster.

It should be noted from the start that although we use thonged construction techniques as a marker for the Irish brogue making tradition, there is no evidence that the Irish did not also know how to use more conventional thread stitching techniques. In Marie Neill's words;

What we do not know is whether the "harness" stitching of the uppers mean anything other than it was a neater way of finishing some of the more obvious seams. The thonging on the soles was not generally visible. There is no reason to suggest that the Irish brogue-maker could not have worked in this way, and still produced a harder wearing, practical, and cheaper product for a larger market (Neill, personal comm, 1990).

The 7th century Deer Park Farms excavation and various Viking excavations at Dublin confirm an early knowledge of thread stitching and multi-piece construction. The thonged brogues, despite contemptuous English reports of the period, were a finely crafted product requiring professional training.
Based on Marie Neill's discussion, I would argue that the brogue/shoes from the Salterstown well were probably locally produced, but not at the site where they were finally deposited. They were obviously handcrafted utility goods unlikely to be traded over long distances. The documents indicate too many local shoe/brogue makers, rather than a shortage (see Neill, above), while indicating that there were tanning activities during the period somewhere within the Salter's Proportion. There were no leather scrap parings with the shoes to indicate cobblers' or cordwainers' activities on the site.

Of 36 fragments excavated, 15 showed evidence of recutting or repairs. Of the five reconstructible shoe/brogues, only the child's shoe showed no signs of repairs or translation. The leather assemblage constitutes a cache for still further recycling, which was eventually discarded. Taken together, both the repairs to the surviving shoe/brogues and the fact that they were seen as still reusable indicates either extreme poverty or a dramatic shortage of leather during the initial period of reoccupation at Salterstown. Documentary sources allow us to discount the idea of a leather shortage--the unfortunate conclusion left to us (based solely on footwear) is that the families of the 2nd plantation period at Salterstown were quite poor.
Dating of the Salterstown leather is simplified by the dendrochronological dating of the construction timbers of the well in which all samples were found. The feature dates to 1663 (+/- 9 years). Stylistic evidence from the leather itself roughly corroborates this date. Swann notes that #26 [Figure 147] may be a "shaped" rather than a "straight" shoe (see glossary); if so this fragment dates no later than the 1640's, making it the earliest fragment on the site (Swann, Personal Comm, 1990). The square toe style seen on the Child's "stitch-down" shoe [Figure 148] starts at the beginning of the 17th century and continues into the 18th century. The acute oblique side seam on the same shoe does not occur until the 1660's onwards, and may date from the reign of Charles II, as the quarters become shorter towards the end of that century. The vamp in Figure 151 is also suggestive of a 1660-80's date. The high tongue in Figure 150 dates from the 1680's-1720's, although the oblique side seams of the same piece is more typical of the 1660-80 period (Swann, Pers. Comm, 1990). The assemblage accords well with a 1660's-1680's date for the second occupation of Salterstown.

Fragments #30/31 and #25/26 [See Figures 149 and 147 in Neill report] represent two different shoes sewn with a shoemaker's stitch from linen threads, using a welt to
attach multiple soles and a stacked heel. Fragments #25/26 indicate a rounded or softly squared toe. Fragments #30/31 show a relatively tall stacked heel composed of lifts both thong-laced from above and pegged with wooden pegs from below. These soles are constructed in accord with "English" shoemaking fashions, although the laced attachment is apparently unique to Ireland (personal communication, Al Saguto; 1990). Unfortunately, since no uppers have been conclusively matched to these pieces, we have no way of knowing if the complete shoes were of an English style.

Fragments #27/28/29 [See Figure 148] constitute a single reconstructible child's shoe. Although the vamp is unfortunately missing, the soles and quarters indicate shoemaker's-stitching with linen thread for a square-toed shoe. The butt-seam attaching the vamp-wings to the quarters slopes back and down. The soles are attached to the quarters by simply flaring the lower edge of the quarters out and punching a seam simultaneously through the uppers and soles. This technique is called "Veldtschoen" in the Neill report, and has been associated with South African shoes, bearing a strong resemblance to what in America are termed "desert boots". In England this same

5. There is a discrepancy here on the interpretation of the term "welt": June Swann would refer to Figure 6 as a "folded welt" or a "rand", while Neill reserves the term "rand" for the triangular-section strip illustrated in Figure 13B&C.
technique is called "stitch down", and is common for children's shoes from the 15-18th century, considerably predating the South African tradition (Personal Communication, Al Saguto, Marie Neill, June Swann). Note that the Stitch Down technique only occurs on a child's shoe at Salterstown. This shoe is the most direct evidence for children on site in the 17th century to be excavated at Salterstown.

The remaining examples all show traits from an Irish brogue-making tradition. Fragment #36 [Figure 140] is perhaps the most "pure" example of this tradition. The brogue has a single-piece wrap-around back with a small decorated tab at the back for pulling the shoe on. The top edge of this back piece is not cut away across the ankle, but instead remains straight until tapering up into integral latchets. The back piece overlaps the vamp, attaching by a blind stitch with leather thongs--this stitch is invisible from the outside of the shoe. The sole is problematical on this sample, but seems to be a welt-less insole attached by a running thong; part of an outer sole survives, but it is not known how it was attached. Marie Neill suggests that this artifact may never have functioned as footwear; June Swann suggests that if it did, it was a "translated" (i.e.cannibalized) brogue composed of reused parts.
Fragment #34 [Figure 151] is very similar to the brogue above with a thonged running stitch attaching a single sole. Unlike the brogue above, the back is composed of two quarters joined in a butt seam by a running thong at the heel; this sample retains the thonged blind stitching attaching the vamp to the overlapping quarters. The tongue of the vamp is pointed, while no toe survives. Swann suggests that this brogue was repaired.

The last two samples show a mixture of English and Irish traits. Fragments #32/33 [Figure 150] have apparently shoemaker-stitched butt seams attaching the quarters at the heel, and attaching the vamp wings to the quarters. The latter seams slope in a straight diagonal down and back from the throat. The vamp has been slit vertically at both sides of the throat, with thongs placed across each slit to provide for tension adjustment across the instep. Swann interprets these slits in the vamp, along with the very short toe of this piece, as evidence that the vamp is a translation from a larger shoe. The latchets are separate pieces thonged into place, again serving as evidence for translation from an earlier shoe. The shoe has multiple soles attached by a single running thong supplemented with cinched brads driven up from below. A low heel has been both thonged and pegged into place with tiny wooden pegs. This shoe/brogue was assembled suede-side out and had a square toe and squared off tongue.
Fragment #35 [Figure 152] also seems to have thread-stitched butt seams at the back and at the vamp wings. Like the shoe above, the vamp has been slit to expand across the instep, and may represent the reuse of parts from an earlier shoe. The shoe has a true welt assembled with a running thong, and a low stacked heel pegged with wooden pegs. This shoe/brogue was assembled suede-side out and had a mildly squared toe and a squared off tongue.

As the last two examples were shoemaker-stitched at all seams around the uppers, they may represent "English" shoes with "Irish" resole repairs. However, this interpretation is very unlikely, as no evidence survives for previous stitching around the lasting seams of the Uppers (Neill, Pers. comm.). Alternatively, most of these samples may be the result of Irish broguemakers gradually adopting/adapting English heeled, thread-stitched shoe styles while retaining their traditional leather thong assembly techniques. It should be noted that most of the thong-stitching is finely spaced, arguing for professional quality work rather than simply owner-rigged repairs.

Marie Neill is careful to point out that the consumers of the Salterstown footwear may be either English or Irish, whatever the ethnic tradition of the pieces themselves. I am inclined to agree. It is interesting that there is much more evidence of native Irish construction techniques in the tiny Salterstown sample than that available from a
sample of over 200 shoes found in early 17th century Carrickfergus (in Neill above). Several explanations are possible. The English of 1660's Salterstown may have been "going native", while 1610-30 Carrickfergus was definitely not. Or perhaps there was a strong Irish component to the 1660's occupation of Salterstown—we know that the Irish were certainly in the proportion, if not settled in Plantation villages. Finally (and perhaps most likely), it is possible that regardless of the ethnicity of the user, brogues were recognized as working field wear, with the possibility that wealthier settlers may have worn "English" shoes for "Sunday-go-to-meeting".

Although the Irish were producing multi-piece shoes sewn with fine gut at Deer Park Farms in the 7th century, the 1000 year interval between that site and Salterstown does not provide sufficient evidence (given our present knowledge) to argue for a continuity in tradition for that entire period. The earliest thong-lacing tradition identified in Ireland was discovered at 12th century Wood Quay, Dublin (Personal Communication, Debbie Caulfield:1990).

June Swann notes that by the 17th century both English shoes and Irish brogues were produced in Ireland, and that from the Middle Ages onwards the Irish were copying European footwear styles, although the sole seams retained the diagnostic thonged construction of the Broguemaker.
Only further research will establish whether thread stitching techniques were reintroduced by the English of the Early Modern period or had always been a part of the Broguemaking tradition, as maintained by Neill. I would instead argue that the Medieval Irish developed a unique tradition of hardy and well-crafted thong-constructed brogues. This broguemaking tradition was adapted during the 16-17th centuries to producing footwear with "English" stylistic influences. The Salterstown brogues exemplify this amalgamation of two traditions of material culture.

ADDENDA BIBLIOGRAPHY


Neill, M. 1990 Personal Communication. Ms Neill and I were in correspondence after I received her report. Much of my synopsis is based on clarifications we arrived at (or disagreements we discovered) during this correspondence. Marie is a Consultant on Leatherworking and early shoe technologies, with much experience with Ulster archaeological assemblages.

Saguto, D.A. 1990 Personal Communication. Mr Saguto is an officer of the Honourable Cordwainers' Company, an historian at the Margaret Hunter Workshop, Colonial Williamsburg, and is himself a Cordwainer.

Swann, J. 1990 Personal Communication. Ms Swann is a Consultant on the history of shoes and shoemaking, formerly Keeper of the Boot and Shoe Collections, Northampton Museums.
LITHICS

At Salterstown 123 pieces of calcedony were found, of which 112 were later determined to be worked, 9 showed evidence of secondary retouch and were identified as tools, while 10 were identified as possible gunflints or gunspalls. A detailed analysis of the prehistoric lithics is outside the scope of this report and the author's expertise. However, four different prehistoric archaeologists have assisted in sorting the Salterstown sample, and I am now reasonably confident that our catalogue accurately reflects the lithic assemblage.

All calcedony encountered on the site was scrutinized for evidence of human modification. All such pieces were saved, including any which looked even remotely suspicious to the field crew. At the time, this policy was considered overzealous. It therefore came as a pleasant surprise when subsequent analysis demonstrated that our lithics collection extended the effective date range of our artifacts back another 7,000 years.

Back in the laboratory in Philadelphia, an initial sort was attempted as a precaution in case the lithics provided enough evidence to argue for a prehistoric occupation of the site 1. The lithics were divided into 7

1. I am indebted to Shannon McPherron, a specialist in the French Upper Paleolithic, for the initial sort through the Salterstown lithics collection.
working categories: Possible Gunflints, Prehistoric Tools, Potential Blanks/ Possible Tools, Cores, Core Rejuvination Flakes, Flakes, and Unworked Calcedony.

No lithics were considered tools unless they displayed conchoidal fracturing, intentional shaping and secondary (marginal) retouching [See figures 154 & 155]. Potential blanks or possible tools had conchoidal fracturing and some evidence of shaping, although they do not necessarily display secondary pressure flaking retouch [See figure 155]. Cores were large pieces with lots of cortex, displaying evidence of repeated removal of flakes by percussion. Flakes all had conchoidal fractures, with no evidence of shaping or secondary retouch. These pieces are generally tiny. Core rejuvenation flakes had all of the characteristics of flakes, but were obviously strategically removed directly from the core without any potential for being made into tools themselves. All lithic finds were recorded using this provisional system in the winter of 1989-90, and were then shipped back to Northern Ireland in August of 1990 for study by those in the Dept. of the Environment, N.I. more qualified than I.

The collection was examined by Nick Brannon, Senior Inspector of the Archaeology Survey of the D.o.E., and by Dermot Moore and Malachi Conway. These two latter gentlemen are recent graduates of Queens University, Belfast, and are occasional consultants on lithics to the Archaeology Survey.
Salterstown Lithics, possible tools with secondary retouch.
Salterstown Lithics, possible tools without secondary retouch.

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Figure 156
Salterstown Lithics, diagnostic prehistoric tools.

Surface/"single platform" core: Neolithic

Butt-Trimmed Biface - Late Mesolithic

Polyhedral core: up to Early Christian

Blank for French-type Goufpall or Thumb-scraper diagnostic of Irish Bronze Age
of the D.o.E. in Northern Ireland. They were both highly recommended. The following lithics catalogue is the result of their collaboration. Original categories have been retained; descriptive titles are followed by site provenience and date if known.

Tools
Scraper 24S4W.2
Hollow Scraper 19-28S4E.1
Scraper 6S0E.1
Butt-trimmed Biface F26>94cm, late Meso-Lithic
Thumbnail End Scraper 21S2E.3, early Bronze Age
Small Scraper 17S0E.2
Scraper 19S4W.2
End Scraper F43.2
Blade, broken 10S1W.2a
Blade, waterworn 13S4W.2a
Notched Scraper F26

Potential Blanks/ Possible Tools
Retouched Flake F53.2c
Retouched Flake F26.I
Trimmed Flake, unfinished 18S5E.2
Retouched Flake 28-19S4E.1
Retouched Flake, possible microlith 22S4W.2
Retouched Flake 13S6E.1
Retouched Flake 16S1E.2
Retouched Flake 20S4W.2
Retouched Flake 17S4E.2
Retouched Flake 6S0E.2
Retouched Flake, questionable 12S5E.2a
Retouched Flake F26

Cores
Single Platform "unifacial" Core 18S7E.2, Neolithic
Polyhedral Core F26.H, up to Early Christian
Core 19S6E.1
Core, water softened 24S1W.2

Core Rejuvenation Flakes
Core Spall F26
Core Spall 21S4W.2
Core Preparation 20S5W.2bc
Core Prep. F53.2c
Core Prep. 16S1E.2
Core Prep. 6-7m.1
Core Prep. 20S2W.2
Core Prep. 13S6E.1

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The remaining lithic artifacts (excepting possible gunflints) were all identified as debitage, and are not catalogued separately from the main artifact catalogue in the appendix.

It should be noted that the identified lithics and debitage occur in an apparently random distribution across the site, with no indication of possible activity areas.

Strangely enough 3 prehistoric tools displaying secondary
retouch were found in features, 2 in the well (F26) and one in the refuse pit (F53). Both of these features contain ample evidence for their 17th century date, making the stone tools a kind of reverse intrusion. They could possibly be the remains of some 17th century collection of prehistoric artifacts.

It is my conclusion that the prehistoric lithics provide evidence for the presence of people on the site without establishing evidence for an extended prehistoric occupation at Salterstown. Stratigraphic evidence for a prehistoric occupation may have been destroyed by subsequent occupation, or more likely by ploughing.

The presence of prehistoric peoples is further attested by a neolithic period Cromlech (a type of megalith) appearing on the 1813 G.V.Sampson map of the area of Salterstown (PRONI D.174,1-4.). The Cromlech was apparently situated less than a mile northwest of the site [See figure 157]. Fieldwalking in the summer of 1990 failed to find evidence for the Cromlech standing in 1813.

The remainder of this report will concentrate on the gunflints associated with the historic village of Salterstown.

Gunflints

The terms "flint" and "chert" both refer to cryptocrystalline silicious calcedony deposited as sedimentary rock. "Flintlock shooters and probably most
Figure 157

1813 G.V. Sampson, map of area near Salterstown (PRONI D.174.1/4).

(Key indicates \( \text{\textsuperscript{11}} \)= cromlech

Glebe

Castle Ruins

Ballinderry River

\( \text{\textsuperscript{11}} \) = cromlech
archaeologists define flint as of one color and translucent at thin edges, whereas chert may be varicolored and non-transluscent [opaque?] at thin edges" (Hamilton and Emery,1988:9). For the purposes of this discussion "flint" and "chert" are used interchangeably.

The principle of a gunflint is simple; silicious stone, when scraped against hardened steel shears off molten droplets of metal--"sparks", igniting a gunpowder charge. Flint and steel ignition systems for firearms were in Europe by c.1580 (Kent,1983:27). Earlier ignition systems included the matchlock of the mid-15th century (using a constantly smouldering "match"), and the wheellock of c1517 (using a rotating steel wheel held against marcasite or iron sulfide "pyrite"). Matchlocks were still in use in remote areas, including New England, as late as the 1670's (Kent:31), while wheellocks were discarded slightly earlier. Early flint and steel firearms designs included the snaphance, the miquelet, and the "Jacobean" mechanisms. By the 1620's the Flintlock mechanism became relatively standardized, remaining virtually unchanged until the early 19th century introduction of percussion caps. In remote areas of the world (like Colorado Springs, Colorado), flintlocks survive as the hobby of enthusiasts in the late 20th century.

American archaeologists recognize four distinct gunflint manufacturing techniques [See figure 158 & 159]. One method
Manufacturing techniques for gunflints (White, 1975:66).

Basic manufacturing processes of gunflints. 

- **a. French blade technique**: prismatic blade struck from a prepared core, with a French military or "de gouvernement" gunflint.
- **b. English blade technique**: prismatic blade struck from a prepared core, with an English double-edged gunflint.
- **c. Gunspall**: wedge-shaped in cross-section with an overall convex back and a pronounced bulb of percussion at point of impact.
- **d. Ground agate gunflint**: cut and polished on water-powered millstones.
- **e. Crudely flaked bifacial gunflint**.

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Types of gunflints (Kent, 1983:29).

Types of gunflints: (A) chip gunflint from the Weyanoke site in Virginia; (B) Indian bifacial gunflint of black chert; (C) Clactonian, or wedge-shaped gunflint; (D) French blade gunflint; (E) English gunflint; (F) eastern European bifacial gunflint (from a 19th century warehouse cache in Belgium).
is to simply grind low-grade agate on a mill, much like modern lapidary water-grinding. This technique was apparently only popular in Germany, in the 18th and early 19th centuries, and never provided a significant number of flints in American contexts (White, 1975:65).

The three primary methods of gunflint manufacture will be referred to here as snap-blade ², spall, and biface. These distinctions were originally proposed by John Witthoft in 1966; he identified bifaces as "Nordic", analogous to an "Abbevillean" stage of technological development. Spalls were identified as "Dutch", analogous to "Clactonian" technologies, while blades were seen as "French" and analogous to the "Upper Paleolithic" (Witthoft, 1966:22-28). While his attribution of source regions has since been rejected, his definitions for each type and their relative chronological sequence remain. It is intriguing that gunflint manufacturing technologies passed through several critical stages of Old World prehistoric technological development--a kind of compressed recapitulation of thousands of years of technological evolution. Each stage is a revolutionary improvement in the efficient use of the materials and labor of production.

² The snap-blade technique is sometimes referred to as "platform" gunflints in the British literature (Lotbiniere, 1980:155).
Witthoft proposed that biface gunflints date from approximately 1620-1675, gunspalls date from about 1650-1770, while snap-blade gunflints date from 1720-1820. These dates have been revised since, to approximately 1620-1750 for Native American bifaces (Kenmotsu, 1990:97), 1600-1770 for gunspalls (Hamilton, 1980:142), and 1660-1820 for blade-type gunflints (Kent, 1983:32).

The biface technique is recognized primarily from Native American sites, and almost certainly draws directly from traditional prehistoric techniques, adapted for producing a new tool form. There are two kinds of biface gunflint recognized (Kenmotsu, 1990:100); the first is basically a spall (see below) reduced from the core by direct percussion and subsequently retouched by pressure flaking along the margins. The original ventral and dorsal surfaces of the spall are left largely intact, resulting in a plano-convex section. The end product is a square "pillow shaped" flint with bifacial retouching.

The second type of Native American bifacial gunflint is produced by reducing all surfaces of the original spall with secondary pressure flaking, thereby removing most of the original attributes of the spall (Kenmotsu:101). The result is biconvex in section, and looks for all the world like a gunflint-shaped Native American projectile point. Native American-produced bifaces occur in very early 17th
century contexts, indicating the rapid diffusion of state-
of-the-art firearms on the North American frontier.

Gunspall technologies do seem to be a European development. A gunspall is named for the simple wedge-shaped flake (a "spall") from which it is refined. A spall is separated from the core by direct percussion, leaving a positive bulb of percussion and conchoidal fracture lines on the ventral surface. The spall is wedge-shaped in section, tapering from the heel (proximal edge) to a sharp edge designed to strike the steel of a firing mechanism. The striking edge is either unmodified from the original creation of the spall, or it may be slightly retouched by pressure flaking. On English gunspalls the heel is unmodified, while French gunspalls often have heels retouched by careful pressure flaking into a semi-circular "D" formation. The sides of gunspalls are occasionally retouched by pressure flaking (Kenmotsu, 1990:98).

Gunspalls of fairly consistent design and size have been recognized on colonial North American sites from the 1660's (White, 1975:65). Records survive of an inquiry in 1655 by Cromwell on production capacities of a London gunsmith named Roger Carlisle, who claimed he could fill an order for 11,000 flints (DeLotbiniere, 1980:155). Although spalls were probably still in production in England as late as the early 19th century, they disappear from American
archaeological contexts by the Revolutionary War (DeLotbiniere:154; White:69).

Interviews with professional gunflint knappers in the 19th century explicitly demonstrate the following techniques of manufacture. Spalls were fashioned one at a time from raw cobbles of flint, and were relatively wasteful of both time and material when compared to the snap-blade technique. Snap-blade gunflints are produced by removing a series of long blades from a core by direct percussion. The ventral surface of the blade is slightly convex, tapering to a rounded or pointed distal end. One or two dorsal ridges (depending on whether the final flints were to be single or double backed) were created by secondary pressure flaking. The more common double-backed flints were made by removing a secondary flake down the length of the blade, creating a dorsal flute. Final knapping was performed against a small vertical anvil or "stake". The blade was laid against the stake and hit sharply with a hammer designed for the purpose, snapping as many as four gunflints from the length of a single blade (Kenmotsu:1990:99).

French snap-blade gunflints were often further retouched along the sides and heel. The English developed a clever method of snapping the flints from the blade which made final retouching unnecessary. English knappers simply turned the blade around with every other blow of the
hammer, creating beautifully tapered sides to each gunflint (Witthoft, 1966:36).

The French seem to have developed snap-blade gunflints as early as the 1660's, although this technique was not in full production until the 1740's (Kenmotsu:97). Blade technology evidently remained a State secret of France throughout the early 18th century. Diderot is uncharacteristically silent about gunflints in his famous encyclopedia (1751-77), while as late as the 1770's, the British were using French flints to fight the rebels in the American Revolution (Hamilton, 1980:141). There is a persistant story in the literature that the British first learned the blade-making technique from French prisoners of war during the Napoleonic Wars (Hamilton:141; DeLotbiniere:156). English flintknappers of the 1840's remembered the inefficient spall technique their grandfathers had used (DeLotbiniere:156).

Several researchers are uncomfortable with the biface to spall to blade sequence outlined above (Hamilton, 1980; Kent, 1973; H. Miller and Keeler, 1986). For one thing, biface gunflints were produced in 19th century Albania, Portugal, and possibly Spain (White, 1975:65). Biface technique may simply be a response to a local shortage in the large nodules necessary for other techniques. This may be a minor point for American and Northern European contexts. More importantly, no researcher has yet identified a purely
European-derived biface gunflint from a 17th century context (Kent, 1983:32). Although bifaces undoubtedly occur at early 17th century sites, they are always Native American contact sites. No European biface flints survive in situ with their original guns in any museum collection in England (Kent: 29). It is therefore very difficult to argue that bifaces were the first stage of European gunflint development.

If the bifaces are known only from Native American contact sites, then what were the Europeans producing for gunflints in the period 1600–1650?

It has been suggested that in this earliest period of flint-ignition firearms, gunflint making was not an organized craft specialty, but was instead an impromptu "do-it-yourself" enterprise (DeLotbiniere, 1980:155). Such gunflints could be of literally any design that could be gripped in the gun and made to strike sparks. DeLotbiniere suggests that these earliest gunflints were simple adaptations of strike-a-lights, or at most a modified tool made with the same skills (Ibid.). Witthoft notes that "In 17th century sites, there is no typological difference between a gunflint and a flint used against a fire-steel. They can be only distinguished by use-marks" (Witthoft, 1966:30).

The idea that there was no craft specialization in gunflint manufacture for the earliest 17th century is
bolstered by surviving documentation. Early flint shipments were recorded by the ton, not by the number of gunflints. By the 1660's the records begin to refer to invoices for "flints ready cut" rather than the earlier records for flint by the ton (DeLotbiniere: 156). The implication is that when flint was shipped as a supply (rather than merely as ballast--a common practice), it was intended that the recipients would then knapp their own gunflints. It is not until the 1670's that records begin to refer to individual "flintmakers" as a distinct profession (ibid.).

If everybody was making their own gunflints, how do later researchers recognize these early 17th century products? What did they look like? Two descriptive terms have been suggested in the literature, "chip" flints (Hamilton, 1980: 142; Kent, 1983: 28) and "crude gunspalls" (H. Miller and Keeler, 1986: 3). Both terms seem to describe the same phenomenon—a minimally (and crudely) dressed piece of flint chosen for its size, and bearing use-scars on one edge from firing in a gun.

The first Native American technique described above, in which the original faces of the spall are left intact, is distressingly similar to what a 17th century do-it-yourself European flint must have looked like. Granted, the Native Americans presumably would have been better at it, having more practice with lithics—but I doubt that this assumption would consistently hold up. Europeans had been
Figure 160

Crude Gunspalls from St. John's Site, Saint Mary's City Maryland (Miller and Keeler, 1986: fig. 2).
producing home-made strike-a-lights for hundreds of years, which required the same elementary knapping skills necessary to make a crude gunspall. If a pre-1660's European found himself in the New World without the usual ballast-heap of British flint nearby, his materials and techniques may have been indistinguishable from Native American products.

The largest collection of studied early 17th century "crude gunspalls" comes from the St. John's Site in St. Mary's City, Maryland (H. Miller and Keeler, 1986). The site dates from 1638-1715, with 5 French snap-blade gunflints, 6 gunspalls, and 95 "crudely made gunspalls" which the authors argue were locally produced, based on the presence of cores and debitage. These crude gunspalls show only occasional trimming or retouch; they are all use-scarred on one or more edges [See figure 160]; they are not of any standard shape or size (14-32mm max. dimension, 4-13mm thick). Very little skill was evident in the primary reducing of flakes from the core cobbles, although some skill was evident in the secondary trimming. This is the pattern one would expect from someone used to producing strike-a-lights but not used to the initial production stage of flint manufacturing (Ibid:6) 3.

3. N.B. The Miller and Keeler report was not paginated, so citations are approximate.
The horizontal distribution of the crude gunspalls, debitage and cores across the St. John's site corresponds closely with the distribution of early tobacco pipes from the same site, providing circumstantial evidence for an early date for knapping activities. The crude gunspalls are interpreted as a "do-it-yourself" enterprise of the early 17th century.

Although the Articles of Plantation required the London Companies to fortify each settlement with a strong bawn for defense, most of the Plantation towns of Londonderry were very lightly armed. The Muster Rolls of 1618 indicate that 16 men under Mr. Sawyer represented the English military strength of the Salter's proportion. They were armed with 12 muskets and 4 halberds. This is actually a strong showing when one considers that there were only 82 British-owned muskets in the entire County, as counted in the same document (C.S.P.I. 1615-1625:222). The Salter's Dividend Book records that the 22nd of November, 1622 the Salters paid "L56/5/0 for armour and munition sent into Ireland" (Moody, PRONI T.853:148). The Salter's Company again supplied armament in 1630;

28th June 1630 The court doth grant to Mr. Ralph Whistler 12 old armors which lie rusty in the hall storehouse, and not any of those which our armorer doth trim up quarterly--and one barrel of powder and all the jacks (in Gillespy, 1842:15).

Obviously the Irish estate did not rate the same quality of weaponry as the annual parades of the London Companies.
Figure 161 Salterstown Crude Spalls.

[Diagram showing different views of Salterstown Crude Spalls, labeled as Dorsal and Ventral.]

Lithics
Salterstown LDY49:1
O. Miller 1990
Figure 162 Salterstown Gun Chips and Blades.

- 792W.2A
- Used Gun "chip"

- 1952W.1
- Used gun "chip"

- 1552W.2
- Poss. Blade-type Gunflint

- 1936E.1
- Poss. Blade (for Gunflint production?)

Scale: 2cm

Lithics
Salterstown
LDY49:1
O. Miller 1990
According to Maitland's unnamed source, at the outbreak of the Rebellion of 1641 there were 15 guns in Magherafelt (Maitland, 1916:4,5). It should not come as a surprise, then, that the number of excavated gunflints is so low [See Figures 161 & 162].

**Gunflints**
- Thumbnail End Scraper 21S2E.3, early Bronze Age (French Gunspall) [See discussion below]
- Small Scraper, retouched 17S0E.2 (Gun "chip")
- Edge-Damaged Spall 15S2E.1 (Gunspall)
- Edge-Damaged Spall F26 (Gunspall)
- Snap-Blade 15S2W.2
- Snap-Blade 19S2W.1 (unconvincing)
- Snap-Blade 19S6E.1
- Blade, tip 16S2E.1 (Gunspall)

As can be readily seen in the descriptive titles provided above, the prehistoric lithics specialists and I did not always agree in our interpretations. Since the thumbnail end scraper seems to be a diagnostic of the Irish Bronze Age, I am willing to concede that it might not be a "D-shaped" French gunspall of the late 17th century [see figure 156].

At Salterstown 3 lithics are arguably snap-blade type gunflints of the later 17th- early 19th century period. [See figure 161]. Four pieces were identified as 17-18th century gunspalls (3 if we allow for the Irish Bronze Age) [See figure 162]. One of these is unused, and therefore its identification as a gunspall is based purely on shape. The prehistorians' description as "edge-damaged spall" is perfectly consistent with use in a gun.
Finally, at Salterstown 1 piece is provisionally defined as a Gun "chip", in the sense of that term proposed by Kent— a do-it-yourself crude gunspall of the pre-1650 period (Kent, 1983:31). The Salterstown piece is a wedge-shaped spall with use scars at the thinnest edge, with little or no evidence for elaborate shaping [See figure 161]. I caution a grain of salt with this interpretation; "crude gunspalls" is a relatively little-studied, wide open classification. This study, and other early studies trying to come to grips with pre-1650 gunflints may be misled by lithics displaying what we think we should find, whether the finds were ever intended for use in a gun or not. However, any one of the lithics described above could be clamped into a gun and made to fire the weapon.
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Vernon and Vernon  

White, S.W.  

Witthoft, J.  
CLAY TOBACCO PIPES

Tobacco was known in France in the 1550's, in Italy in 1561 and in Portugal and Spain in the 1560's. The word "tobacco" was thought to be of Spanish origin. In each of these countries these earliest references mention its perceived medicinal value as a powdered snuff (Oswald, 1975: 3). The first reference to smoking tobacco comes from England, when a William Harrison mentioned it in 1573. In 1580 the first mention of the word "pipe" occurs, although there is still no verb for "smoking"; pipe users were referred to as "drinking" or "sipping" the tobacco (Oswald: 4).

In the 1580's pipe manufacturing began in England. From the beginning, visiting foreigners were astonished at how much the English smoked, women as well as men. From 1601-1619 there were numerous complaints of multiple monopoly patents with overlapping rights. In 1619 the Tobacco Pipemakers of Westminster was chartered; records from this charter and other documents show 62 known pipemakers in the London area for that year. The Company was unable to enforce a monopoly--pipemaking requires very little overhead or initial investment--literally hundreds of tiny establishments sprang up to meet the rising demand for pipes as the price of tobacco began to slowly come down (Oswald, 1975: 5-9).
London dominated pipe manufacturing in the period before 1641 (Oswald, 1975:42), although recent work has shown that several pipemakers were in production in urban areas elsewhere. In the chaos of the Commonwealth period the industry was decentralized, and regional stylistic traditions developed in Scotland, the Northeast, the Northwest, the Midlands, Broseley, the Central South, Bristol, and the West Country (Oswald: 43-53). Unfortunately, recognizing these regional variations in bowl design without makers marks requires a large sample of intact bowls. While the Saltertown collection shows a wide variety of bowls, they are only rarely intact or marked.

Determining the period of manufacture is easier than determining regional styles, since each region followed the same general evolution in bowl volume and shape. For purposes of dating, Oswald's "Simplified General Typology" will be used for all pipe bowls which lack more specific dating clues (Oswald, 1975:37-41) [See Figures 163 & 164]. Examples of each identified form are illustrated in Figures 163 & 164.

**Earliest 17th century pipes**

Marked: A) 2 fragments, 2 MNV
"Castle" on base of Edinburgh Type 1 bowls (1629-40) [Fig 165 a&b]

B) 1 fragment, 1 MNV
Eight-spoked wheel with pellets, London (c1600-1650) [Fig 165e].

Unmarked: A) 1 fragment, 1 MNV Oswald Type 1 (c1580-1600) [Fig 165a,b&d]

B) 1 fragment, 1 MNV Oswald Type 2 (c1580-1610) [Fig 165c]
C) 1 fragment, 1 MNV Oswald Type 3 (c1580-1610) [Fig 165L]
D) 2 fragments, 2 MNV Oswald Type 4 (c1600-40) [Fig 165f,i].

Pipes from the earliest period of 1580-1610 were referred to as "little ladells", extending the drinking metaphor (Oswald:72). These pipes were of extremely small volume, in keeping with the exorbitant price of tobacco during this period [See figure 165,#b,c & d]. The stems were generally very thick with a large bore. A high percentage of the earliest pipes had heart-shaped or teardrop shaped bases, either flush with the junction of bowl and stem or flaring forward slightly. The earliest pipes were not usually rouletted around the rim (Oswald:37-8; fig3).

The pipe bowl and foot with incuse spoked wheel is a London product. The mark matches that found in the grave of a victim of the 1622 massacre at Martin's Hundred, Virginia (A.Noel-Hume,1979:32) [See figure 168]. The bowl volume and shape indicate a slightly later date; Rutter and Davey suggest a 1610-1650 date range for this mark. The Salterstown example is probably from the second quarter of the 17th century (Rutter and Davey,1980:58,104)
Oswald's Simplified General Typology of Clay Tobacco Pipes
(Oswald, 1975: 39).

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Figure 164

Oswald's Simplified General Typology of Clay Tobacco Pipes (Oswald, 1975: 41).

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Figure 165 Salterstown early Heeled-Stem Pipe Bowls.

Early Belly-Bowls
- Heeled Stems

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Figure 166 Salterstown later Spur Heeled Pipe Bowls.

Later Pipes

-Spurred Heels

[A diagram showing various pipe bowl designs, labeled A to J, with notes and references.]

I152E.1
Caswell Type 21

F251
Caswell Type 22

2153W.2
Caswell Type 12

1351E.2
Caswell Type 20

1551W.1

note: thinner wall than other "Red Hand" examples

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The "Castle" maker's mark on two of the heels are the "Edinburgh" seal used by silversmiths of the period, later adopted by several Edinburgh pipemakers. The bowl form and volume, coupled with the clarity of the stamp, indicate that these pipes were made by the first known Scottish pipe maker, William Banks (1620-1640). It is unlikely that Banks was already exporting to Ulster, although Scottish pipemakers were certainly doing just that later in the century. It is more likely that one or more Scotsmen found their way to Salterstown late in the first occupation of the site (Oswald, 1975:43; Sharp, 1987:14).

Mid to Late 17th century pipes

Unmarked: A) 3 fragments, MNV 3, Oswald Type 6 (c1660-1680) 1 fragment with lined rim, others rouletted. [Figure 165h, j&k].
B) 3 fragments, MNV 3, Oswald Type 17 (1640-1670)
C) 1 fragment, MNV 1, Oswald Type 20 (c1690-1730) [Fig 166a]
D) 7 fragments, MNV 4, unidentifiable forms, 17th century volumes

Later 17th century pipes were of slightly greater volume than the earlier specimens, while retaining the belly-bowl form and a body profile which was thickest mid-way up the bowl, tapering in at the rim. The Oswald Type 20 was a transitional form with a taller bowl, retaining a vestigial "belly" in profile.

18th century pipes

Unmarked: A) 4 fragments, MNV 4, Oswald Type 12 (1730-1780) [Fig 165 c, h]
B) 1 fragment, MNV 1, Oswald Type 21 (c1700-1740) [Fig 165a]
C) 1 fragment, MNV 1, Oswald Type 22 (c1730-1780) [Fig 165 b]
D) 15 fragments, MNV 3, unidentifiable forms
E) 1 reused stem, MNV 1, teeth marks at the break [Fig 165e]

The 18th century bowls were quite thin (approximately 1/16th") and of nearly uniform thickness for the length of the bowl. The rims were generally cut in the plane of the stem, rather than tilting forward as earlier. 18th century bowls were tall, while very rarely flat footed, 18th century design favoring the spurred forms.

19th century pipes

Marked: A) 9 fragments, MNV 6, "Red Hand of Ulster" with crosshatched Heart, (c1850-1900) Glasgow or Chester.
--- one fragment with relief "I" at front of bowl, possibly crowned, date possibly earlier than above [Figure 166i]
B) 1 fragment, MNV 1, crosshatched "Star" on side of bowl. (c1850-1900) Glasgow [Fig 166j].
C) 1 stem, MNV unknown, "Derry" stamped on side of stem (c1870-1900) Glasgow or N.Ireland [Fig 166f]

Unmarked: 6 fragments, MNV 4, thick, upright, large volume

Oswald's typology does not extend into the middle and later 19th century due to the proliferation of individual manufacturer's designs. Many of these designs are accessible through surviving wholesaler's catalogues. Nineteenth century bowls were cast uniformly thick (1/8-3/16"), presumably for ruggedness and in order to imitate the more expensive briars coming into popularity.

The "Red Hand" motif was manufactured in both Chester and Glasgow specifically for the Ulster "Orange" market, and probably served to identify the smoker as a Protestant
Ulsterman. In D.McDougall's Irish Price List of 1871-88, the Glasgow wholesaler listed "Derry Heart" pipes at 2 shilling/ gross. The same companies manufacturing the "Red Hand" were also turning out pipes with Masonic symbols (another sectarian marker), and various designs of Harps, Shamrocks, "Home Rule", "Wolfe Tone" and "Land League" slogans for those of a more Republican persuasion (Rutter and Davey, 1980:206-7; Gallagher, 1987:90,139; Sudbury, 1986). Various citizens of Magherafelt, Co.Londonderry still remember (in 1989) the "Red Hand" pipes and "Harp" pipes of their fathers and grandfathers. Local tradition maintains that the crosshatching on the heart is meant to provide a rough surface for striking your match. All of the Salterstown specimens were defaced across the heart.

The "Derry" stamped stem was common to several manufacturers. The word did not represent the place of manufacture (some were made in Glasgow), but was used to denote a particular pipe form (the form so noted varied from manufacturer to manufacturer) (Gallagher:87; George Zorn, 1892:10-11).

Pipe Stem Bores

The intriguing spatial distribution of pipe stem bores across the site will be taken up elsewhere (see "Interpretation of Features"). The dating of the site is more accurately specified from the documents and dendrochronology than from the pipe bores. The information
Binford's Mean date of accumulation for sample: 1664 (Binford, 1978:66-7).

N.B. Binford's regression assumes a constant rate of deposition; the actual rate increased in the later 17th century as tobacco prices dropped.
Figure 168

in Figure 167 is presented for its value in comparison with other sites. Using Lewis Binford's regression formula, the mean date of deposition for the pipes is 1664. As Binford himself is quick to point out, this regression is skewed by any variation in the rate of deposition over the history of the site (Binford, 1978:66-7). In the case of Salterstown, the rate of deposition increased in the second occupation (post 1657) relative to the initial occupation (pre-1641), thereby hiking the mean occupation date up later than the true figure. This slight distortion is exaggerated by the falling price of tobacco in the late 17th century, making the smoking habit more accessible to poorer members of the population.

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WOOD

This section will account for all of the wood recovered on-site, comprising both architectural debris and smaller finds.

The large quantity and generally poor quality of the wood made it impractical to try and conserve it all. Individual wooden artifacts referred to in the text were not conserved unless otherwise stated. Those artifacts important enough to warrant conservation were treated by Malcolm F. Fry of the Conservation Laboratory of the Archaeology Survey, Department of the Environment for Northern Ireland. All conserved wood was tapwater cleaned, then soaked in a 25% aqueous solution of PEG 400 and Panacide. This soaking continued for nearly a full year between Aug. 1989 and Aug. 1990. The wood was then placed in refrigerated storage pending freeze-drying.

Each conserved wood (and leather) object was assigned a lab number between #1-59 and recorded by the excavators in the field. Upon receiving these materials, the D.o.E. conservators assigned an additional number prefixed by the year received (example: "89/##"). When referring to conserved material in this report, both numbers will be recorded.

Architectural Debris

All wooden architectural debris was found in association with the Well (F.26). Most of these were in the form of
partially rotted timbers used in constructing a platform. This platform extended across the top of the stone lining of the well, and to the west of the well where it rested in the clay lining of the springhouse. For a more thorough discussion of the function and in situ alignments of the platform timbers see "The Well, Feature 26", in the Features chapter, Chapter Four.

Each timber was assigned a number upon discovery during excavation. Since the well was excavated in quadrants, some portions of the same timber were exposed at different times by different excavators, leading to some minor confusions in the numbering scheme. Although 38 numbers were assigned, only 36 timbers were actually excavated. For this reason, the numbers 35 (actually timber 14) and 37 (timber 13) have become inactive. All others may be viewed in situ from the plan view included in the Features chapter.

None of the timber from the platform was considered informative enough to warrant conservation. Timber 14 was chosen for use in dendrochronological dating because it was thought to have the most tree-rings available for sequencing [See Figure 169]. None of the platform timbers were preserved well enough to study saw marks or carpentry skills. Only two of the timbers were trenailed together (Timbers 14 and 24) [See Figure 169], the rest seemed to have been simply cross-laid over one another to create the platform. There were no nails surviving in association with
Figure 169

Architectural Timbers #14 and #24.
the platform, and only one square nail hole evident in one timber (timber 30).

The degree to which most of the surviving timbers had been distorted by weathering and overburden is illustrated by the accompanying drawing of timber #25 [Figure 170].

In addition to the timbers from the platform, six small, apparently architectural timbers were found in Strata H and I, the waterlogged lower reaches of the well shaft itself. These timbers were evidently discarded before the well was filled in.

Stratum H (2 pcs)
--- Oak; carpentered joint, 27cm X 4cm, forming a trapezoidal bladed tenon cut to a 60 degree seat (#16,89/39).
--- Oak; carpentered joint, 15cm X 3cm, forming a triangular bladed tenon cut to a 50 degree seat (#17,89/37).

These two fragments are the only evidence for mortise and tenon carpentry to survive at Salterstown. Both of these tenon shapes were in use in the 17th century, as illustrated in Figure 171 from Cummings, 1979:83. It is obvious that the intended joints would connect timbers at an angle to one another, as in roofing rafters or diagonal braces. However, no holes have been bored through the tenons to accept trenails, and the timbers themselves appear rather small. It is therefore doubtful that these joints were intended to bear much of a load.
Figure 170

Architectural Timber #25.
Figure 171

Salterstown Joinery and Joinery Illustrations from Cummings, 1979: 83.
Stratum I (6 pcs)
—Oak; plank, 80cm X 3.7cm, hand-sawn at both ends, no surface finishing details surviving.
—Oak; plank, 80cm X 2.3cm, bored to accept 3 trenails, hand-whittled round-section tang (1"dia.) extending from one end.
—Oak; plank?, 90cm X 2.3cm, rotted beyond analysis.
—Oak, plank, 80cm X 2.3cm, slightly tapered in section as clapboarding, bored to accept 3 trenails.
—Oak; trenails, two, 16cm X 2.5cm, and 11cm X 2.7cm. conserved as #47,89/41, and #49,89/42.

The Stratum I timbers seem to be related by general dimensions, although there is no obvious means of attaching them to one another [See figure 172]. The trenail holes found on two of the timbers do not line up with each other. The round-section tang found on one of the timbers suggests that the timber may have been designed to pivot while in use. No wear marks survived due to poor preservation. It is possible that the tanged timber is related to a "Latch/Catch" (#15,89/36), also found in Stratum I and discussed below.

Non-Architectural or Unidentified Wooden Artifacts

Stratum I
—Oak: Toy sword or child-size flax scutching flail. 35.5cm X .9cm. Probably straight stave, hand-whittled edges, conserved as #3,89/34.
—Oak: Handle, 21.5cm X 2cm, hand-carved all surfaces, originally flush-mounted, rose-headed hand-forged nail at base of outside curve.(#14,89/35).
—Oak: Latch or Catch, 20cm X 2.2cm at flattened end, 1"dia. at rounded tang. Hand-carved from a single piece of stock to create a 1" diameter pole or handle (since broken off), which narrows and flattens out to a triangular finial. The inside corner of the finial, and the surface of the pole where it meets this inside corner, are worn very smooth. All edges and surfaces preserve whittling scars. (#15,89/36).
—Oak: Unidentified dome-shaped object with rounded knob protruding from flat surface. 9.4cm X 5.8cm, hand-carved all surfaces, with flat surface at base of protruding

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Figure 172 Salterstown Stratum I Architectural Timbers.
knob worn smooth. Possible pivot-point, decorative finial, container plug? (#13,89/43).
--Oak: Scrap stock, 24cm X 2.5cm, chopped obliquely at both ends as with an axe or cleaver, (18,89/38).
--Osier/Wicker: Wicker Handle, 3 frags from same handle, plus 12 separated strands of same material. Approximately 9.5cm X 2.7cm, strands twisted into cables, cables twined around each other. (#30,31,32,60,89/46).
--Bark: 2 strips (birch?) bark, use unknown (#6,89/47).

Stratum J
--Oak and Iron: Spindle Reel, 9cm X 9cm, 4 piece construction, a dowel passed through an H-shaped hand-carved reel with a wooden pin (much worn) at one end and an iron pin (a broken repair) at the other. (#2,89/33).
--Oak: Bucket, 33.5cm X 25.5cm dia. at bottom, 20cm dia. at top, Complete stave-built bucket composed of 8 wide staves (3-4" of arc across bottom), one narrow stave (1" arc across bottom), and a bottom plate. Narrow stave is pierced in two places by rectangular holes. Plate is tapered and chamfered for fit into dado let into each stave 1" from the bottom. Probably was bound by osier/wicker bands (conserved as 89/32).

The "toy sword" (3,89/34) may not be a toy sword at all, but in the absence of a more conclusive explanation for this artifact's function I prefer the romantic explanation [see figure 173]. This is not the only evidence of children to be recovered from the well (see Leather chapter). The artifact is probably not a scutching flail, as first thought, as such flails were necessarily very sturdy, and were usually straight along the working edge, curving back from the tip along the back edge.

The Handle and the Latch/Catch (14,89/35 and 15,89/36) may have served related functions. All four of the architectural timbers from Stratum I, and the Handle and Latch/Catch of that same stratum, may have been associated with a trap-door covering the access hole in the platform.
Figure 173 Salterstown Toy Sword, Oak.

C. Oak Stave whittled into
Toy Sword or
Child's Scutching
Flail

Salterstown LDY49:

#3, 89/34
F26.1
Figure 174 Oak Latch and Oak Handle.

Hand-Carved Handle, Oak
#14, 09/35 F26.I

Oak, Hand-Carved
Latch or Catch
on round stalk

round section

5cm

head of rose-headed
nail
over the well. One of the larger timbers was made to pivot by means of a round protruding tang [See figure 172]. There may easily have been another such tang on the opposite end of the board (now rotted away). The other timbers would have comprised the rest of the trap-door itself. The Handle would be used to raise and lower the hatch, while the Latch/Catch would have held this probably hefty trap-door open while drawing water from the well.

It is possible that the Latch/Catch is actually a broken portion of the Stratum I architectural timber with a round-section tang. The hand-made round sections of both pieces are of the same diameter [See Figures 172 and 174]. However, I suspect that the Latch/Catch was part of a longer pole--long enough to be slightly flexible, yet strong enough to provide tension on the inside of the catch when it was in use.

An alternative function for the Handle would be to attach it vertically to the Bucket. However, the only holes in the staves of the bucket [see figure 175] do no line up with the attachment scars on the handle.

The dome-shaped object with protruding knob was quite a mystery [See Figure 176]. It has been suggested that it is a pivot point for some presumably hollow object, a decorative finial used for architectural adornment, or a stopper for a jug. The decorative finial idea does not account for the wear marks on the flat surface around the
Figure 175 Stave-built Oak Bucket.
Figure 176 Oak Basal Pivot for Rotary Quern
Osier/ Wicker fragments Oak Spindle Reel.

Osier/ Wicker Fragments F26.I

Oak Spindle Reel F26.53 4.89/33

Oak, Basal Pivot for Rotary Quern

Worn Surface

#30.2 89/46 F26.I

#13, 89/43 F26.I
knob. I am hopeful that someone will recognize this object after it is published.  

The wicker, in handle form and loose strands, was probably a part of the bucket [See Figure 175]. Some scars on the surface of the bucket staves indicate that a twisted substance once bound the staves in lieu of hoops—a wicker handle could easily have been anchored to these bands if the bucket was pierced as shown.

The Spindle Reel (2,89/33), Figure 176, can be identified from other sources (Audrey Noel-Hume, 1974:60, and Amman and Sachs,1568:95 "The Carpenter") [See Figure 177]. This kind of reel could be used to wind fine line for a carpenter's chalk-line, or for laying out flower beds, or simply for fishing. The modern equivalent is still popular among kite-flyers. This particular example [see figure 176] is very worn out, as seen by the wear on the remaining wooden peg.

The Bucket (89/32) is in remarkably good shape [See figure 175], and displays far more painstaking workmanship than any other surviving wood artifact. Whatever skills were lacking in the tiny village of Salterstown in the later 17th century, coopers were obviously available.

1. After distributing the initial draft of this opus to the dissertation committee, this object was firmly identified as the basal pivot for a rotary quern. A matching pivot was discovered in situ at Drumgay Lough, Conerick Townland, Co. Fermanagh (SMR Ferm. 211:53). My thanks to Malcolm Fry for making the identification, and to Nick Brannon for calling it to my attention.
The bucket is otherwise unremarkable except for the fact that it was still there at all. This was a well-made tool in good condition, found in the bottom of a well which had been filled in quite suddenly. If this particular well was being
Figure 177


A: "The Carpenter" (from Amman and Sachs, 1568:95).

Der Zimmermann.

Examples of Spindle-Reels (see Figure 176)
abandoned in favor of another one, then surely the owners would have taken the bucket with them to the new well. Instead, the bucket was thrown into the well along with the remains of the trapdoor, and the well was filled in via the access hole in the (at that moment still intact) timber platform. This was more an act of vandalism than husbandry.

Because the well may have been filled in as an act of violence, it is at least possible that the infilling episode was part of the scorched earth policy of demolition practiced by the retreating army of James II in 1689/90. We know already from the historical record that Salterstown fell to those forces. The toy sword would have been no protection.

Bibliography


This section will be necessarily eclectic, covering non-architectural metal finds, worked bone, coins, buttons, ornaments, etc. While none of these kinds of artifacts have been found in the quantities necessary to make generalizations about the people who used and disposed of them, they provide tantalizing details of the aesthetic of the periods in which they were produced. Developing an "eye" for the created material details with which these people chose to surround themselves brings us just a bit closer to them.

Bone: Bone utensil handle, 7.1x1.3cm, 5mm bore (2 3/4x 11/16", 3/8" bore) carved with finial, incised and prepared for inlay at center of floral motifs (inlay material now missing). Date: 1590-1630. (13S4W.2A).

The most spectacular find of the season was a worked bone tableware handle, decorated with incised Mannerist floral motifs, a carved finial, and probably (now-missing) inlaid semi-precious stones [See figure 178]. Although an exact match has not been located in illustrations from the archaeological literature or paintings from the period, a parallel was found at Moulsham Street, Chelmsford (Cunningham and Drury, 1985:25,59). The Chelmsford piece has only the finial surviving, with an incised flower nearly identical to the Salterstown handle [See figure 179]. The Chelmsford piece was dated by context to 1590-1630, a reasonable date for the Salterstown handle as well.
Figure 178 Salterstown Bone Tableware Handle.
Figure 179 Analog for Bone Handle (Cunningham and Drury 1985:59).
The Salterstown handle was cleaned and conserved by Susan D. Hanna of Historic St. Mary's City. The piece was washed in deionized water and mechanically cleaned, then soaked in ETOH for a day. The piece was then vacuum impregnated with a 10% B-98 ETOH solution for 24 hours, wiped with linen-free tissue and allowed to air dry.

The Salterstown handle suggests a modest degree of personal luxury on-site during the earliest period of English occupation. This assessment is corroborated by the glass drinking vessels and tobacco pipes present from the same period. These are not high-style luxury goods, but neither are they the remains of a peasant household.

Iron Knife Parts [See figures 180 & 181]:
 a) Baluster bolster blade with whittle tang, pronounced triangular section to blade, early-mid 17th century (9-10m).
b) Hollow-ground hilt, notched-in blade with whittle tang. Pronounced triangular section to blade, 16th-mid 17th century (21S3W.F26clay).
c) Fragment of triangular-section blade only, probably 17th century (21S4E.1).
d) Two fragments wide triangular-section blade with rounded tip, late 17th-early 18th century. (F53, well).
e) Blade fragment with bulbous "butter" tip, relatively flat in section, 18th century (15S1E.2).
f) Iron (knife?) handle, "pistol grip" form, usually associated with "butter" tip blade as above. 18th century (21S3W.2).
g) Drop-point blade in 3 pieces, with whittle tang, heavily corroded. No dating info avail. (19S2W.2).

A whittle tang is usually referred to as a "rat-tail" tang among American knife makers, as distinguished from the scale tang, which is flatter in section, and may be secured.
Figure 180 Salterstown, Early Iron Knife Parts.

Iron Knife Blade  E.17thc
+ Tang
9-10cm

Iron Knife Blade  E.17thc
+ Tang
2153W. F26 day

Small Finds
Salterstown LDV49:1
O. Miller 1990

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Figure 181 Salterstown, Iron Knife Parts and Brass Thimble Fragment.

Brass Thimble Fragment

Iron Knife Blade, unconserved
F53, 2 pcs
1.17th c.

Iron Knife Blade
2154E.1
17th c

Iron Knife Blade
1952W.2
Date?
n.b. 3 pcs.

Iron (Knife?) Handle
2153W.2
18th c

Small finds
Salterstown LDY49:1
O. Miller 1990

2 cm
to the handle by rivets. Both were in use in the medieval period, and do not indicate date (Goodall, et al. 1985:51).

The baluster bolster of (a) was developed in the 16th century but probably survived into the mid-17th century (Ibid.). The hollow-ground hilt and notched-in blade of (b) is similar to blades found in 16th century contexts at Exeter (Allen, 1984:337-8). Fragments (e-f) are of the same 18th century style (Noel-Hume, 1972:178), and may be from the same knife.

Other non-architectural iron finds include a 19th century horseshoe (not illustrated), and 48 fragments weighing a total of 2739 gms of heavily corroded, unconserved and therefore unidentified pieces. I am currently negotiating with laboratory facilities to have these artifacts cleaned to the point of identification, after which we will decide what conservation measures are necessary.

Buttons [See figure 182]:
  a) Soft White-metal, missing wire eye cast into boss, South Typology Type 29 [See figure 182], possible vestigial impression of now missing fabric cover under x10 magnification. 1.18th-mid 19th century (21S2E.2).
  b) Oval sleeve-button with stamped link, link similar to South type 35 link. 3rd 1/4 18th century (23S4E.2) (For detailed discussion of sleeve button see last chapter).
  c) Stamped brass button, South type 18, early 19th century, legend: "treble gilt gold colour" with cable inner border. (16S4E.1).
  d) Stamped brass button, South type 18, with "crown" logo and obscured legend, 19th-20th centuries (9S1E.2).
  e) Cast brass button with raised boss, no South type, probably 19th century (21S2W.1).
Figure 182 Salterstown Buttons.

Brass Button 951E.2 19th-20th c.

Bone Button 1991W.2 19th c.

Brass Button 1654E 19th c.

"White Metal" 2152E.2 Pewter / Lead Button

Brass Sleeve Link 3rd-4th 18th c. 2354E.2

Possible Vertical Impression from Fabric Cover

Small Finds Salterstown LDY 49:1
O. Miller 1990

2 cm
f) Bone button, four holes, South type 20, early 19th century (19S1W.2).

No seventeenth century clothing fasteners were recovered at Salterstown. The single 18th century sleeve button is discussed in considerable detail in the final chapter, accompanied by a discussion of the development of the button manufacturing industry and the social context for the use of the sleeve button itself. The sleeve button, taken with the late 18th century creamware ceramic sherds, indicate a fair degree of prosperity on the site in that period; again, these are not high-style luxury items, but they are far from the cheapest goods available.

Coins and Tokens [See figure 183]:
  a) Unidentified coin/token, all detail eroded, copper alloy worn extremely thin, probably late 17-18th century (12S2W.2).
  b) Unidentified hand-stamped copper alloy (?), with graining on one edge. Some vestige of partly legible legend. Date unknown (16S5E.1).
  c) Copper Alloy, 1672 Dublin Merchant's Token; Half-penny, "Mic.Wilson", badly eroded when recovered, identified on-site by date and Butcher's Arms. All details lost in subsequent cleaning. (20S3W.2).
  d) 1904 Edward VII Halfpenny, not illustrated (20S1W.2).
  e) 1881 Victoria Halfpenny (21S1W.2).

The coins are frustrating in their anonymity. The token (c) was identified in the field from Seaby, 1970:121.

Williamson notes that;

There are many varieties of this token, of the same date, type, etc., struck from different dies. We have no doubt many of them are counterfeits of the day; some are barbarously engraved. It is the most common token in the Irish series (Williamson, 1967:1385).
Figure 183 Salterstown, Coins and Tokens.

**Coins and Tokens**

not illustrated: 1904 Edward VII Halfpenny (2051W.2)

1881 Victoria "bun head" style Halfpenny (2131W.2)

---

Copper Token / Unidentified Coin 1252W.2

Unidentified Coin/TOKEN 1655E.1

1672 Dublin Merchant's Token (Before Cleaning)

Mic Wilson "St George"

Merchant's Token After Cleaning

Hand-made Brass Tack 2054W.2

Small Finds Salterstown LDY 49:1 O. Miller, 1990

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The Salterstown example was perhaps too vigorously cleaned in the field; by the time it was presented for conservation to Susan Hanna of Historic St. Mary's City the token was illegible.

Conservation: The token was brushed with 30% formic acid in an aqueous solution, rinsed in water and cleaned with wooden picks and a brush. It was then brushed with 30% formic acid in an aqueous solution for 5 minutes, followed by a bath in 10% sulphuric acid for 3 minutes, and brushed under running water, rinsed in a water bath and air dried. The token was then cleaned with glass brush and air abrasion, and bathed in ETOH, degreased 1 hour and air dried. The token was then vacuum impregnated with 3% solution Benzotriazole in ETOH solution for 24 hours, and wiped clean with lint-free tissue and allowed to air dry. It was again brushed, bathed in ETOH, and brushed with 50% Incralac/toulene, and air dried another 24 hours. A second application of 50% Incralac and toulene followed.

Unfortunately, all of Susan's technological expertise was wasted due to clumsy handling in the field, for which I take sole responsibility. I now have a shiny copper disk which will survive Armageddon.

Miscellaneous Non-Ferrous Metal:
  a) Brass Tack, handmade, pre-19th century back to the Bronze Age. (20S4W.2). [See figure 183].
  b) Brass pin-head, wire-wrapped construction, e.17th-e.19th century (18S3E.F7). [See figure 184]
  c) Copper Rivet, original use undetermined, pre-19th century (19S2W.1). [See figure 184]
  d) Brass sewing-thimble fragment, stippled and repoussé decoration, 1.17th-18th century (14S1E.2).[See figure 181].

The pin-head with wire-wrapped construction was introduced in the early 17th century, continuing until the early 19th (Noel-Hume, 1972:254).

Noel-Hume dates the introduction of a decorative band along the open end of brass thimbles to the late 17th
Figure 184 Salterstown, Buckles, Rivet and Pin.

Iron “Figure 8” Buckle, Unconserved
F53.2C.SW

Iron “Figure 8” Buckle, beyond Conservation
1952E.2

Brass Buckle Cast/Engraved Decoration
17510W.1

Brass Pin-head 17-18th c
1853E.F7

Copper Rivet

Small Finds
Salterstown LDY49:1
O’Muller 1990

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century. Since the stippling of the Salterstown specimen is done by hand it is probably no later than the 2nd 1/4 18th century (Noel-Hume, 1972:256).

Buckles: [See figure 184]
   a) Small iron figure-8 harness, spur or knee buckle, 1st 1/2 17th century (F53.2C.SW).
   b) Iron figure-8 buckle, undecorated, probably harness, 17th century (19S2E.2).
   c) Cast brass shoe or knee buckle with engraved floral ornament, late 17th-early 18th century (17S10W.1).

All buckle functions and dates are from the discussion in Noel-Hume, 1972:84-7. The dating for the figure-8 buckles should be taken with a grain of salt; they appear in 13th-16th century contexts at Exeter (Allen, 1984:347, fig.190); it is therefore at least theoretically possible that the buckles predate the English occupation. As I doubt this very much, I use Noel-Hume's dates.

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THE SALTERSTOWN SLEEVE BUTTON

Throughout this study our focus has been steadily narrowing. We have now reached the final extreme; the detailed examination of a single artifact. This last essay is intended as a demonstration of what information can be extracted with the time and patience usually unavailable to professional archaeologists 1.

The artifact is a simple 18th century sleeve-button, an ancestor of the modern cuff-link [See Figure 185]. The sleeve-button has been chosen for analysis for several reasons, among them its evocative power as an item of personal attire. A lacuna in the chain of tenant occupants at Salterstown stretches across much of the 18th century. The sleeve button may prove to be an important clue for the degree of prosperity enjoyed by these "missing" 18th century tenants.

The sleeve button was found at T15.1, a mixed stratum containing household debris dating from the 17th through 19th centuries. This debris is probably the result of continuous manuring on the fields which were developed over the site of the original village. The chronological mixing is the result of some 250 years of ploughing.

1. This essay is adapted from a project entitled "The Salterstown Sleeve Button: Notes on a Missing Link", originally presented to Professor Karen Calvert in 1988.
Figure 185 Salterstown, Sleeve Button, detail.
Description

The sleeve button consists of two pieces, the button *per se*, and the link which originally attached the button to its now missing mate. Both the button and the link are of brass, the former being cast in one piece [and spun?], while the link was stamped from card-stock.

The button is oval in form, approx. 9/16" (14.4 mm) in diameter on its long axis and approx. 29/64" (11.5 mm) across. The face is undecorated, although it was probably polished to a high gloss in its original state. The face is very slightly convex, with a hint of a fine bevel following the oval rim. This type of button was usually finished by spinning, to smooth and polish the cast surface, leaving lathe scars on the reverse surface (South, 1964, 114). The preservation of the study piece is too poor to show lathe scars even if they were once there. The shank is of the "wedge", "key", or "pyramid" type, depending on the typology one favors (South, 1964: 129 uses wedge, Luscomb, 1967: 113 uses key, while Noel-Hume, 1961: 383 uses pyramid). The shank is integral to the original casting, standing approx. 1/8" (3 mm.) out from the reverse surface, and is drilled to a 5/64" inside diameter.

The stamped link originally consisted of three pierced areas, two serving as open attachment loops for the buttons, while the middle piercing was a decorative four-
lobed Tudor rose motif.² The link was originally approx. 9/16" (14.2 mm.) long, now slightly distended due to a broken loop. The link is about 13/64" (5.2 mm.) wide, and was stamped from stock about 1/32" (.9 mm.) thick.

Both parts have acquired a dark patina in the ground. The button was so heavily encrusted that it required ultrasonic cleaning to establish its material. It was originally suspected that the sleeve-button had been gold plated, due to slightly brighter grains appearing under magnification on the surface and inside the bore of the shank. However, these bright areas and the overall patina compare favorably to a five year old set of brass sleeve buttons which were cast as an "experimental archaeology" project (see figure 186) ³. Based on this comparison, I suspect that the study artifact was not plated. If the sleeve link under study was meant to be worn polished, it must have required polishing frequently.

Both pieces display wear on the loops where they would have rubbed against each other during use. The loop at the

---

² The four-lobed Tudor rose is a "degenerate" form of the true five-lobed heraldic device. The four lobed form is common in English jettons and buttons of the 17th and 18th centuries (Faulkner and Faulkner,1987:253; South,1964:115).

³ Pluckemin Archaeological Project, N.J.; the sleeve buttons were made available to me by Dr.R.Schuyler. If my assessment is wrong, and the sleeve button was gold plated, this does not affect the probable date range or the manufacturing source. It would affect any estimate of the probable socio-economic standing of the consumer, a problem I will return to later.
This hand-finished set of brass cufflinks was cast from a mold of an 18th century shirtsleeve cufflink found by a member of the Pluckemin Archaeological Project field team during the surface survey of 1979 at the site of the 1778-1779 winter encampment of General Henry Knox and the Continental Artillery near Pluckemin, N.J.

A brass and copper shirt sleeve button from the site. The oval pattern is typical of the late 18th century.
unattached end of the link has been worn to nothing, accounting for the sleeve-button's ultimate loss (or disposal). Such wear may argue for long hard use.

The artifact when taken as a whole is striking in its intentional lack of ornamentation. The stark simplicity of the button contrasts with the pierced design of the link. The piece appears light and elegant.

**Provenance**

In modern British archaeology, provenance refers to the specific archaeological context in which an object was discovered; the American synonym is "provenience".

Provenance is often used by American students of material culture and antique collectors to refer to the last known user of an object (Ben Franklin's desk or George Washington's teeth). It is precisely this sense of provenance which is missing for the study piece. Rather than allowing the last user to inform our interpretation of the object, the object is here being used to inform our interpretation of the user.

I will be using the term "provenance" in its more general sense, attempting to establish when and where this artifact was manufactured, while simultaneously establishing a social context within which the object (and its user) can be placed.
Dating

In the best of all possible worlds, there would be a typology of sleeve buttons available which was sorted by period and by region. Instead, we must settle for several incomplete archaeologically generated typologies for "buttons" in the most general sense of that term. These typologies (Stone, 1974:68; Noel-Hume, 1969:91; South, 1964:116; Olsen, 1963:553) were all generated from North American British colonial sites. These American sites represent urban, rural and frontier contexts, yet still maintain good chronological overlap in the periods of popularity for individual types. In other words, fashion reached the frontier quite quickly, and by extension, fashions were probably of similar date for every region.

There is at present no way of knowing the time lag between production in England and consumption in Ulster (as compared to consumption in North America) for these manufactures. However, given the rough resolution of the dating schemes provided by our typologies, this is probably a moot point.

In 1961, Noel-Hume published a rather impressionistic chronology of sleeve-button forms based on his experience on Tidewater historical sites. At that time, no 17th century sleeve-links had been excavated in America. Queen Anne sleeve-links tended to be round, 1/2 to 5/8" in

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4. See enclosed figures for typological pictures.
diameter and ornamented on the face. From the 1720's through the 1760's octagonal sleeve buttons were popular (although tending towards the earlier part of that range of dates), 5/8- 11/16ths" across. In the mid-18th century sleeve buttons were again round, often of glass or some polished stone set in brass, 3/8- 1/2" in diameter. Oval buttons were an innovation of the second half of the 18th century.

Button shanks followed a rough progression from the simple flattened "U" shaped wire or casting of the early 18th century to the drilled "pyramid" and circular eyed shanks of the later 18th century (Above discussion based on Noel-Hume,1961:381-383).

Stanley Olsen made an early attempt to classify all colonial buttons into a typology based strictly on form. Unfortunately the study piece falls neatly between two of his categories. Both categories date from the third quarter of the 18th century (Olsen,1963:553).

Stanley South generated 35 types of buttons ranging from 1726 through 1865. The study piece is catalogued as a type "31", while a stamped brass link similar to the study piece is illustrated for type "35" (see figures 187 & 188). South notes that none of the type 31 buttons occur in a colonial context except as sleeve buttons, where that form accounts for 66% of all his sleeve button sample. The construction technique was common from 1700 through c.1765 on sleeve
Figure 187 South's Button Typology from Brunswicktown and Fort Fisher, North Carolina (South, 1964:116).

ANALYSIS OF THE BUTTONS FROM THE RUINS AT BRUNSWICK TOWN AND FORT FISHER, N.C. 1720 - 1865

Par cantags R elationship of fh a  Button Typo*

**TABLE 1**

<table>
<thead>
<tr>
<th>Button Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1</td>
<td>One piece cast back with die imprinted eye</td>
</tr>
<tr>
<td>Type 2</td>
<td>Eye stamped or embossed</td>
</tr>
<tr>
<td>Type 3</td>
<td>Hole for expanding pin</td>
</tr>
<tr>
<td>Type 4</td>
<td>Base moulded</td>
</tr>
<tr>
<td>Type 5</td>
<td>Cast with eye in place</td>
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<tr>
<td>Type 6</td>
<td>Cast with eye in place</td>
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<tr>
<td>Type 7</td>
<td>Cast with eye in place</td>
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</tr>
<tr>
<td>Type 16</td>
<td>Cast with eye in place</td>
</tr>
</tbody>
</table>

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Figure 188 Enlargement of South's Button Typology (South, 1964:116).

<table>
<thead>
<tr>
<th>Type 1</th>
<th>Type 2</th>
<th>Type 3</th>
<th>Type 4</th>
<th>Type 5</th>
<th>Type 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enlarged face</td>
<td>embossed face</td>
<td>cast with eye in place</td>
<td>cast with eye in place</td>
<td>spun back drilled eye</td>
<td>spun back, eye in place</td>
</tr>
<tr>
<td>brass wire eye</td>
<td>brass wire eye</td>
<td>cast in one piece</td>
<td>cast in one piece</td>
<td>button mold for Type 4 &amp; 7</td>
<td>wire eye in place ready for casting</td>
</tr>
<tr>
<td>one piece cast, with drilled eye</td>
<td>cast back, with polished edge</td>
<td>cast back, with polished edge</td>
<td>cast back, with polished edge</td>
<td>cast back, with polished edge</td>
<td>cast back, with polished edge</td>
</tr>
<tr>
<td>one piece cast, with polished edge</td>
<td>one piece cast, with polished edge</td>
<td>one piece cast, with polished edge</td>
<td>one piece cast, with polished edge</td>
<td>one piece cast, with polished edge</td>
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<td>one piece cast, with polished edge</td>
<td>one piece cast, with polished edge</td>
<td>one piece cast, with polished edge</td>
</tr>
</tbody>
</table>

Analysis of the Buttons from the Ruins at Brunswick Town and Fort Fisher, N.C. 1726 - 1865

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links, occurring with either a stamped link or a simple brass wire link (see the Pluckemin example for wire link). Unfortunately, South does not attempt to fine tune his chronological ordering of the sleeve links. (Discussion based on South, 1964:115-129).

In his landmark text *A Guide to Artifacts in Colonial America*, Noel-Hume resumes his discussion of buttons using South's typology as a frame of reference. In this work he refines his earlier date for the peak popularity of oval button forms to the 1770's (Noel-Hume, 1969:89).

In 1974 Lyle Stone worked out a comprehensive catalogue for a huge assemblage of buttons from the Fort Michilimackinac excavations (c. 1715-1781). His photographs record two examples of stamped links apparently identical to that of the study piece, but associated with buttons of an earlier form popular c1740-1750, related to South type 35 (see figure 189).

Based on the sources above, a date of 1755-1780 for the study piece seems probable. Since the typology dates are based on date of deposition rather than date of manufacture, they are probably slightly late. It seems reasonable to assume that the manufacturers continued to use the stamped link designed originally for an earlier production run long after the form of the visible button itself had been accommodated to current fashion. We should not assume that artifact styles, even those which are
Figure 189 Fort Michilimackinac, Excerpt from Button catalog, (Stone, 1974:68).
functionally connected, change at exactly the same rate and time.

**Place of Manufacture**

Birmingham, England dominated the button making industry of the period (Noel-Hume, 69:92). Button making was introduced in the Elizabethan period by French and German immigrants scattered throughout southern England. The actual foundries were centralized at Birmingham, Cheadle, and Bristol. By 1685 Birmingham buttons were well known (Hamilton, 1967:131,134,169).

In the 1720's Defoe lists the clothes of the "poorest countryman" to show the number of manufacturers involved at the "least case", "...the buttons [are] from Macclesfield in Cheshire; or if they are of metal they come from Birmingham or Warwickshire" (Buck, 1979:136).

There was nothing inherent in the brass button making process which required this centralization of the industry, except the availability of the metal itself. According to Hamilton;

Since nothing more than very ordinary machinery was required in the button and buckle trades and in the various branches of the brassfoundry business, these could be carried out by men of small property, so that the greater part of the manufacturers of Birmingham did not require large capitals, and many worked with less than £100 (Hamilton, 1967:271).

The hand held mold in figure 190 illustrates the low levels of technology required.
In 1770 Sketchley and Adams published their *Tradesman's True Guide; or an Universal Directory, for the Towns of Birmingham, Wolverhampton, etc.*, wherein 83 manufacturers of buttons are listed for Birmingham:

This branch is very extensive, and is distinguished under the following heads, viz. gilt, plated, silvered, lacquered, and pinchbeck, the beautiful new patina, inlaid, glass, horn, ivory, and pearl: metal buttons, such as Bath, hard and soft white, etc. There is likewise made link buttons in most of the above metals, as well as of paste, stones, etc. In short the vast variety of sorts in both branches is really amazing, and we may with truth aver that this is the cheapest market in the world for these articles (Sketchley and Adams, 14 in Goodison, 1974:4).

From these accounts a picture emerges of an industry centralized into one area but carried out by many modestly financed artisans. There were exceptions to this small scale in the later 18th century with highly capitalized people like Matthew Boulton. These few rich men eventually came to dominate the industry in the 19th century.

**Social Context**

Sleeve links have always been a non-essential accessory for closing a shirt cuff. Even the most dedicated fop of the 17th century would most likely use ribbon-ties under his lace frill in order to secure his shirt. In the Verney Memoirs of 1656 an order is placed for "Black ribon for to make mee some cuffestrings and shoe-strings", while McAphra Behn asks in *The Amorous Prince* of 1671, "Canst thou tie

5. I use the masculine intentionally; sleeve links are apparently an exclusively male accessory (Cunnington, 1957).
Figure 190 Hand Button-mold, (Gehret, 1976).

**THREAD:**

40 x

20" size 6 or 7 knitting needle

**FIG. 208**

**FIG. 209**

**FIG. 210**

**FIG. 211**

**MOULDED:**

raised design

plain

typical pewter mould

**FIG. 212**
the cravat and cuff?" (Cunnington, 1957:148). Although wide or falling frills (or "ruffles") continue in fashion into the 18th century, when they are omitted in Gentlemen's dress, sleeves ended in a small cuff tied or fastened with sleeve buttons (Ibid.). Sleeve buttons gain in popularity throughout the 18th century.

The quality of dress in general improved during the 18th century, particularly the quality of linen available to everyday people. In the first half of the century, the Quaker plain-style of dress was widely emulated by upwardly aspiring lesser tradesmen--with particular emphasis paid to clean linen, a well brushed coat and shining shoes. The plain style usually meant a ruffle-less shirt cuff as well. Plain style or no, tradesmen were lampooned by the London Gentlemen's press for dressing beyond their station (discussion from Buck, 1979:90,92).

In the early 18th century sumptuary laws forbade the use of metal buttons unless they were of precious metals or covered with a textile. When this restriction was removed in 1741 brass button demand began to outstrip domestic supply; in 1754 protectionist measures were passed making the importation of brass buttons illegal (Perry, 1959:265-6). Birmingham apparently prospered under these conditions.

Buttons were distributed in urban areas by the drapers and tailors who created wardrobes to order. In rural areas buttons would have been distributed by either travelling
salesmen or a tradesman at a weekly or monthly market fair. The travelling salesmen had become an institution by the 18th century, often following repetitive routes and offering elaborate systems of credit between the customers and his suppliers. These "travelling Scotchmen", as they were then called, faced rising opposition from a rapidly developing sedentary rural merchant class. In the 1780's formal petitions to have itinerant peddling made illegal were rejected due to pressure from organized Societies of Travelling Scotchmen. However, Buck estimates that by the second half of the Eighteenth century, fairs and markets carried the bulk of all rural clothing trade (Buck,1979:78). The Salterstown sleeve link was most likely purchased at the weekly fair on the Diamond at the nearby town of Magherafelt. These fairs have been held without fail every Thursday since at least the early Seventeenth century (there were a few unseemly interruptions during the Williamite Wars). 6

The study piece was found on a farm in rural Ireland. Just how accessible, affordable, or desirable, were these sleeve-buttons for the average farmer? Cheap textiles and cheap buttons and buckles were introducing large numbers of relatively poor people to manufactured goods for the first

---

6. I do not rule out the possibility that the sleeve link was purchased from a "Travelling Scotchman", in which case it could have been bought on any other day of the week.
time in the mid-18th century English countryside. This spread of inter-regional market participation took longer to reach the Northern countryside, Scotland and Ireland.

In central England, John Byng called on his tenant farmers in the 1770's, after acquiring the management of his father's estate, and noted with surprise the great change in the quality of farm dress since his childhood (Buck, 1979:135). Sir Frederick Eden noted that in the Scottish lowlands as late as 1790, nearly everything was manufactured within the household which consumed it, but that this was changing very fast (Buck, 1979:146).

The timing of this transition from relying solely on home manufactures to a consumer wardrobe seems to occur in Ulster no later than the third quarter of the 18th century. Letters survive which recount the observations of a "Mr. N" who travelled in Co. Donegal in 1750, and then returned in 1787. In the 1750's Mr. N. was dismayed by the primitive native wardrobe, consisting of leather breeches and a woolen long-sleeved waistcoat, with no shirt at all underneath. However,

...when Mr. N. paid them a visit in 1787 he found them so much improved by their intercourse with others that ...he was no less pleased than surprised at seeing spruce young lads fashionably dressed on Sundays in satin waistcoats and breeches, with white silk

---

7. Actually, ceramics probably introduced even the most rural farms to the world market long before this sleeve button was produced...the 17th century Delft and Rhenish stonewares found at Salterstown bear this out.
stockings, silver buckles and ruffled shirts (Jones, 1978:47).

Keep in mind that Donegal was an economically peripheral area compared to the rest of Ulster, and that Salterstown probably underwent this transition slightly earlier than Donegal. The relative swiftness with which the transition occurs argues for a strong demand for consumer goods, once they are available and affordable.

There was apparently an appreciable difference in price between plate buttons and those of unplated brass. Plated buttons were considered valuable enough to reuse after discarding the original garment. A professional falconer of 1754, William Poulton of Bedfordshire, left his "best set of Coat and Waistcoat [sic] plate buttons" to his son, while his "square plate buttons" were willed to another son (Buck, 1979:135). Plain brass buttons are not usually noted in wills.

John Blundell of Bedfordshire, a small farmer, kept a household account book for the years 1762-1772. His greatest expense of the entire period was L 4/10s for new suit cloth, a coat, waistcoat, breeches and a pair of silver spurs. He would commission two new shirts every other year, paying 2s/ for the tailoring (Ibid.).

Arthur Young tried to average the yearly costs of clothing for a poor farmer of 1771. His figure of L 2/3s would maintain a wardrobe consisting of a coat, waistcoat and breeches, three shirts, a hat, two pairs of shoes,
three pairs of stockings "and etc." Later secondary sources have variously estimated £1/10s to £4/10s for the same wardrobe of the period (Buck, 1979:154). The chief differences in cost are from the quality of materials used in the clothing and accessories.

No matter how cheaply sleeve buttons could be bought, it was always cheaper to make thread-buttons at home for a working cuff (see figure 190). Therefore, we must assume that the original owner of the study piece regarded his sleeve buttons quite literally as an "accessory". Since using a sleeve button requires a different cuff design on the shirt than a more mundane button, then the shirts used with the sleeve button were probably for dressed up "Sunday-go-to-meetin'" wear. This implies enough wealth to have a separate set of clothing.

What did the sleeve button mean to the user? The literature on the subject invariably concentrates on the "high style" consumers of fashion. Fairholt notes that the heads of military heroes were popular motifs on sleeve buttons, and that livery buttons serve as badges identifying fealty (Fairholt, 1860:409). Cunnington notes that from 1790 shirt sleeve ruffles were intentionally discarded "by those sympathizing with the French Revolution, as a political gesture." (Cunnington, 1957:222). In other words, men's accessories can have iconographic meaning.
I am forced reluctantly to reexamine the Tudor rose motif on the link. In Ulster today, anyone raised in the area is capable of telling your religious affiliations (and thereby your political affiliations) on sight. They are absolutely uncanny at this skill of reading non-verbal cues. Wearing green or orange clothing is a blatant political statement, as is a crucifix. Planting "sweet william" flowers in your yard cries "Protestant!" as loudly as any Union Jack could. Given the degree of political tension in Ulster in the late 18th century, I find it easy to believe that then, as now, these tensions were mediated by strict attention to iconographic nuance.

The village of Salterstown was founded by Protestants, and as far as the records will allow, the land appears to have been continually occupied by Protestants down to this day. If we assume that the owner of our sleeve button only wore it (with his fine shirt) for public occasions such as going to Church, what better time to wear his little Tudor rose?

I am very aware of the danger of reading too much into a design whose name may be the product of 20th century catalogers. The link of a sleeve button does not show while it is in use, negating much of its "iconographic" value. However, the initial purchase may still have been a conscious statement of allegiance.
What does the button tell us? It was found in the mixed stratigraphy of a rural farm, deposited with the refuse from the household compost heap. We know from where it was found that the owner of the sleeve link was a tenant farmer. The piece was not discarded casually, but only after long hard use, as demonstrated by the wear marks and broken link. The piece was probably manufactured between 1755 and 1780, and was deposited late within that date range, or slightly later. The sleeve link was most likely manufactured in Birmingham, although Warwickshire or Wolverhampton are remote possibilities. Our Ulster tenant farmer bought the button from a travelling peddler or (more likely, given the period) from a Magherafelt merchant.

The sleeve button was bought and worn during a period when the rural population throughout the British Isles was just beginning to wear store-bought clothing of good materials, and to follow urban fashions carefully. Even so, sleeve links must have been considered an optional accessory, all the more so if they were originally plated. The sleeve links, and the dress shirt with cuffs made to receive them, must have been reserved for special occasions and Church-going. Even so they argue for a pride in appearance (and a disposable income) seldom seen in the area a generation previously. Both the linen and the links thus served as status markers. The piece may have been perceived as a Protestant marker as well—the Tudor rose.
motif certainly harmonizes with the traditional sympathies of the countryside immediately around Salterstown.

We can now draw a tentative picture of our sleeve link owner as a moderately successful (if the link was plated, a very successful) tenant farmer of the 1770's or '80's, proud of his appearance, and more than likely a Protestant. Oh yes; and he bought his sleeve buttons on a Thursday.

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CONCLUSIONS

After patiently wading through several hundred pages of detailed excavation and laboratory analysis, the reader will be forgiven for feeling a bit detached from the lofty intentions introduced in the opening chapter of this work. It will be the duty of this chapter to reconcile theory with detailed fact, and intention with available evidence, while reviewing just what we have accomplished.

The fundamental purpose of selecting Salterstown for excavation, and of going to all of the time, trouble and expense of that excavation, has been to illuminate, via archaeological analysis, the nature of this plantation settlement established within an alien culture. However, these theoretical and interpretive concerns have not been allowed to warp or distort my first responsibility as a field worker, which is to assemble and preserve all available surviving information (whether documentary or artifactual) about the people of Salterstown and the village they created.

Prior to any research, our first task was to define explicit criteria by which archaeological assemblages from different early-modern colonial contexts could be compared. This required distinguishing the kind of colony to be studied, according to the contrasting intentions and degrees of commitment expressed by the colonizing power. Such a distinction must also account for the native
cultures affected by subsequent colonial developments, providing a baseline for all subsequent changes in the landscape.

Four types of colonialism were defined: demographic, economic, political, and ideological. Meinig's stages of commitment to the colonizing enterprise include exploration, gathering, barter & plunder, commercial outposts, imperial imposition, and plantation. These distinctions, taken together, were used to suggest an admittedly incomplete model for the use of archaeologists comparing alternative colonial contexts. The model has potential for predicting the nature and degree of cross-cultural contact, the development of new economic structures, and the degree of transplantation and subsequent adaptations of material cultures in contact. These topics have been important components of our research agenda.

Before one can compare the archaeological assemblages of different colonies, one must establish the range of variation within assemblages from the same colony. Therefore one of our goals has been to describe the degree to which the English imported their own material culture into Ulster. A related goal has been to explore any possible subsequent adaptations resulting from either contact with the Irish, or from the environmental constraints of Northern Ireland. There is potential for
these adaptations to work both ways; doubtless the Irish materials changed dramatically in the course of the Plantation period. However, Salterstown was an English settlement, and a study of Irish adaptations to the colonial experience of the 17th century must wait for the appropriate excavations.

Again, several common-sense predictive suggestions were made. When regional variations exist within the mother culture of a colonizing power, then the restricted repertoire of materials brought by the founders of a colony will reflect their region of origin. Subsequent developments in material assemblage will reflect the range of ports-of-trade available to both the colonizers and the colonized. Over time, materials will reflect on-site adaptations traceable to cross-cultural contact. Material assemblages will also reflect the conservative tastes of a community seeking to foster and enforce a sense of its identity with an imagined "pure" form of the mother culture--unsullied by the colonial encounter; an imagined hegemony. Wherever possible, the value of material objects as ethnic markers or tools of boundary maintenance has been explored.

Although work has begun, there have not yet been enough plantation-period sites dug in Ulster to establish the range of variation within the material culture of the 17th century planters. Just as we cannot yet speak of Plantation
Ulster, I cannot speak for the smaller region of the London Plantations. Indeed, I cannot yet speak for all of Salterstown— I can speak for a single homelot within that village. However, what we have found at Salterstown has implications for the wider study of English plantations in Ulster and in North America. The following are a few tentative parallels, based on a combination of common knowledge about North American plantations and what we have learned from Salterstown.

Despite meticulous advance "arm-chair" planning in England, the very first colonists arrived at Salterstown, Co. Londonderry, Jamestown, Virginia, and at Plymouth, Massachusetts without enough food or supplies to sustain themselves without assistance from people already on site.

At both Jamestown and Salterstown, the first colonists came with and clung to elaborate schemes for "getting rich quick" off of industries which were either monopolized at home (such as glassmaking), too expensive in their energy requirements (such as iron smelting), or were dependent on scarce resources (such as gold and silver mining, or timbering). These ambitions often undermined the original intentions of the armchair planners back home. In Virginia the eventual development of dispersed tobacco plantations made the settlers vulnerable to Indian attack. In Londonderry the "planters" quickly became timber magnates and extortionate landlords of the very people they were
intended to displace. They too were vulnerable to eventual reprisals. Both groups failed to defend themselves from massacre.

However, there is a fundamental difference between *Virginia* and *Londonderry*; Both the "armchair" administrators back in England and the colonists on site intended that Virginia should be an example of what I have called "economic colonialism". Aside from a few letters of warning, the administrators did little to discourage the dispersed settlement pattern of the tidewater tobacco trade--after all, they were turning a profit. But Co. Londonderry was intended by the Crown to be an act of "political colonization", an intention *not* shared by the on-site undertakers desperate to show a profit for themselves and for their London companies. This disjunction between the intentions of the Crown and the undertakers led to many of the tragedies of 17th century Ulster.

In North America, and apparently at Salterstown, the colonists quickly established trade networks for supplying a surprising variety of wares from the mother country. However, both colonial contexts also traded with the indigenous populations for some crafts goods and resources. In Ulster, the colonists traded for ceramics, leather goods, crops and cattle. In North America, the colonists traded for ceramics, pelts, crops and wild game.
The adjectives used by the English to describe both the indigenous Irish and the indigenous North Americans are remarkably similar. These descriptions are ultimately misleading, telling us far more about the English themselves than they reveal about the Irish or the North Americans. It would be easy and perhaps entertaining to give a lecture describing the semi-nomadic lifestyle, the roles of kinship in social organization, the barters and rendezvous markets, and the derogatory descriptions of the natives made by the first English observers—saving till last the actual identification of pre-Plantation Ulster instead of prehistoric North America. But this too would be misleading. The fundamental difference between the colonial experience in Ulster and that in North America was the ultimate inability of the indigenous populations of North America to participate in the shaping of a new society.

The Irish were never wiped out by the introduction of Old World diseases into an isolated population. Indeed the Irish were never an isolated population, but were active participants in the European early-modern economy. The Irish shared with the English intellectual traditions inherited from medieval Catholicism; the Irish guides of the Londoners touring what was to become County Londonderry spoke better Latin than the Londoners. The language of disdain used by the English was an act of boundary maintenance, both in Ireland, and in North America.
Just as English observers were at pains to distinguish themselves from what they saw as savagery, so too the displaced nobility of the native Irish, in the form of Wood-Kern, were anxious to preserve a threatened native culture. Dramatic examples include the Kern's lynching of those Irishmen caught attending Anglican church services, or the targeted slaughter of larger English breeds of cattle during the Rebellion.

Both in North America and in Ulster the colonists initially built in a variety of architectural vernaculars, each reflecting the region of origin of the planter-families (or companies) doing the building. Within 100 years these varieties had consolidated into a relatively narrow range of regionally distinct forms. The dominant forms can be seen in retrospect as adaptations to the local environment. The newly-restricted repertoire of forms may have also served to create and enforce normative community values. Language and lynching were not the only arena for boundary maintenance. Boundaries were reflected in the built environment as well.

The Excavations

It is the nature of archaeological excavations to yield unexpected results. Some of the unexpected results of the Salterstown excavations are discussed here.
One of my intentions was to test whether the Raven map of Salterstown drawn in 1622 was literally accurate. The answer is a resounding "maybe". Unfortunately a homelot doth not a village make, and although the structure excavated at Salterstown may have appeared on the 1622 map (and this remains unproven), it would require a second or third structure to confirm the town plan drawn by Raven.

I was surprised by the many examples we found in the excavations of surviving indigenous Irish influences within this "English" plantation town. ¹

The appearance of Everted Rim-tradition ceramics in two different sealed late 17th century features on the site argues strongly for a continuity in native craft production at a relatively late date. This may be the latest occurrence of Everted Rim yet excavated in Ulster. Everted Rim was apparently still being made even as competing utility wares of a more English tradition (Carrickfergus Brownwares) began production within Ulster. These ceramics also signify a modest trade in commodities between the

¹ Granted that by the 2nd plantation period we cannot guarantee that the structure excavated was not occupied by an Irish family. Gabriel Whistler "enticed a few straggling people" onto the Salters' lands following the Great Rebellion-- according to the Hearth Money Rolls of 1663, three of the seven people actually named out of a total town population of 36 had Irish surnames. Until the range of variation in artifact assemblages within the village has been established, I will assume that we have excavated an "English" structure.
native Irish and the Planters, either for the ceramic vessels themselves or for what they contained.

Irish cordwainer/cobblers were supplying footwear to the occupants at Salterstown during the period of the 2nd Plantation (c. 1657-1689). Some of the shoes surviving in the bottom of the well were originally sewn in the English tradition, and subsequently repaired by a cobbler versed in Irish thong lacing techniques. Two of the shoes are more likely made from scratch by an Irish cordwainer working completely within the Irish brogue-making tradition—a tradition encountered at excavations in 12th century Dublin (personal communication, Debbie Caulfield, Wood Quay Excavations: 1990). The planters at Salterstown were wearing some of the last examples of a 500 year old craft.

The documentary evidence would lead one to believe that Plantation administrators were zealous in promoting agricultural reforms, both by fining natives for such ancient practices as booleying and hitching horses by the tail, and by supporting the spread of English husbandry. It was therefore a bit surprising to find after the laboratory analysis of the faunal remains that the Irish were evidently supplying the cattle eaten at Salterstown dinner tables. In all probability the Planters in the village had raised the stock themselves, but the medieval stature of the mature animals points to an Irish (or Scottish?) origin for the breeds present on site. This may be partially due
to the rural nature of the site, since excavations dating
to roughly the same period at Pottinger's Entry in Belfast
showed larger English cattle already introduced into this
more urban environment ² (McCormick, 1984; see Faunal
chapter).

The ceramics, the shoe/brogues, and the faunal remains
all indicate native Irish trade supplying the Planters. The
shoes even demonstrate a certain amount of native
adaptation in accommodating the tastes of the Planters for
an English style of shoe. It makes sense that low-value
crafts commodities were not worth importing, while the low
density of English settlers in the rural areas would not
encourage English craft-specialists to immigrate. It makes
less sense for colonists ostensibly intending on making
their living as farmers not to bring their own livestock
with them. It is tempting to suspect that the late 17th
century inhabitants at Salterstown were too busy logging
trees to do much farming.

Although the bulk of the artifacts excavated from
Salterstown date to the 2nd Plantation, there are enough
early 17th century materials to build some picture of the
1st planters. The artifacts suggest a modest affluence; the
numerous tobacco pipes at a time when tobacco was still

². In the 17th century an "urban environment" did not
preclude the keeping of livestock, although the actual
butchering and dressing out was more often performed by
specialists rather than householders (McCormick, 1984).
widely considered a luxury item, the beautiful custom-made bone tableware handle, several examples of footed beakers and other glass tableware, and the early 17th century fine table ceramics all combine to place the 1st planters, if not at the pinnacle of their society, far from the bottom. Note that the planters chose to spend their modest fortunes on the paraphernalia of eating, drinking, and smoking; all that is missing is a lute for a complete evocation of late Stuart society.

Until the excavations of 1989, received wisdom had led us to assume that after the Rebellion of 1641, Salterstown was only reoccupied by single farming families. Excavations yielded overwhelming evidence for a 2nd Plantation period reoccupation of the site. The density of late-17th century artifacts and features, and the fact that several of these features literally recut earlier post-holes, all argue for a continuity in village plan during the c.1657-1689 period.

Although the volume of artifacts recovered is greater for the 2nd period of Plantation, there is a smaller proportion of what could be considered luxury goods in the later assemblage. Most of the goods which were expensive earlier in the 17th century, such as pipes (indicating tobacco) and tablewares, were mass-produced and quite inexpensive by the 2nd Plantation. For example, the presence of Staffordshire tablewares does not indicate
prosperity, but is just another example of the increasingly successful marketing of cheap ceramics over vast distances late in the century. Note that even during the later plantation, the Planters were trading with the native Irish for crafts and cattle.

There has been no archaeological indication that the village of Salterstown was reoccupied by more than single farming families after the second demolition in 1689. The 18th and 19th century artifacts occur randomly, consistent with the scatter of kitchen refuse one would expect if the kitchen trash were dumped on a compost heap which was then in turn spread onto the fields. Both the late 18th century sleeve button, and the tiny sample of Creamware ceramics, hint that the later 18th century was again a period of modest prosperity on the site. Without a primary deposit dating from that period this must remain speculation.

The well and associated springhouse are at once prosaic and unique. The asymmetrical builder's hole allowed the builder to stand outside of the well shaft while completing the stone masonry lining. The clay and timber-lattice platform and adjacent clay platform represent a possibly idiosyncratic solution to the problem of designing a subsurface springhouse in waterlogged sand. The clay insulated the springhouse while keeping the sand at bay, at least until the intentional in-filling of the well itself. 

The dendrochronology date for the timbers of 1663 (±9
years) fits well with the initial reoccupation of Salterstown during the 2nd plantation.

The details of construction on the well may be of interest to scholars specializing in the details of Ulster folk technologies. However, the posthole structure identified at Salterstown may have consequences for scholars of the English colonial enterprise on all of the continents in which they settled in the 17th century. I believe that the post-hole structure is the first example of an impermanent earthfast residence found in an English colonial site outside of North America. If so, the Salterstown structure demonstrates that such structures were not a frontier "invention" of North American colonists, but were instead a geographic extension of what must have been a widely known English vernacular tradition.

If my interpretation is correct, and the structure existed as defined, then the suspended fire-hood and jamb-wall represents an early example of a house-form which came to be common in the 18th-19th century Ulster vernacular. The earthfast nature of the structure may reflect the needs of planters in a hurry and on a low budget, or it may have been simply an adaptation to the frequently flooded, boggy Lough-side site. The timber framing is definitely a common-sense response to the resources available on-site in the 17th century, as demonstrated at numerous forested 17th century sites along the Chesapeake in North America. In
this respect the Salterstown structure differs from the later mass-walled Ulster vernacular, and is more akin to structures in late 17th century Maryland (Smith's Ordinary, St. Mary's City: see Features discussion).

Through the serendipitous overlap of documentary and archaeological evidence with local oral tradition, it is now possible to make the case that Salterstown was the site of the 1614-1618 Irish glasshouses of William Robson. There is tremendous potential here to explore the archaeology of an industrial site dating from the first four years of the Londonderry Plantations. Salterstown may yield one of the first industrial glasshouses of the early-modern period in all of Ireland.

One of the unavoidable conclusions from the Salterstown study must be that the study itself is incomplete. We have excavated one homelot from out of a 300 year history of an entire village. Too many of the conclusions we can make must be prefaced by terms like "tentative" or "preliminary". This is not mere academic coquettishness. Many of these "tentative preliminary conclusions" represent new information which, if proven, will lead to a reformulation of our understanding of Plantation-period Ulster. It is possible that our observations are generalizable to the processes of cultural adaptation experienced in other colonial contexts. Therefore it is essential that we do not close the book on "Excavations at
Salterstown", but instead return to confirm or deny the findings of the investigations thus far.

POSTSCRIPT

Although my work has been focussed on the Plantation period of English, Irish, and to some extent, Scottish interactions, I feel a nagging sense of debt to the present. Ulster's present culture is politically charged--occasionally violently so--and I suspect that any discussion of the North's past must include the ever present present. I do so with the reticence of a greenhorn outsider who should probably know better. If my analysis seems naive, perhaps that is because in tense times anyone liberal enough to appear neutral is seen as naive. My opinions have been formed by four seasons of doing archaeology in Ulster, not the intensive interviewing of a cultural anthropologist--my data are the anecdotes of a concerned and not-quite-casual observer.

Riding in a bus in the city of Derry, a young mother came up to me, tot in tow, and said, "You're not from around here, are you? You'll find that it's not as bad as the papers make it out to be. We're really a very friendly people." And with that she got off the bus. I have not had any reason to disagree with her since. The vast majority of the people of Ulster lead very normal non-combatant lives, despite the screaming headlines, polemic graffiti, and grim
Army patrols. If there is a battle being fought most of the population would apparently prefer to ignore it.

It is currently both fashionable and "politically correct" for Anthropologists to believe that all knowledge is generated out of one's personal socio-political background; that ideology and therefore culture are both derived from class. Therefore I am probably putting my foot in it by proposing that despite obvious ideological, economic and institutional disjunctions between Catholics and Protestants (Republicans and Orangemen, "Natives" and "Newcomers") in Ulster, they are integral moieties in a mutually created single culture. The tragedy is that neither moiety has yet realized this truth 3.

The boundaries maintained between each moiety are learned from childhood, marked by cues invisible to the uninformed. When strangers meet there ensues a conversational dance to establish "which foot you dig with". This is not intentional subterfuge but merely good form. I have never been asked point-blank if I was Protestant or Catholic. It was enough to establish that, "Yes, I have been married for several years", and "No, we do not have any children". Other clues include Irish surnames, the town you were born or grew up in, or obvious

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3. As groups, the sects do not recognize the legitimacy of their shared culture, building instead an edifice of an "imagined" community. But I hasten to add that to my eye the individual people of Ulster are rarely so polarized.
iconographic jewelry such as crucifixes or masonic rings. The neighborhood you claim as origin or destination when stopped at one of the frequent roadblocks by army or police patrols may determine whether your car is searched or not. One's choice of favorite local pub is often a political statement. Neighborhoods themselves become easy to sort by graffiti, once you sort out the alphabet soup of various paramilitary splinter groups. I have been told (perhaps in exaggeration), that it is possible for a shrewd teacher to walk into a university classroom of students and reconstruct the sectarian boundaries by seating arrangement, clothes and jewelry without ever asking a question.

I was embarrassed to find during my first visit to Ulster that the place-names you choose to use when asking for directions are considered a political statement. Republicans tend to refer to Northern Ireland as "the North"; rarely as Ulster. The reverse is true of Orangemen. Londonderry, both city and county, are referred to only as "Derry" unless you are a staunch Orangemen or an uninformed American archaeologist.  

4. Throughout this work I have tried to be consistent to the historical use of placenames; the City was "Derry" long before the Plantation, and I have used that name. The County was an invention of the 17th century, and I have retained the name "Londonderry" when referring to the county. I had a tough time explaining all this to the Orange bus-driver who studiously refused to hear my destination until I said "the City of Londonderry".
It has been pointed out that the people of Ulster tend to identify personally with their region's history; a multi-voiced history endowed with the fierce numinosity of personal heritage (Glassie, 1982; see landscape discussion). In America you will occasionally hear some matron at a dinner party claim that her family "came over on the Mayflower", presumably entitling her to a greater sense of American-ness because of her 300 year old tenure. In Ulster I heard someone claim that their ancestors were among the first Planters; their 300 year old tenure meant that they were therefore, not more Irish, not more "Ulsterish"; they were therefore English.

There is an ambivalence towards the past, as well as pride. Walking in the countryside with some young Catholic friends, we passed a beautifully kept 2-room cottage with a thatched roof and the smell of peat smoke in air. I was enchanted, and whipped out my camera. My friends begged me not to take a picture of that cottage, on the grounds that any Americans I showed the picture to would think that all the Irish still lived "like that". I put the camera away.

Boundary markers, indeed whole self-identities, are institutionalized in primary and secondary schooling. I heard the story of children of the "opposite sects" who grew up playing together until school age--within a single season they had learned to fight on sight. I heard this story more than once, from families of different
affiliations. Marching Season is celebrated differently according to school; a prolonged pageant of proudly inflammatory iconography. Anyone who has watched the children marching by in the pipe and drum bands must have noticed, aside from the Virgin Marys or the King Billys, that the kids looked like they were having a lot of fun; and the beat goes on.

The above are an assortment of examples of markers within a single symbolic field. The markers are learned by the people of Ulster regardless of their sectarian, political or genealogical affiliations, and are powerfully evocative for the members of each. But each group identifies itself with only a limited selection from the total symbolic repertoire. All other symbols identify the "other".

It occurred to me in the course of analysis that the artifacts at Salterstown hint at a pattern of development in the material cultures of Ulster since the initial Plantation. The material lives of the indigenous Irish and plantation English were substantially different at the time of the initial plantation. This is certainly indicated by the frequent derogatory descriptions of the "rude" conditions in which the Irish lived, although we know little archaeologically. The 2nd Plantation assemblage at Salterstown shows considerable Irish influence in the material culture of this "English" village. It is probable
that the two cultures in contact had each adopted some motifs from the other. Almost certainly this trend became increasingly one sided as indigenous Irish markets were flooded with English goods.

At Salterstown there is a large lacunae in the evidence for the 18th and 19th centuries. By the late 19th century there are entire industries creating parallel products marketed at two different targets; McDougall's wholesale tobacco pipe company of Glasgow was marketing the "Red Hand of Ulster" motif at the same time they were offering pipe bowls bearing "Home Rule" designs. This is an extreme example of what may have become parallel economies, divided along sectarian lines. The sleeve-button discussed in detail above hints that this trend may extend back into the late 18th century.

I suggest that the indigenous Irish and the descendants of the planters never developed a single material culture in Ulster, except insofar as they are equally conversant in the repertoire of markers underlying the boundaries between each group. This is perhaps a tall claim; it implies that one could conduct a "garbage-can" archaeological survey, coupled with surveys of furnishing accessories and architecture, and distinguish with statistical accuracy between sectarian households in the Ulster of 1990.

Too many Americans before me have loudly proclaimed in a pub some pompous quick fix to the Troubles of Ulster, while
drivelling on about "how green it is around here!", and requiring everyone to "Have a nice day". I make no such claims or demands. But I do have one simple closing observation. As long as the children of Northern Ireland are taught to identify themselves, their families and their friends with one "side" or another, the "sides"-- these moieties defined by their opposite, will persist. Until this unique new culture is acknowledged by both parents, the Troubles will persist as well.
APPENDIX A: THE MOODY TRANSCRIPTS


--Salter's Letter of Attorney to Robert Thorton of Coleraine, and William Smith of Magwell St, London Salter--to receive possession of Manor of Sal.

--July 22,1619, R. Goodwin entered Bawn in Bally Emultrah "and lately called Salterstown", and took possession in the name the manor--delivered to William Smyth, the Salter's Attorney.

--Witnessed by Hugh Sayer, Thomas Saunders, Wm.Poole, Daniel Hall, Christopher Barkes, Edward Forster, Richard Cooke, Thomas Turner, Wm. Gilford, Wm.Saunders, Wm. Tymmis, and Patrick Halfpenny (!). p.119

--June 20,1627 Ralph Whistler leases Salter's Irish holdings for 51 years at L100/year with a "fine" (deposit) of L400.

--promised to finish the Castle at Magherafelt "in manner and form as it is already begun", to procure a Church at Magherafelt, finish all buildings started, and to hedge, ditch and enclose the premises. p.120
The Salter's Dividend Book for Ireland

--9 Feb 1616; Received of Fynche and partners 1st half years rent due primo Novemb 1616 L80.

--15 Novemb 1617; 2nd half years rent due 1st May 1617 L80

--4 Maii 1618; rec'd rent due Novemb.1617

--Apr.1619; rec'd rent due Novemb 1618

--13 Dec 1619; rec'd rent due May 1619

--A Mr. Deputy Stone paying L90/ 1621, L60 1622-23 for fishing profits

--Mar 25 1614; L6/ paid "to Apparell Willm Smith to go unto Ireland"

--Mar 28-30,1614; paid B.Jones L100 for buildings, L25 salary for one quarter ending June 25,1614, L30 to buy building materials

--25 July 1614; "Paid Mr. Raven for his book to further the bounding of our lands" L1/

--30 Aug 1614; "Paid to Harris purchase order for buying of Smiths Ires and some Iron Mine from Ireland L2/10/0.

(Above is pp142-146)

--Feb 1615; Paid approximately L6/ attorney and court fees in suite against B.Jones including L1 to four servants for arresting him, plus L4/ for dinner for arbitrator, B.Jones and his wife.

--L2/ to Wm. Smith for expenses in last trip to Ireland

--L5/ to Mr. Sayer to pay Smith as Necessary

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(above pl 147-148)

--27 March 1616; paid Mr. Jones L291/11/8 in full

--Dec. 1619; Wm. Smith to Ireland again

--22 Nov 1622; paid L56/5/0 for armor and munition sent into Ireland

--8 March (1623?); Hughe Sayer and Mr. Olton going to Ireland (Mr. Olton spends L45 in next 6 months)

--1624; L2 to send Hugh Sayer back to Ireland

Salter's Company Dividend Report August, 1626

(previous one was 1619 [missing?])

--1621 Rec'd from Mr. Deputie Stone L90

--1622 Rec'd from Mr. Deputie Stone L60

--1623 Rec'd from Mr. Deputie Stone L80

--28 Dec 1623; Mr. Deputie Stone L25

--1624 Rec'd of Mr. Warner L80

--1625 Rec'd of Capt. Leate, by appointment of Mr. Goodwyn, our agent L66/13/4

receipts L525 (sic)

payments L242/6/9

dividend L282/13/3

Dividend divided by Company:

Salters L164/3/2 and 3 quarters

Dyers L48/14/4 and 3 quarters

Cutlers 18/18/0

Saddlers 32/15/2 and 1 half

Woolmen 1/11/7 and 1 half

--2 July 1627; Mr. Whistler paid L300 of Fine for his Lease

(Above pp. 154-155)

--c1634 Woolmen's proportion bought by Salters
--Apr. 1634 Whistler pays 2 years back rent, will owe another L200 within the following month (p. 164)

Irish Letter Books

13 June, 1614 Wm Smith to Salters Company (p. 173-179)

--Writing from Mavanaway, hired guides to take him from Salter's Land to Vintner's (8 miles), then to Mavanaway (another 8 miles).

--Jones' party of workmen sailed from Chester on Good Friday and arrived at Knockfergus (Carrickfergus) on May 3rd. They travelled from Knockfergus to the Salter's lands between May 3rd and May 10th, losing "a collarman hired by Jones in Chester" to drowning while crossing the Bann River in a Cott.

May 10 we came to yr land about noon, & all the afternoon Mr. Jones, myself & the carpenter went to view some of it. Contrary to or expectn we found a good house ready built, in wch dwells one Aubrey, a man of good sort and honest. He was some time dwelling in Ratlef near London & was master of a ship. He has two townlands let to him by Beresford till Alhoontide at 50/-a twnld. At his house we found bread, beer and meat, & so we all dwelt with him till now against Whitsuntide that we had our house up & or Carpenter with his follrs & the rest of the workmen do dress their meat and brew their own drink in that house. But had not Aubrey's provision helped us at first, we had been put to a hard push for victuals. May 11, or workmen began to work, and as yet we have but one house up and one other in hand. After the first two weeks, Jones changed them from day work to task work, and they must be tried in the latter way till 3 houses are built. --he mentions 5X5 miles of oak on the prportion (p. 176).

1st for the making of pipe staves, if you can by your own authority or if you can get license to make them, the charge will be about XXXs (30 shillings) for making 1000, and of carrying them to Coleraine 20/-. So ttl charge wilbe 50/-per 1000 & they will yield at Coleraine L5/1000.
Hogshead staves are about 50/- per 1000 at Coleraine, & the charge will be about half so much. There might thus on yr woods with less than 6 men's labour be made a clear profit of L300/yr, if not more, for 100 years, & wood and timber be left enough for many generations besides to build, burn, give away, spoil, etc.

...we have a carpenter (not one of the London carpenters) that can make a saw mill with the charge of L10 or 20 marks at the most, wch will, with the help of two men sometimes, & sometimes with one, saw as well as ridd as much with one saw in the mill as 6 pair of saws can do, working as haed as they can. In 17 or 18 days space, it will bring you in your 20 marks again if so much be laid out. This mill will cut all kinds of wainscot as boards, and such boards as we may sell at Tradough or Dublin for 10/- a 100. We pay sawyers but 2/6 a 100, but this mill would not stand us in 6d a 100. We may sell anything with in this Kingdom that ariseth on or Lands, but not to carry anything out of the Kingdom. The workmen and I have found a fit place by means of a little river that comes through our ground for the purpose of this mill.

Item: for an Iron mill I have written at large in my other discourse. If we had a man of skill to search for ore in yr grounds, you have all other things for it, the gain would be extraordinary; considering that wood doth so abound.

Item: for the making of soap ashes, it may please you to confer with some man of skill. If there be not any in London that can do it, you should send to Hambourg or to any other place where these ashes are made. Great stores of or woods are fit for this purpose as ash, willow, white thorn and other woods. If you would send us over a soap boiler, we may have oil's out of Spain. By such means as you may serve the whole Kingdom with soap...

Amongst all these things I had almost forgotten to speak of a grist mill, wch is a necessary thing & may yield yearly profit to you of L40, L50 or L60.

But I am private in all things, except that I converse with a miller & a carpenter about the mill & Aubrey about the soap ashes. Beseech you to consider these things and be very private. For my part no other Company shall no anything of my intentions, nor the workmen nor Mister Jones himself, for he does not think that I dream of these things & tells me nothing that he thinks so I tell him nothing that I dream.

Mavanaway the Mercer's Town, an hour after midnight, 13 June 1614
13 June 1614 Company of Salters to Wm. Smith (p.180-181)

...Our special this year is that we may have the building go forward to counteract our great charge, and that Jones will endeavour to draw or procure some English tenants to the houses already built and to be built this summer, that they lie not waste next winter. Desire you to assist him in this. What we may do by law we do purpose in due time to put in to practice, wch we cannot as yet till we are better settled, & also resolved what we may do, besides it will hinder out plantation at the present & also the bounding of our lands, wch must of necessity be done this year, as we have written at large to Jones, that others do not intrude on us--especially Sir T.P. (Thomas Phillips) & the Churchlands...

Salters Hall

28 July 1614 Company to Baptist Jones (p168-171)

Wee are advised by Mister Raven to bounde the Church lande within our proporcon with all convenient speede which being not much is the sooner donne, because saithe hee while the Irish remaine upon yor lande they will indifferently, but if the Irish shalbe expulsed and driven off of or lande to the Churche landes before it be bounded then they will wrangle with you and endevor by all means to extend and enlarge the Churche landes beyond their Just or trew boundes and so offer you wrong...

Concerning the boate which you intend to build wee pray you let it not be bigger than neede must be to avoyde superfluous charge...

In meantime we pray you to preserve or woods & not let any pipestaves be made for we have a covenant wth H.M. not to merchandise or woods. But when we are settled, perhaps we may effect that wch if we should now go about would be hurtful to us. If all the other Ulster undertakers are privileged to merchandise their woods, we know you well wond why the City should be restrained, especially we that are in such a remote & woody place...

Raven writes that there is a great deal of plain good land in and about Bboe [Balliboe] of Marefeealt & a place fit to build on, wch after you have surveyed we desire yr opinion thereon.

Raven informs us that the remote pporcons are fittest to be first bounded & upon or request hath pmised ours shalbe one of the first, therefore we doubt not but you will have great care to sollicit Raven, if you find him anything slack therein, that or pporcon may be bounded before winter, wch we understand must be done with all
Cos. pporcons at the general charge of the City against wch time procure the best evidence you can for us among the Irish, who know best how to distinguish the limit or pporcon from or neighbours.

We doubt not but you will have aspecial care to draw unto you as many English tennts as you can to inhabit or houses after they are built.

The Councils here moved the Ld. Dep. [Lord Deputy] that the worst sort of Irish Inhabitants might first be removed & then the rest afterwards by degrees, lest if they should be suddenly put out altogether, it might give the Irish discontent & prove very unprofitable to us, which the Ld. Dep. did not dislike. Therefore we hope you shall continue on out land the best of the Irish till you can draw on English tennts.

And wee are Informed that the Citie of London doth not take itselte to be tyed to the booke of plantacon because of the two townes they have alreadie built but only as may be for our best advantage and safetie which wee meane to stand upon.

18 August, 1614 Baptist Jones to Company from Salterstown

I purpose to put up but 6 houses this year, to make a settlement to lodge the workmen in and keep stores and provisions, so that we shall be ready to go forward in the spring with what is resolved on in the meantime. Covering for houses greatest trouble. No thatch or straw near us. Place so wild that thatched houses were lost labor & very chargeable. Determined to tile or shingle or board them. Can find no slates with in 16 miles. Have begun to make trial of brick and tile, & if I find they prove good when burned, I will this winter make my provisions accordingly.

No stone here to any purpose & has to be fetched from afar. Therefore mean to build most with brick if it prove good. Lime has to be brought 6 miles at least through very bad ways, Have diverse times rode abroad in search of it, but found none nearer. Have got a little already on the Loughside with the boat, but not worth speaking of. Will scarce serve to do necessary occasions about houses we are now building. If I could have got houses covered I would have put up more this year, but I think it fit to build sparingly at first to some use than to set up frames of houses to no purpose.

...Have been dealing with the Irish tennts this month past to draw me lime and stone but they ask me such an excessive price that by no means I will meddle with them at that rate.
Meantime I will do what I may, wch is little, for they have now all their harvests to get in & I may not take them from that to any other business whatever.

Purpose this winter to cut down enough timber to serve my purpose for all the business & to keep workmen squaring of timber & framing of convenient houses for tennts ready to be put up where and when I will.

I find the carpenters that came over with me not so good as I expected yet good enough to serve the present turn, & against the next year if their be occasion I will provide myself with better, seeing they are here and their wives I must not turn them to begging, but make the best use I can of them and hope they will amend every day.

---a passage about a row in his absence for several weeks in Dublin; the Master Carpenter and Wm Smith "had many times been together by the ears"; "Master carpenter a lazy workman & if I had not set him by the geat as I did presently after I discovered his idleness, the losses I have now in hand would have cost much more..."

Wm. Smith took upon him more than you gave him authority for, to the distraction of my credit & the prejudice of the plantacion...A pot of ale at any time will make him neglect his trust.

Have daily business to imploy myself about the plantn to order wrangling between the Irish tenants of your land & the rest of the country thereabout, for they are together by the ears every day, & if quarrels & disorders were not daily punished to the uttermost of my power, it would be as uncivil a place to live in as ever formerly it hath been.

Have pcured a preacher hither already & though his means are poor, yet he wilbe content for awhile til I can finde better for him. He doth preach every Sunday & we are already a congregation consisting of 40 English men women & children, wch in this wild place is a very good beginning.

Bap. Jhones, Salterstown
this 18 of August 1614

I thought it fitt to give this first place wee are building in a name by reason wee knowe not from whence to write, nor have a certayne place whether to direct any thing to us, In respect I hope I have not offended.

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8 February, 1614(15) Company to B. Jones
Second copy sent 13 March 1615

On consideration of the great sums by us disbursed on our proporcion it is thought expedient (we having divers suitors) that we should deal with some one on reasonable terms for taking over our whole pporcon as other companies have already done. Are willing that you have first offer.

Touching Irish tenants who, as you write, are tolerated but till May Day next, we are informed that if Irish will go to Church they may continue on or land. If this be so we conclude you may keep those Irish tenants to stay on or lands that are there already. If you have a mind to deal with Brit. Tenants, you may entertain such as you think fit. Are informed that there are many commodities on our land which may turn to our benefit, wch you never advertised us of...

2 August, 1615 Company to B. Jones

Whereas you write that we fitted you wth an ignorant Clerk unfit for any busines thereabouts we answer that our expectations of him were such at his going over as we doubted not but he would have given both you and us good satisfaction and content. If he has not done so, we are sorry that our expectations are deceeved. We pray you therefore do not tax us with his ill carriage.

And as whereas you write that it was yr misfortune to meddle with or business, we know not you have a cause to complaine, for you have had a more liberal entertainment of us than any agent of the 12 Cos that we can hear of.

2 August, 1615 Company to Wm. Smith

Recd your letter wch we find altogether very idle and to no purpose, & not worth the reading. Marvel you have no more wit than to send this poor man from his labour on so long a journey. Propose to let our pporcon, for wch purpose we expect Jones here shortly. Desire you to accompany him, so that we may determine the grievances between you & for some other reasons wch we shall disclose when you come. Meantime be more careful and circumspect than you have been.

Original Salter's Company Documents

03/1/1 Deeds and Leases of the Irish Estate

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--14 March, 1615(16), Baptist Jones' Obligation to Depart before May 14 Next, and the "Counterpart of the Award between the Company and Mr. Jones their Agent in Ireland for building Magherafelt and Salter's Towne &c". (Also in Moody Transcripts, PRONI T.853:pp124-141). A Bond


03/1/2 Original Bundle marked "Deeds from the Tin Box marked Rural District Irish Estate

--23rd March 1615(16), "Award of Nicholas Crispe, Skynner, Richard Ball, Clothworker, John Rowley, Draper, and William Cannyng, Ironmonger, Citizens. In the dispute between Baptist Jones, Knotfergus, Esq. and the Salter's Company and associated Companies"

The award is as follows:
1. Salters within 5 days after the making of the award shall pay L291/11/8 to Baptist Jones.
2. Baptist Jones within one year to produce a certificate either under the common seal of Londonderry or under that of Colerain, or under the lands and seals of two J.P.'s [Justices of the Peace] for London Derry testifying that Square Timber of the value of L12/8/4 has been employed for the building of houses on the Company's plantation in excess of L60 already charged for the three houses by Thomas Starkey, Carpenter, or he is to hand over the L12/8/4 to the Salters. If Baptist Jones produced a certificate for expenditure of L10 after the expiry of the year then the sum is to be refunded within 10 days. Also if Baptist Jones has paid L6 within the year to a workman for breaking and squaring of freestone for the building and has promised to pay so much more as is necessary the Company shall reimburse him on receipt of the certificate. If within a year Baptist Jones comes to an arrangement with John Evered, Mason or engineer to pay for the building of walls of the two castles and Bawnes, one at Magherafelt and one at Salterstown at 15s a perch for which Baptist Jones is allowed L20 out of the Capital if any excess he is to be paid on production of a certificate. If within 6 months Baptist Jones delivers to Hugh Sayer, a farmer to the Salter's Company, all the working tools (detailed in a note made by Baptist Jones)
to the value of L15/8 then on production of a certificate to be reimbursed. If within a year Baptist Jones proves he owes the workmen any more or there are any actions for damages etc. then these to be made responsibility of the Company. Witnesses: John Ewen, Edward Brooks, Anthony Anketill, Thomas Crawley, servants to Roger Bankworth, Scrivner. Docket No.3.

-Jones won, in the judgement of Nicholas Crispe; the Wardens and Commonality of the Salters were required to pay him L291/11/8

--Document ends by giving Salters permission to discontinue Jones in their service if they deemed it necessary.

MAITLAND ON THE REBELLION OF 1641

So far as is generally known, there is no published account of the outbreak which deals principally with local details. The following, however, has been obtained from a very reliable source. It appears that on Saturday evening, the 22nd of October, 1641, a message was received in Magherafelt that the Irish had taken Moneymore that morning, and were on their way to attack Magherafelt. The people of the town were then called to arms to the Castle, provided with about 15 guns, and preparations were made to withstand the attack. A Mr. Waring took command of the defenders. Two hours after the receipt of the news a party of 200 Irish, under the command of Cormack O'Hagan, attacked Magherafelt which, at that period, was of meager dimension. On being summoned to surrender, the defenders refused to comply, whereupon O'Hagan's Brigade made a desperate assault, but the inhabitants replied with such good effect that O'Hagan was forced to retire in the direction of Desertmartin, and took that place.

Mr. Waring, anticipating that O'Hagan would return, took eleven of the best armed of the defenders that night under cover of darkness to Bellaghy Castle, which was held by a small garrison, under the command of Henry Conway, M.P, and who had plenty of arms and ammunition. Mr. Waring informed Mr. Conway of the attack on Magherafelt, requested assistance and a supply of arms. Mr. Conway refused to comply. Mr. Waring then decided to return to Magherafelt, but only six of his followers would accompany him, and early on the morning of the 25th of October, they set out on their return journey. When they reached Aghagaskin they were informed that the Irish had returned in force the previous day, captured Magherafelt, and burned the Church, Castle, and houses. Mr. Waring and his
comrades then took refuge in Edward Brere's House, in Aghagaskin, and having fortified it, awaited developments. O'Hagan, with his force, arrived in the evening, attacked the house, but were repulsed with a loss of several killed and wounded. He then abandoned the attack and took his departure. Mr. Waring returned to Magherafelt, which he found in a terrible plight. About 50 men, women and children were wandering about in great misery from cold and hunger, O'Hagan's army having stripped them of the greater part of their clothing. Not having the means to assist them, Waring instantly set out again for Bellaghy Castle, taking all the inhabitants with him for food and shelter. They were followed by about 200 Irish, who carried weapons, but not firearms, but were unable to close quarters with the refugees, owing to the latter being armed with guns. On approaching the Moyola Bridge there was another party of the Irish—both foot and horse—who charged them, but a volley from the guns sent them off in a panic, leaving several killed and wounded behind them. At last the refugees reached Bellaghy Castle, where they were received and afforded food and shelter (Maitland, 1916:4,5).
APPENDIX B

ARTIFACT CATALOGUE

Due to the exigencies of two field seasons of excavation, four different horizontal proveniencing systems were used. The primary system is a simple 1mX1m grid reference, taken from the southwest corner of every excavation unit. Artifacts found in identified features are catalogued by feature number, although each feature number is in turn provenienced by referring back to the grid. The contents of the diagonal trench extending NNW for ten meters from 23S6W are provenienced by simple "1-2m", "2-3m" etc. designations which begin at 23S6W and extend to the end of the trench. Finally, artifacts collected during the 1988 field season are provenienced by trench number (1 or 2) [See Figure 191]. Trench 1 was further subdivided into north and south halves; a sample provenience might be "trench 1 south, stratum 2", or "T1S.2". Vertical proveniences are consistent throughout the catalogue, and are thoroughly discussed in the "Excavations" chapter.

The catalogue of the grid reads from north to south, moving from east to west. Artifact types are catalogued in the following order: Tobacco Pipes, Ceramics, Glass, Metal, Bone(Faunal), Brick, Daub, Mortar, Plaster, Wood (and charcoal), Flora, Lithics, and Small Finds. Original cataloguing was performed using standardized "pro-forma" sheets.
Figure 191 Salterstown Provenience Map.
All artifacts should be considered fragmentary unless otherwise noted. All weights listed refer to the total weight of the relevant artifact type as a group, rather than to the individual artifact.

### THE MAIN GRID

#### 5S1E.1
- **Brick:**
  - Type 1
  - Type 2
  - (150gms total)

#### 5S0E.1
- **Ceramics:**
  - N.Devon gravel-tempered, rim Purple striated stoneware
  - Black-glazed Redware, handle
- **Faunal:**
  - unid frag. <10gms

#### 5S0E.2
- **Pipes:**
  - Stem frag. 8/64ths
  - Stem frag. 4/64ths
- **Ceramics:**
  - Unid. Red Earthenware
  - Fine Black-glaze Redware, handle
  - (2) Unid. Red Earthenware
  - Coarse Black-Glaze Redware
  - (<10gms total)
- **Glass:**
  - Window frag. 1.4mm
  - Vessel frag, colorless modern
- **Metal:**
  - (2) Nail frags
  - Iron blade frag.
- **Faunal:**
  - 30 gms unid.
- **Brick:**
  - Type 3; 20gms
- **Lithic:**
  - Slate frag.
  - Flake

#### 5S0E.2a
- **Pipes:**
  - Bowl; Edinburgh; Oswald Type 1
- **Metal:**
  - unid, <10gms
- **Faunal:**
  - unid, <10gms

#### 5S1W.1
- **Ceramics:**
  - True Metroware
- **Glass:**
  - Window frag, melted
  - Vessel frag, modern embossed
- **Metal:**
  - Nail
- **Brick:**
  - (2) Type 2
  - Type 4
  - (20gms total)
5S1W.2
  **Ceramics:** (2) Pink-Buff Body; brown dipped  
  Coarse Black-Glaze Redware  
  Unid. Red Earthenware  
  **Glass:** Vessel, .7mm ribbed  
  **Faunal:** unid <10gms  
  **Daub:** (3) frags, w/ int. plastering <10gms

5S1W.2a
  **Faunal:** Ovis Rib, shaft frag, chopped

5S2W.1
  **Brick:** (2) Type 4, 50gms  
  **Mortar:** frag, 70gms

5S2W.2
  **Ceramics:** Pink-Buff Body; black int + ext.  
  undec. Whiteware  
  (2) Unid. Red Earthenware, base or rim  
  Reduced Greenware  
  **Metal:** Nail frag.  
  **Faunal:** unid frag, burned  
  **Brick:** Type 5

6S1E.1
  **Ceramic:** Unid. Red Earthenware  
  **Glass:** Bottle frag, freeblown, 8mm  
  **Faunal:** ungulate Cranial; Zygomatic, unfused  
  unid. frag.  
  **Brick:** Type 2, 130gms

6S1E.2
  **Ceramics:** 18th c. Creamware  
  Salterstown Yellowslip Sgraffito #1  
  **Glass:** Window frag, 1.4mm  
  **Metal:** Nail frag  
  Lead, twisted strand, square section  
  **Faunal:** (4) unid, 20gms

6S0E.1
  **Ceramics:** Fine Black-glaze Redware  
  **Metal:** Nail frag.  
  **Brick:** (2) Type 2  
  **Lithics:** Tool:Scraper,  
  Flake

6S0E.2
  **Pipe:** Spur + Stem; 7/64ths  
  Bowl; 17th c. vol.  
  **Metal:** (2) Nail frags, <10gms  
  **Faunal:** (3) unid, burned, <10gms  
  **Lithics:** Blank or Tool:Retouched Flake,
6SOE.2a

**Ceramics**: Reduced Greenware

**Faunal**: Bos Metatarsus, proximal, left, <1/2, fused, GBp49

6S1W.1

**Pipe**: Bowl; hand + heart 19th c.

**Ceramics**: Pink-Buff Body; brn. dipped

**Metal**: Nail frag

**Brick**: Type 2

6S1W.2

**Ceramics**: Pink-Buff Body; black int + ext.

unid. Staffordshire paste

(2) Unid. Red Earthenware

**Glass**: (4) Window, 1.2mm

(2) Window, 2mm

**Metal**: (2) Nail frags, <10gms

**Faunal**: (6) unid, 2 burned, 40gms

**Lithic**: Slate frag.

6S2W.1

**Ceramics**: Unid. Red Earthenware

**Lithics**: Slate frag.

6S2W.2a

**Glass**: Window frag, 1.4mm, <10gms

7S1E.1

**Ceramics**: (2) Unid. Red Earthenware

**Glass**: Table Vessel, basal rim, Stemware

Handblown tubing

**Faunal**: (3) unid, 1 burned, <10gms

**Brick**: Type 1

Type 4

7S1E.2

**Ceramics**: "Everted Rim"

**Metal**: Nail frag.

unid. frag.

<10gms total

**Faunal**: Bos Mior2 upper, whole, ageK, GL26, GB18

unid frag.

7S0E.1

**Pipes**: (2) stems 5/64ths

**Ceramics**: unid. undec. Slipped Redware

undec. Whiteware, basal

**Mortar**: frag. 230gms

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7S0E.2

**Ceramics:** Staffordshire yellow slip  
Unid. Red Earthenware

**Glass:**  
Window frag 1.4mm  
Vessel frag, green, 2.6mm

**Metal:**  
(2) Nail frags, 1 finishing nail

**Faunal:**  
Bos Incisor, lower, whole  
Sus Incisor  
(2) unid.  
(<10gms total)

7S1W.1

**Ceramics:** Pink-Buff Body; black int. only

**Metal:**  
(2) Nail frags  
finishing nail

**Faunal:**  
(3) unid, <10gms

**Mortar:**  
frag, 15gms

7S1W.2

**Faunal:**  
Ovis Rib, shaft frag, chopped  
Sus Canine, lower

7S2W.1

**Ceramics:** Reduced Greenware  
Unid. Red Earthenware

7S2W.2

**Ceramics:** Pearlware, blue transfer, rim  
Fine Black-glaze Redware, handle

**Glass:**  
Window frag, 1.7mm

**Faunal:**  
Bos Metacarpus, distal, <1/2, fused, chopped

**Brick:**  
Type 4, <10gms

7S2W.2a

**Glass:**  
burned frag.

**Metal:**  
(2) Nail frags, 1 finishing

**Faunal:**  
Bos Rib frag, <1/2, chopped

**Lithics:**  
(2) Flake

8S2E.1

**Ceramics:** Salterstown yellowslip Sgraffito #2  
undec. Whiteware  
Coarse Black-Glaze Redware  
"Willow" pattern Whiteware

**Faunal:**  
Bos Mior2 lower, whole, ageA, GL26, GB9

**Brick:**  
Type 2, <10gms

8S1E.1

**Pipes:**  
Bowl frag, 19th c.  
Stem; 7/64ths +

**Ceramics:** Carrickfergus Brownware  
Pink-Buff Body; black int. only  
Pearlware, blue hand-paint

**Metal:**  
Nail frag.

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Faunal: Bos Rib frag, <1/2, unfused, chopped
Brick: (2) Type 2
Type 4
Lithics: (2) Slate frags, 150gms

8S1E.2
Pipes: Stem; 7/64ths
Ceramics: Coarse Black-Glaze Redware
Glass: Window frag; 1.4mm
Window frag; .9mm
Vessel; 1.2mm
Metal: (2) Nail frags
Faunal: Bos P3, upper, hand?, ageD
Bos P3, upper, hand?, ageE
Ovis II, lower right, whole
Brick: Type 5, burned

8S1E.2a
Ceramics: 18th c. Creamware, openwork

8S0E.1
Pipes: Stem; 8/64ths +
Ceramics: Whiteware, common cable
(2) Reduced Greenware
Pink-Buff Body, rim
Pearlware, blue transfer, basal
Coarse Black-Glaze Redware
Glass: Window frag; 1.2mm
Window frag, modern, 3.6mm
Metal: Nail
Faunal: Ovis Rib, shaft frag, chopped
(4) unid.
Lithics: Slate frag; 40gms

8S0E.2
Ceramics: Pearlware, blue transfer

8S0E.2a
Glass: (2) melted green
Window, 1.4mm
Metal: Nail, finishing
Faunal: Sus M2, lower left, ageE, GL16, GB9
Sus M3, lower left, ageC, GL21.5, GB9.7
Sus Mandible, M2-3, left, ageE+C
Sus Mand. GonionVentràle, <1/2, chopped
(10) unid
Lithics: Flake

8S1W.1
Glass: Vessel, modern frag.
Metal: Barbed Wire frag.
**8S1W.2**

**Pipe:** Foot + Stem 6/64ths

**Ceramics:**
- (3) Tin Glaze, dash blue

**Glass:**
- Case Bottle frag, 1.7mm
- Decorative "strap, grey-green

**Metal:**
- (3) Nail frags, 1 finishing

**Faunal:**
- unid.

**Brick:**
- Type 4; 40gms

**8S2W.2**

**Faunal:**
- Bos Ramus, <1/2, chopped

**9S2E.2**

**Ceramics:**
- Fine Black-glaze Redware
- (2) Unid. Red Earthenware
- Reduced Greenware

**Glass:**
- "whiskey" finish Bottle lip w/ lead foil

**Brick:**
- (2) Type 2; 320gms

**9S1E.1**

**Pipes:**
- Stem; 5/64ths +

**Ceramics:**
- unid. undec. Slipped Redware
- unid. Staffordshire paste

**Faunal:**
- Bos M2 upper right, 1/2, ageD

**Brick:**
- Type 1
- Type 2
- Type 3, grass impressed in

**9S1E.2**

**Pipe:**
- Bowl; hatched star, 19th c.

**Ceramics:**
- Staffordshire yellow slip
- (2) unid. Staffordshire paste
- Unid. Red Earthenware

**Glass:**
- dk green Vessel; 5.7mm
  - window: .9mm
  - window: 1.4mm
  - vessel: 1.5mm

**Metal:**
- Spike
  - (4) Nails, 1 finishing; 40gms total

**Faunal:**
- Bos Metacarpus, prox, <1/2, fused, chopped
- Bos P2, upper, hand?, ageD
- Bos Rib frag, <1/2, chopped
  - (90gms total)

**Brick:**
- (2) Type 3

**Lithics:**
- Flake

**Small Find:**
- Brass Button, soldered loop, stamped logo reverse 22mm dia. 19th c.

**9S1E.2a**

**Ceramics:**
- Unglazed Buff, handle

**Glass:**
- melted; 1.5mm

**Metal:**
- Iron lump

**Faunal:**
- (2) unid.
9S0E.1

**Ceramics:** undec. Whiteware

Unid. Red Earthenware

"Lancashire" mottled Manganese

**Lithics:** Slate frag; 20gms

9S0E.2

**Ceramics:** (2) Salterstown Yellowslip Sgraffito, rim and should, 2pc x-mend

**Metal:** Finishing Nail

Iron lump

**Faunal:** ungulate, Femur, prox, <1/2, chopped

**Brick:** Type 4; 120gms

9S0E.2a

**Ceramics:** (2) buff paste Greenware, 2pc x-mend

Unid. Red Earthenware

Reduced Greenware

**Glass:** burned Aqua

window; 1.4mm

**Metal:** unid. iron sheet frag.

**Faunal:** (5) unid.

**Daub:** frag. 10gms

9S1W.1

**Pipes:** (2) Stems; 8/64ths

Stem; 5/64ths

**Ceramics:** "Lancashire" Mottled Manganese

terra cotta pipe

Pink-Buff Body; black int + ext.

**Brick:** Type 2; 100gms

9S1W.2

**Pipe:** Spur + stem; reused 5/64th

**Ceramics:** Salterstown Hard Red, basal

18th c. Creamware

**Glass:** (6) Vessel; 1.1mm; grey

Window; .9mm

Vessel, green; 1.1mm

Vessel, grey; 3.6mm

**Metal:** Spike

(3) Nails

**Faunal:** Anser Femur, distal, right, 1/2, fused, GBd19

Bos Disiduous, whole, ageC

Bos Mior2 lower, whole, ageL, GL20, GB14

Bos Mandible, horiz.ramus frag, <1/2, chopped

Bos P2, lower, right, ageF

Bos Phalanx, 2, >1/2, GL37 chopped

Ovis Humerus, distal, right, <1/2, fused, GBd25

Ovis Mand. HorizRamus, left, <1/2, chopped

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Ovis Rib, shaft frag, chopped
ungulate scapula blade, <1/2

9S1W.2a
Pipes:  Stem; 7/64ths
Ceramics:  True Buckley
Glass:  Window; 1.4mm
        Vessel; 2.4mm black
        Vessel, black; 3.3mm
        Vessel, black; 8mm
Faunal:  Bos Frontal frag.
        Ovis Horn Core
        Sus Maxilla frag, <1/2
Brick:  Type 5; 30gms
Plaster:  Interior surface; 150gms
Lithics:  Flake
         Flake
         Slate frag.

9S2W.1
Ceramics:  undec. Whiteware
9S2W.2a
Ceramics:  Fine Black-glaze Redware
Faunal:  (2) unid.

10S2E.1
Ceramics:  Salterstown Hard Striated
        Fine Black-glazed Redware, incised band
Glass:  Bottle, brown
        Window, green; 1.4mm
Faunal:  (2) unid.
Brick:  Type 2
        (2) Type 5; 30gms total

10S2E.2
Ceramics:  unid. Red Earthenware, base
Faunal:  Bos M1or2, upper, whole, ageJ, GL20, GB14
        Gallus Radius, distal left, fused, GBd7
        unid.

10S1E.1
Ceramics:  (2) "Willow" pattern, rims
        18th c. Creamware
        Unid. Red Earthenware
Faunal:  Bos M3 lower left whole, ageF, GL36, GB15
        unid.

10S1E.2
Ceramics:  "Lancashire" Mottled Manganese
Glass:  (2) Window, grey; 1.6mm
Metal:  Nail, cinched

10S1E.2a
Ceramic: unid. undecorated Slipped Redware
       unid. Red Earthenware
Glass: Window, grey; 1.4mm
Metal: Nail
Faunal: unid.

10S0E.1
Ceramics: Unid. Red Earthenware
Glass: Vessel, grey-blue; 2.5mm
Brick: Type 5

10S0E.2a
Ceramics: Staffordshire combed slip
Daub: <10gms

10S1W.1
Pipes: (2) Stems; 5/64ths
Ceramics: Terra Cotta drainpipe
       Coarse Black-Glazed Redware
Glass: Vessel, clear; 1.6mm
       Window, green; 2.4mm

10S1W.2
Ceramics: unid. Red Earthenware
       Coarse Black-Glazed Redware
Glass: Vessel, grey; .7mm
       Window, diseased; .9mm
Metal: (2) Nail frags.
Faunal: (8) unid.

10S1W.2a
Ceramics: Tin Glaze; undec. cream body
Glass: Bottle, blue-green; basal corner
Metal: (2) Nail frags, one finishing
Faunal: Bos Mior2 lower, whole, ageJ, GL24, GB16
Lithic: Flake,
       Tool: Blade broken
       Flake

11S3E.2a
Ceramic: Reduced Greenware

11S2E.1
Pipe: Bowl; Oswald Type 21, 6/64ths

11S2E.2
Pipes: (2) 8/64ths
Ceramics: unid. Red Earthenware
Glass: Window, 1.7mm
Metal: (2) Nail frags, 1 finishing
Faunal: Bos Calcaneus, right, whole, unfused,
       GL91, GB29, chopped

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Bos Mior2, upper, whole, ageK, GL25, GB17
Bos Phalanx.2, whole, GL35 GBp23 GBd19 chopped

Brick:  Type 3
Type 4; 40gms total
Plaster:  (2) Interior surfaces, <10gms
Charcoal:  sample <10gms

11S2E.2a
Pipe:  Bowl; Oswald Type 4, x-mended.
Bowl; unid. 17th c.
Glass:  Bottle, green
Window, green; 1.1mm

11S1E.1
Ceramics:  Pink-Buff Body, mottled manganese
undec. Whiteware
Glass:  Window frag. 1.8mm
Metal:  (3) Nail frags, 1 finishing
Brick:  Type 1 <10gms
Charcoal:  2 samples

11S1E.2
Ceramics:  Pink-Buff Body, delaminated
Faunal:  Equus P3, upper left, ageD?

11S1E.2a
Ceramics:  Pink-Buff Body, delaminated
Faunal:  unid.

11S0E.1
Pipe:  Bowl; 19th c. Hand and Heart
Ceramics:  undec Whiteware
Faunal:  Bos Rib frag, <1/2, chopped
Lithics:  Slate frag; <10gms

11S0E.2a
Brick:  Type 1; <10gms

11S1W.1
Ceramics:  unid. Red Earthenware
Brick:  Type 3 <10gms
Lithics:  Slate frag; <10gms

11S1W.2
Glass:  Window, aqua; 1.6mm
Window, green; 1.1mm

12S4E.2b
Ceramics:  (2) Reduced Greenware
Lithic:  Blank or Tool; Questionable

12S3E.2a
Pipes: (2) Stems; 8/64ths +
Stem 6/64ths +
Ceramics: unid. Red Earthenware
North Devon Gravel-Tempered
unid. Red Earthenware
Glass: (21) Case Bottle; 1.7mm
(4) Window frags; 1.1mm
Metal: (20) Nail frags; 1 finishing; 100gms
Faunal: Bos Cerv.Vert.,<1/2
Bos Cerv.Vert.,<1/2, chopped
Bos Mandible, horiz. ramus frag, left, <1/2, chopped
Ovis P2 lower right, whole, age F
Sus Calcaneus, right, 1/2, fused, GB40, chopped
Brick: Type 2
Type 4; 20gms total
Daub: (3) frags; 40gms
Plaster: (2) interior; 30gms
Lithics: Slate frag.
(5) debitage

12S2E.unstratified
Ceramics: (2) Unid Redware
Metal: Nail frag.
Faunal: unid.
Brick: (2) Type 2
Type 4

12S2E.1
Brick: Type 2; 150gms

12S2E.2a
Ceramics: unid. Red Earthenware
unid. undec. slipped Redware, basal
Glass: Window; 1.7mm
Faunal: Ovis M2 upper left age F
(4) unid. 70gms total
Brick: Type 1
Type 5, <10gms total
Daub: <10gms

12S2E.2b
Faunal: unid. <10gms

12S1E.1
Faunal: unid; <10gms
Charcoal: (4) frags, <10gms

12S1E.2b
Ceramics: Reduced Greenware
<table>
<thead>
<tr>
<th>Site</th>
<th>Metal</th>
<th>Faunal</th>
<th>Brick</th>
<th>Mortar</th>
<th>Charcoal</th>
</tr>
</thead>
<tbody>
<tr>
<td>12S1E.2a+b</td>
<td>(3) Nails, 1 finishing</td>
<td>(6) unid, burned</td>
<td>(2) Type 4</td>
<td>&lt;10gms</td>
<td>(7) 20gms</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Site</th>
<th>Ceramics</th>
<th>Faunal</th>
<th>Brick</th>
<th>Mortar</th>
<th>Charcoal</th>
</tr>
</thead>
<tbody>
<tr>
<td>12S0E.1</td>
<td></td>
<td>unid.</td>
<td>Type 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12S0E.2</td>
<td>(2) unid. Sgaffito. 1 rim</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12S1W.1</td>
<td>(2) unid. Red Earthenware</td>
<td>Bos Ear structure,&lt;1/2</td>
<td>North Devon Gravel Tempered</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12S1W.2</td>
<td>Fine Midlands Blackware, handle</td>
<td>Ovis Foramen Magnum,1/2,split</td>
<td>True Buckley</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12S1W.2a</td>
<td>Ovis P2 lower right, whole, age L</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Site</th>
<th>Ceramics</th>
<th>Faunal</th>
<th>Brick</th>
<th>Mortar</th>
<th>Charcoal</th>
</tr>
</thead>
<tbody>
<tr>
<td>12S1W.2</td>
<td></td>
<td></td>
<td>False Midlands Blackware</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12S1W.2a</td>
<td></td>
<td>Bos Phalanx.2,&gt;1/2,chopped</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Site</th>
<th>Pipes</th>
<th>Ceramics</th>
<th>Faunal</th>
<th>Wood</th>
</tr>
</thead>
<tbody>
<tr>
<td>12S2W.1</td>
<td>Stem mouthpiece; 8/64ths +</td>
<td>Fine Midlands Blackware</td>
<td>(2) unid.</td>
<td>sample</td>
</tr>
</tbody>
</table>

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Ceramics: (2) Pink-Buff body, black glaze int.+ ext.
  "Willow" pattern Whiteware
  "Everted Rim" ware

Glass: Bottle, green

Faunal: Bos M1or2 upper, whole, age J, GL25, GB17
  unid.

Lithics: Flake

12S2W.2

Pipes: Stem: 9/64ths

Ceramics: "Everted Rim" ware, basal
  Salterstwon Soft Redware, basal
  unid. Staffordshire paste
  unid. Red Earthenware
  unid. undec. Slipped Redware
  Coarse Black-glaze Redware

Glass: (3) Window 1.4mm
  Bottle frag.
  Tableware rim

Metal: (3) Nail frags, 1 finishing

Faunal: Bos Acetabulum, left, <1/2, chopped
  Bos Acetabulum, left, <1/2, chopped
  Bos Innominate, <1/2, chopped
  Bos Lumb. Vert., <1/2
  Bos Malleolus, whole
  Bos Metatarsus, prox, right, <1/2, fused, GBp41
  Bos Phalanx.3, <1/2
  Bos Rib frag, 1/2, chopped
  Bos Rib frag, <1/2, chopped
  Bos Rib frag, <1/2, chopped
  Bos Rib frag, <1/2, chopped
  Bos Rib frag, <1/2, chopped
  Bos Rib frag, <1/2, chopped
  Bos Rib frag, <1/2, chopped
  Bos Rib frag, <1/2, chopped
  Gallus Coracoid right, whole, GL43
  Gallus Sternum frag <1/2
  Ovis Atlas frag, <1/2
  Ovis I2, lower right
  Ovis M1, lower right, age D
  Ovis M1, lower right, age F-G
  Ovis M2, lower right, age D, GL16.6, GB6
  Ovis M2, lower right, age F-G, GL12.8, GB7.9
  Ovis M3, lower right, age F-G, GL23, GB8.2
  Ovis Mand, P2-M3 tooth row, right
  Ovis Mandible, condyle process, right, <1/2
  Ovis Mandible, tooth row M1-2, right
  Ovis Nasal
  Ovis P1, age A
  Ovis P2, lower right, age F-G
  Ovis P3, lower right, age F-G

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Ovis Ramus, right, <1/2
Ovis Rib, shaft frag, chopped
Ovis Rib, shaft frag, chopped
Ovis Scapula, blade, right, <1/2,
(550gms total)

Brick: Type 5; 30gms
Lithics: Flake
Slate; 250gms

12S2W.2a
Glass: Window; 1.6mm
Metal: Nail frag.
SmallFind: unid. brass alloy coin

12S3W.1
Pipes: Stem mouthpiece; 6/64ths
Ceramics: (2) Pink-Buff body, delaminated
undec. Whiteware
unid. Red Earthenware
Glass: Window; 1.6mm
Window; 1mm
Metal: Nail frag.
Faunal: Bos Disiduous, whole, ageA
Bos Innominate frag, <1/2, chopped
Bos M1or2 lower, whole, ageA, GL26, GB11
Bos M1or2 lower, whole, ageK, GL24, GB12
Bos M1or2, upper, whole, ageF, GL25, GB17
Bos Metatarsus, whole, right, fused, GL190 GBp40

GBd47 Ovis Rib, shaft frag, chopped
(270gms total)
Brick: Type 5

12S3W.2a w/ ash
Pipes: (2) Stems; 8/64ths +
Stem 10/64ths
Stem 8/64ths
Ceramics: (2) Salterstown yellow leadglazed Redware
Glass: (4) Window; 1mm
Window; 1.4mm
Vessel, grey; .9mm
Metal: (4) Nail frags
Nail
(2) unid iron masses
Faunal: Bos Metacarpus, distal, left, <1/2, GBd51, chopped
Bos Coronion, (Mandible), right, <1/2, chopped
Bos Intermedial Tarsal, left, >1/2
Bos M1or2 lower, whole, ageK, GL23, GB11
Bos P2, lower, right, ageB
Bos Phalanx.1, whole, GL53 GBp24 GBd23
Bos Rib frag, <1/2, chopped
Bos Rib frag, <1/2, chopped
Bos Rib frag, <1/2, chopped

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Bos Talus, whole, left, GL59 chopped
Bos Ulna, prox, right, <1/2, fused, chopped
Ovis I1, lower right, whole
Ovis M2+3 upper left, age E/B
Sus Incisor
(550 gms total)

**Daub:**
30 gms

**12S4W.1**

**Ceramics:** unid Redware

**12S4W.2a**

**Ceramic:**
(2) Pink-Buff body; delaminated
(3) unid. Red Earthenware
Salterstown yellow slip Sgraffito#2, rim unglazed Buff body
(2) Salterstown Red Striated (Carrickfergus) basal
Salterstown Soft Redware

**Glass:**
Beaker, frag. ribbed wrythen, .6 mm/1.4 mm
Window; 1.4 mm
Window, green; 1.4 mm
Crown Glass, grey; 1-2.4 mm

**Metal:**
(5) Nails, 3 finishing; 50 gms

**Faunal:**
Bos Acetabulum, left, <1/2, chopped
Bos Metacarpus, prox, right, <1/2, fused, GBp45
Bos Rib frag, <1/2, chopped
Ovis P3 upper age H
Anser Ulna, distal, right, 1/2, fused, GBd11
Anser Ulna, prox, right, 1/2, fused, GBp13
Avian Ulna, <1/2
Bos Cerv. Vert., <1/2, chopped
Bos Cerv. Vert., <1/2, split
Bos Incisor, lower, whole
Bos Lumbar Vert., <1/2, chopped
Bos Lumb. Vert., <1/2, fused, chopped
Bos M1or2 lower, whole, age N, GL19, GB13
Bos M3 upper, whole, age A GL28, GB16
Bos Phalanx. 1, whole, GL54 GBp24 GBd23
Bos Phalanx. 1, <1/2
Bos Radial Carpal, right, <1/2
Bos Rib frag, <1/2, chopped
Bos Rib frag, 1/2, chopped
Bos Rib frag, <1/2, chopped
Bos Rib frag, <1/2, chopped
Bos Rib frag, <1/2, chopped
Bos Rib frag, <1/2, chopped
Bos Rib frag, <1/2, chopped
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Bos Rib frag, <1/2, chopped
Bos Rib frag,<1/2,chopped
Bos Rib frag,<1/2,chopped
Bos Rib frag,<1/2,chopped
Ovis Femur epiphysis,prox,<1/2,unfused
Ovis M1 upper right ageG
Ovis M2
Ovis M2
Ovis M2 upper right,ageH
Ovis M3 lower right ageE
Ovis P3 upper left ageF
Ovis Rib frag,<1/2,chopped
Ovis Rib,shaft frag,chopped
Ovis Rib,shaft frag,chopped
Ovis Rib,shaft frag,chopped
Ovis Rib,shaft frag,chopped
Ovis Rib,shaft frag,chopped
Ovis Thoracic Vert.,<1/2,chopped
Sus Metatarsus,whole,fused,GL65
ungulate,Scapula frag <1/2
(600gms total)

**Brick:**
(2) Type 1
Type 4 250gms total

**13S6E.1**

**Pipes:**
Stem; 7/64ths +
Stem; 6/64ths +

**Ceramics:**
True Buckley; slip dipped
(2) unid. Sgraffito; x-mend
Reduced Greenware

**Glass:**
Vessel, gree; 1.9mm
(2) Window, gree; 1.4mm
Window, green; 1.6mm
Brown Beer Bottle lip, Modern

**Faunal:**
Bos Incisor,lower,whole
Bos Metacarpus,prox,right,<1/2,fused,GBp50
(2) unid.
70gms. total

**Lithics:**
Core Rejuv Flake: Prep,
Blank or Tool: Retouched Flake,

**13S5E.1**

**Ceramics:**
Yellowware, press-molded, beaded rim
Pink-Buff body; delaminated
Pink-Buff Body, black int. only
Creamware, 18th c.
unid. Red Earthenware
coarse Black-glazed Redware

**Glass:**
Bottle, olive; 4.3mm handblown
Window, modern
Vessel, green; 1.2mm

**Metal:**
Nail, finishing

**Brick**
(3) Type 3, 20gms.
13S5E.2
Pipe: Bowl; Oswald Type 6
Stem; 6/64ths
Ceramics: (2) undec. Whiteware
Reduced Greenware
Pink-Buff body; delaminated
undec. Whiteware
Glass: (2) Window, 1.5mm
Tableware, 1mm
2 melted
Metal: (4) Nail frags; 40 gms
Faunal: Bos M1or2 lower, whole, ageK, GL24, GB14
(10) unid, 90 gms total
Brick: (2) Type 2
Lithics: Slate frag

13S4E.1
Pipe: Stem; "Derry" mark, 5/64ths
Ceramics: (2) undec. Whiteware
Fine Blackware
Whiteware, handpainted polychrome, rim
Whiteware, annular, rim
Glass: Window, modern; 2.6mm
melted slag
Metal: (2) Nails, 1 finishing
Faunal: Bos, P1, upper, left, ageE
Ovis Rib, shaft frag, chopped
Slate: (2) frags, <10 gms

13S4E.2
Pipes: Stem; 7/64ths
Ceramics: Salterstown Lead + Green
unid. Sgraffito
Tin Glaze, undec. cream body
Lancashire Mottled Manganese
Glass: Bottle, purple 19th c, 3.1mm
(10) melted
Window, diseased; 1.7mm
(5) window; 1.4mm
(4) Tableware, 2 rims; .8-1.0mm
50 gms total
Metal: (9) Nails, 3 finishing; 70 gms
Faunal: ungulate acetabulum, <1/2
Ovis Cerv. Vert. <1/2, unfused, split
Ovis I, lower
Ovis M1 upper right, ageG
(10) unid
Bos M1or2 upper, >1/2, ageJ, GL20, GB19
Boundaries Metacarpus, prox, right, <1/2, fused, GBp47, chopped
Ovis Calcaneus, left, whole, unfused, GL49, GB16
60 gms total

Lithics:debitage

13S3E.1
Ceramics: (2) undec. Whiteware
         terra cotta drainpipe

13S3E.2a
Ceramics: Fine "Midlands Purple"

13S2E.1
Metal:Nail frag.
Ceramics:"Everted Rim" ware

13S2E.2b
Pipe:Bowl; London wheel, e.17th c.
Ceramics:Buff body w/o glaze
Metal:(2) Nails, 1 finishing
Daub:<10gm
Mortar:(3) frags w/ plaster facing
Charcoal:(5) burned wood
Lithics:Slate; <10gms

13S1E.1
Ceramics:Coarse Black-glazed Redware
         Blue Transfer Whiteware, rim
         undec. Whiteware
         unid. Red Earthenware
         Staffordshire Slip-Trailed
         unid. Red Earthenware
Glass:Bottle, green; 6.1mm
       melted
       (2) Window; 1.4mm
Metal:(5) Nails, 2 finishing; 10gms
Faunal:Bos Mior2 lower,whole,ageC,GL26,GB11
       (2) unid.
Brick:Type 5
       (2) Type 3; 70gms total
Lithics:(3) Slate; <10gms
Cloth:(3) frags Modern machined cotton

13S1E.2a
Pipe:Bowl; Oswald Type 20
Ceramics:Coarse Black-glazed Redware
         Reduced Greenware
         unid. Red Earthenware
         yellow Annular Whiteware, rim
Glass:(2) Window frags; 1.4mm
       (2) Window frags; 1.6mm
       (3) Vessel, green; 1.4mm
       melted
Metal:(4) Nails, 3 finishing
unid. Iron mass
Rove and Bolt, complete

Faunal:
- Ovis M2 lower left ageG
- Ovis M2 lower left ageH
(3) unid.

Brick: (2) Type 5
Mortar: 20gms
Charcoal: 15gms
Lithics: debitage

13S0E.1
Metal: Eye-Bolt (Pintle-hinge?), flanged, hand-forged
Faunal: Bos Cerv.Vert.,<1/2,fused,chopped

13S1W.1
Pipes:
- Stem; 5/64ths +
Ceramic:
- Coarse Black-glaze Redware
(2) unid. Red Earthenware
Metal:
- (3) unid Iron masses
Faunal:
- Ovis Radius,prox,right,<1/2,fused,GBp24
(2) unid.

13S2W.1
Pipes:
- Stem; 8/64ths, slightly curved
Ceramics:
- unid. Red Earthenware
Metal:
- unid. Iron mass

13S2W.2
Faunal:
- Bos Thor.Vert.,<1/2,chopped
- Ovis I2,lower left
(2) unid.

13S3W.1
Pipes:
- Stem; 6/64ths +
- Stem; 7/64ths +
Ceramics:
- unid. Red Earthenware
Faunal:
- Bos Rib frag,<1/2,chopped
Brick:
- Type 2

13S3W.2
Faunal:
- ungulate Radius,prox,right,<1/2,chopped

13S3W.2a
Pipes:
- Stem; 8/64ths
- Stem; 9/64ths
Ceramics:
- "Lancashire" mottled manganese
Glass:
- (2) Window frags; 1.6mm
- Window; 1mm
Metal:
- Pintle
- (4) Nails, 2 finishing
Rove and Nut
80gms total
Faunal:
Bos Cerv.Vert.,<1/2, chopped
Bos Innominate frag,<1/2, chopped
Bos M1or2 lower, whole, ageA, GL28, GB11
Bos M2, lower, ageB
Bos M3 lower left whole, ageE, GL33, GB13
Bos Malleolus, 1/2
Bos Mandible, M2, chopped
Bos Mandible P1, right
Bos P1, lower, ageB
Bos Rib frag,<1/2, chopped
Bos Thor. Vert., <1/2
Ovis M2, lower right, age F
Ovis Phalanx. 2, whole GL20, GBp14, GBd11, chopped
Ovis Rib, shaft frag, chopped
Ovis Rib, shaft frag, chopped
Ovis Rib, shaft frag, chopped
Ovis Scapula, blade, left, <1/2, fused, chopped
Ovis Tibia, distal, left, <1/2, fused, GBd20, chopped 250gms total

Lithics:
Debeitage

13S4W.1
Pipes:
Stem; 7/64ths

Ceramics:
(3) Coarse Black-glazed Redware
Pearlware, relief deco, rim
Lancashire Mottled Manganese

Glass:
Bottle, uncolored, Modern

Metal:
Nail, cinched

13S4W.2a
Pipes:
Stem; 10/64ths
Stem; 8/64ths +

Ceramics:
(3) unid. Red Earthenware
Reduced Greenware
Fine Black-glazed Redware

Glass:
Window; 1.3mm
Melted

Metal:
(5) Nails, 2 finishing
Iron wire
unid Iron mass
100gms total

Faunal:
Bos Radius, right, 1/2, unfused, GBd62
Bos Atlas, <1/2
Bos Cerv. Vert., <1/2
Bos Cerv. Vert., <1/2,
Bos Femur, prox, right, <1/2, unfused, chopped
Bos Incisor, lower, whole
Bos Innominate frag, left, <1/2, chopped
Bos M1or2 lower, age B, C
Bos P3, lower, right, age C
Bos Rib frag, <1/2
Bos Rib, <1/2
Bos Tibia, distal, Right, <1/2, unfused, chopped
Ovis Femur, prox, left, <1/2, fused, chopped
Ovis Humerus, shaft, left, <1/2,
Ovis M2 lower left, ageJ
Ovis M2 lower right ageC
Ovis M2 lower right ageH
Ovis M2 upper left ageJ
Ovis Mand. Condyle Process, right, 1/2, chopped
Ovis Rib, shaft frag, chopped
Ovis Rib, shaft frag, chopped
Ovis Rib, shaft frag, chopped
Ovis Scapula, blade, right, <1/2
ungulate Scapula blade, <1/2
(500gms total)

Brick: Type 4; 120gms
Lithics: Core Rejuv Flake: Spall
Tool: Blade waterworn
(2) debitage

Small Find: Incised Bone Handle, e. 17th c.

14S2E.1
Pipes: Bowl; hand and heart 19th c.
Stem; 6/64ths
Ceramics: Lancashire Mottled Manganese
(3) undec. Whiteware
Pink-Buff bodied; delaminated
Fine Black-glazed Redware, rim
"Willow" pattern Whiteware
Reduced Greenware
Glass: (3) Melted
(6) Window, green; 1.6mm
Metal: Iron Wire; approx. 7" long; 5.7mm dia.
(2) Nails; 1 finishing
Faunal: (6) unid; 30gms
Brick: (3) Type 4
Type 1; 70gms total
Daub: <10gms
Coal: 70gms

14S2E.2a
Ceramics: Coarse Black-Glaze Redware
Salterstown Yellowlead Redware, rim
-- x-mend with 19S0E.1
Staffordshire Metro-like Slipdeco.
Lancashire Mottled Manganese
Tin-Glaze, blue; cream body
Glass: Melted
Metal: (2) Roves and Bolts
(2) Nails
Faunal: (11) unid; 80gms
Daub: <10gms
Lithics: Core Rejuv Flake:Spall
Core Rejuv Flake:Spall

14S1E.1
Pipe: Bowl; Hand and Heart, 19th c.
      Bowl; unid. 18th c.
Ceramics: Pink-Buff body; black glazed int + ext.
         unid. Red Earthenware
         Buff paste Green glaze
         (2) Reduced Greenware
         unid. Sgraffito, rim
         unid. undec. Slipped Redware
         (2) Lancashire Mottled Manganese
         Pink-Buff bodied; delaminated
         Salterstown Yellow slip Sgraffito#2
      undec. Whiteware
      (70 gms Total)
Glass: Tableware rim, uncolored; .7mm
      Tableware; .9mm
      (2) Window; 1.4mm
      Purple Bottle; 19th c.
      Melted
Metal: Nail
       unid Iron mass
Faunal: Bos M3 upper, whole, age C, GL23, GB15
       Bos M3 upper, >1/2, age C, GL30, GB16
       (5) unid.
Brick: Type 2; pre-drilled then fired
       (3) Type 2
       (3) Type 4
       Type 1
       100gms total
Daub: <10gms
Lithics: (5) Slate frags; 50gms

14S1E.2
Pipes: Stem; 8/64ths +
Ceramics: Reduced Greenware
        unid. Red Earthenware
        Salterstown "Lead and Green"
Glass: Tableware, uncolored; .5mm (!)
       Window; 1.2mm
       Window; 1.4mm
Metal: Nail, finishing
       unid. Iron mass
Faunal: Bos P3, lower, left, age E
       (8) unid, 40gms total
Brick: Type 2
       (2) Type 5
       (2) Type 4
       80gms total
SmallFind: Brass Thimble

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14S1E.2a

**Metal:** Nail
**Daub:** (2) 50gms

14S0E.1

**Pipe:**
- Bowl; unid. 18th c.
- Bowl; "Hand and Heart"; 19th c.
  - Stem; 9/64ths

**Ceramics:**
- unid. Red Earthenware
- unid. undec. Slipped Redware
- undec. Pearlware
  - (2) undec. Whiteware
- Pink-Buff body Mottled Manganese

**Glass:** Melted
**Metal:** (2) Nails, 1 finishing
**Faunal:**
- Bos M1 or 2 lower, whole, age G, GL25, GB13
- Bos M1 or 2 upper, whole, age J, GL27, GB20
- Bos M3 lower left whole, age F, GL32, GB13
- Bos P2, upper, age D

**Brick:** Type 2
**Lithics:** Core Rejuv Flake: Prep,
- Slate frag.

14S0E.2

**Ceramics:** unid. Red Earthenware

**Glass:** (2) Window; 1.4mm
**Charcoal:** (3) frags; <10gms

14S1W.1

**Ceramics:** Fine Black glazed Redware
- unid. Red Earthenware
- Reduced Greenware
- Pink-Buff body; delaminated

**Glass:** Bottle, green; 2mm
- Window, 1.4mm

**Metal:** Nail

**Faunal:** Equus Canine upper left, age D?
- Sus Incisor
- Sus M1, age J
- Sus Maxilla, PM4, right, <1/2, age F
- Sus P3, age F
- Sus P4, upper right, age F, GL12.8, GB12.3
  - 70gms total

14S2W.1

**Pipes:** (2) Stems; 5/64ths +
**Ceramics:** undec. Whiteware
- undec. Red Earthenware
- Reduced Greenware
- Pink-Buff body; black int + ext.
- Terra Cotta drainpipe
Metal: Coarse Black-glazed Redware

(2) Nails; 40gms

14S2W.2

Pipes: Stem; 8/64ths

Stem; 4/64ths

Ceramics: Fine Black-glazed Redware

unid. Sgraffito

Tin Glaze, blue, cream body

Fine "Midlands Purple"

Glass: Bottle, green

Metal: (3) Nails, 1 finishing; 40gms

Faunal: Bos Rib frag,<1/2,chopped

Ovis P2 upper left, whole, age F

(5) unid; 50gms total

14S3W.1

Ceramics: (2) undec. Whiteware, rim

(2) unid. Red Earthenware

Reduced Greenware

Whiteware, red handpainted

Pink-Buff bodied; black int + ext.

Willow-pattern Whiteware

Metal: unid Iron mass

Brick: Type 4

Faunal: Bos P2, lower, left, age D

Gallus Coracoid left, whole, fused, GBd15

14S3W.2

Pipe: Foot and Stem; 8/64ths

Stem; 9/64ths

(3) Stem; 8/64ths

Ceramics: (3) Salterstown "Lead + Green", x-mend w/ same

Salterstown Yellowslip Sgraffito #2

Lancashire Mottled Manganese

"Everted Rim" ware

unglazed Buff body, rim

Blue Transfer whiteware

Reduced Greenware

Glass: (5) Window; 1.4mm

(6) Vessel, green

Tableware, rim

Metal: (6) Nails, 2 finishing

Faunal: Bos Atlas, 1/2

Bos Lumbar Vert., <1/2

Bos Mior 2 lower, >1/2, age F, GB10

Bos Patella, left, 1/2, chopped

Bos Phalanx 2, whole, GL33 Gbp24 Gbd20 chopped

Bos Phalanx 3, whole, right, GDL67

Bos Rib frag, <1/2, chopped

Bos Rib frag, <1/2, chopped

Bos Rib frag, <1/2, chopped

Bos Rib frag, <1/2, chopped

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Bos Rib frag,<1/2,chopped
Bos Rib frag,<1/2,chopped
Bos Tibia,distal,right,<1/2,fused,Gbd57,chopped
Bos Ulna,prox,Left,<1/2,
Ovis M1 lower right,ageB
Ovis M1 lower right,ageH
Ovis M2,lower left,ageC
Ovis Mand,HorizRamus,left,<1/2,chopped
Ovis Tibia,distal,right,<1/2,fused
Sus Canine,lower right whole
Sus M3,ageG,GL14,GB9
650gms total

Brick: (2) Type 2
Type 4; 110gms total

SmallFind: Iron Handle, 18th c.

14S4W.1  
Ceramics: Whiteware, undec.

14S4W.2  
Ceramic: Tin Glaze, blue, pink body

14S5W.1  
Faunal: Bos Radius,prox,<1/2,fused,chopped

14S5W.2  
Pipes: (2) Stems 8/64ths +
     Stem 6/64ths +
Ceramics: Tin Glaze, blue; cream body
        Tin Glaze; purple spattered
Coarse Black-glazed Redware
Glass: Window; 1.6mm
     (2) Vessel, aqua
Metal: Nail frag.
Faunal: Bos Lumbar Vert.,<1/2,split
Bos M1 or 2 upper,whole,ageJ,GL24,GB19
Bos P3,lower,left,ageD
Bos Scapula,blade,left,<1/2
Bos Talus,>1/2,chopped
Ovis P2 lower left ageH
Sus M3 lower,ageA,GL31,GB12
ungulate,Scapula,<1/2
ungulate vertebrae,<1/2,chopped
270gms total
Brick: Type 2

14S6-8W.1  
Pipes: Stem; 7/64ths
Ceramics: (2) unid. Red Earthenware
     Whiteware, black transfer print
Glass: Strap, worked green deco.
Faunal:  
- Bos M1or2 upper, >1/2, ageE, GL22, GB19
- Bos M3 upper, whole, ageC, GL30, GB17
- Ovis M3, lower right, whole, ageA, GL21, GB7
- Bos P2, upper, hand?, ageE

Lithics:  
- Slate; <10gms

15S4E.1  
Ceramics: Salterstown Hard Striated, unglazed
Glass: (2) Window; 1.3mm  
- Melted
Charcoal: <10gms
Lithics: (3) Slate frags; <10gms

15S3E.2  
Ceramics: "Everted Rim" ware  
Lancashire Mottled Manganese
Glass: Window; 1.5mm
Faunal: (4) unid.; 30gms
Lithics: Slate; 15gms

15S2E.1  
Pipes: (3) Stems; 7/64ths +
Ceramics: Staffordshire slip-trailed  
(2) Lancashire Mottled Manganese
(2) Whiteware; "Willow" pattern, shoulder
Glass: Window; 1.4mm
Metal: Architectural Staple, handwrought
(3) Nails, 1 finishing
Faunal: Bos Incisor, lower, whole  
(4) unid.
Brick: (4) Type 2
(2) Type 5
50gms total
Lithics: Flake  
Slate frag; <10gms

15S2E.2  
Pipes: Stem; 7/64ths
Ceramics: unid. Sgraffito  
Pearlware; blue transfer, rim
Carrickfergus Brownware
Glass: Window, aqua; 2mm  
Tableware, applied banding
Metal: (8) Nails, 1 finishing; 70gms total
Faunal: Bos Patella, >1/2  
Bos Phalanx.1, whole, GL50 GBp26 GBd24
Ovis M2, lower left, AgeF
80gms total
Brick: Type 2
Type 4, <10gms total
15S2E.2a
Metal: Nail, finishing

15S1E.1
Ceramics: Fine Black-glaze Redware
      Pearlware, blue transfer
      Staffordshire Yellow Slip deco.
Glass: Window; 1.4mm
      Window; 2.2mm
      Vessel frag.
Metal: Nail
Faunal: Ovis M2 upper left ageF
       (4) unid.
Brick: (6) Type 5; 70gms
Lithics: (2) Slate frags.

15S1E.2
Pipes: Stem 6/64ths +
Ceramics: (2) Lancashire Mottled Manganese
      Pink-Buff body; delaminated
Glass: Melted Slag
      (3) Window; 1.4mm
      Vessel; 1mm
Metal: (4) Nails; 70gms
Faunal: (9) unid; 60gms
Brick: (3) Type 4, <10gms
Lithics: Flake
SmallFind: Iron Knife Blade; 18th c.

15S1E.2a
Ceramics: Unid. Red Earthenware
Faunal: Bos Metacarpus, prox, left, <1/2, fused, chopped
Lithics: Slate; <10gms

15S0E.1
Pipes: Stem; 4/64ths
Ceramics: unid. undec. Slipped Redware
       unid. Red Earthenware
Metal: Spike
       (2) Nails, 1 finishing
Faunal: Ovis M1, lower right, ageF
Brick: Type 5

15S0E.2
Pipes: Stem 8/64ths +
Metal: (2) Nail frags; 30gms
Plaster: 20gms
Brick: Type 4; 30gms
15S1W.1

Pipe: Bowl; "I" mark; x-hatched heart
Stem: 5/64ths

Ceramics: Whiteware; yellow annular deco.
Pink-Buff body; mottled Manganese

Glass: Complete Bladed Stem, colorless
Window, green; 1.4mm
Bottle, green, 2.5mm

Faunal: Bos P2 upper hand?,<1/2
unid, <10gms total

15S1W.2

Metal: Nail, complete

Faunal: Bos Mandible, horiz. ramus frag,<1/2, chopped
Bos P1 lower, left, age B
Sus M2, upper left, age F, GL18.3, GB14.3
Sus M3, upper left, age F, GL30, GB17.6
Sus Maxilla, M2-3, left, age F
100gms total

15S2W.1

Pipes: Stem; 7/64ths +

Ceramics: (2) undec. Whiteware, shoulder

Metal: Nail, finishing

Faunal: unid

Brick: Type 2

15S2W.2

Ceramics: (2) undec. Whiteware
unid. Red Earthenware
(2) Fine Black-glazed redware, handle + rim

Glass: Window; 1.2mm
Window; 1.6mm
Tableware, deco.

Metal: (2) Nail frags.

Faunal: Bos Metatarsus, distal, left, <1/2, fused, GBd46, chopped
Bos Metatarsus, distal, right, <1/2, fused, GBd44, chopped
Avian long bone, <1/2
Bos Mandible P1
Bos P1, lower, age B
Bos Phalanx.2,1/2, chopped
Bos Phalanx.2, >1/2, GL36 GBp26
Bos Phalanx.3, whole, left, GDL68
Bos Phalanx.3, <1/2,
Bos Rib, dorsal, left, <1/2, chopped
Bos Rib frag, <1/2, chopped
Bos Scapula, distal, Right, <1/2, fused, chopped
Bos Scapula, shaft, right, <1/2, chopped
Bos Tibia, prox, right, <1/2, chopped
Bos Tibia, prox. right, <1/2, fused
Equus Canine, upper left, age D?
Ovis M1 lower left, age G
Ovis Mand, horiz Ramus, left, <1/2, chopped
Ovis Mand, Ramus, left, <1/2, chopped
Ovis P4 deciduous, lower left, whole, age K
Ovis Rib, shaft frag, chopped
Ovis Scapula, left, <1/2, chopped
Sus Maxilla, P2-3, right, <1/2, age E
Sus P2, upper right, age E, GL 11.9, GB 5.7
Sus P3, age D
Sus P3, upper right, age E, GL 12.7, GB 9
Sus M1, lower left, age K, GL 13.3, GB 8.8
Sus M2, lower left, age E, GL 18.2, GB 10.7
Sus M3, lower left, age erupting, GL 26, GB 11
Sus Mandible, M1-3, left, age A, E+K
ungulate Ramus, <1/2
(500 gms total)

Slag: unid. Slag; 20gms

Lithics: flake

15S3W.2
Ceramics: Fine "Midlands Purple"
Reduced Greenware
Salterstown Red Striated
Glass: Bottle, diseased
Window, 1.1mm
Metal: Spike
(2) Nails; 50 gms total
Faunal: Bos Innominate frag, <1/2, chopped
Bos Mandible, condyle process, left, 1/2, chopped
Bos Mandible, condyle process, right, 1/2, chopped
Bos Rib, dorsal, right, <1/2, chopped
Bos Rib frag, <1/2, chopped
Bos Rib frag, <1/2, chopped
Bos Rib frag, <1/2, chopped
Bos Rib frag, <1/2, chopped
Ovis Rib, shaft frag, chopped
(200gms total)

Brick: Type 2; <10gms

15S4W.1
Ceramics: Fine "Midlands Purple"
Coarse Black-glazed redware
Faunal: unid.
Brick: (2) Type 2
Type 5

15S4W.2
Ceramics: Salterstown Yellowslip Sgraffito #2
Carrickfergus Brownware, handle
(3) unid. Red Earthenware

Glass: Window; 1.4mm
Metal: Nail, finishing
Faunal: Bos 3rd Tarsal, <1/2
Bos M1 or 2, lower, age B, C
Ovis M2 lower right, age D
90gms total

Brick: (5) Type 4; 150gms
Lithics: Slate, <10gms

16S5E.1
Ceramics: (2) undec. Whiteware
Whiteware; "willow" pattern

Glass: (2) Window; 1.2mm
Metal: Wire Nail
Faunal: (2) unid.
Mortar: 30gms
Lithics: Flake
Coin: unid. with graining

16S5E.2
Glass: (8) Window; 1.4mm
Faunal: Ovis M2 upper right age C
(7) unid; 60gms total
Lithics: Slate, <10gms

16S4E.1
Small Find: (2) Brass Button, 19th c; 1 stamped.

16S4E.2
Ceramics: Pink-Buff bodied; delaminated
Reduced Greenware
undec. relief Whiteware
Pearlware, blue transfer, basal

Glass: (4) Window; 1.2mm
Melted
Vessel; 1.0mm
Faunal: (11) unid. 60gms
Brick: Type 5
Type 4; 80gms total
Lithics: (2) Slate frags 20gms
flake

16S3E.1
Ceramics: Pink-Buff body; delaminated

16S3E.2a
Pipe: Bowl; 17th c. volume
Ceramics: "Pink-Buff Body: Mottled Manganese
Faunal: unid
Lithics: Slate frag; <10gms
16S2E.1

**Pipes:** Stem; 7/64ths
Stem: 5/64ths

**Ceramics:** (3) Unid. Red Earthenware
Pink-Buff body: delaminated
(2) undec. Whiteware
unid. Sgraffito

**Glass:** (2) Window; 1.4mm
Vessel; 1mm

**Metal:** (5) Nail frags; 2 finishing; 60gms

**Brick:** (2) Type 4; 20gms

**Lithics:** (2) Slate frags; <10gms

16S2E.2

**Ceramics:** undec. Whiteware
unid. Staffordshire
Pink-Buff body; delaminated
Reduced Greenware

**Glass:** Tableware rim, green, diseased
(5) window 1.3mm
Vessel, green; 1.2mm

**Metal:** (4) Nail frags, 3 finishing
unid Iron mass

**Faunal:** (8) unid; <10gms
ungulate, Scapula blade, <1/2

**Daub:** (2) 30gms

**Lithic:** Flake

16S1E.1

**Pipes:** Bowl; unid 18th c.
Stem; 5/64ths

**Ceramics:** Coarse Black-glaze Redware
(5) unid. Red Earthenware, 1 basal
Lancashire Mottled Manganese
Whiteware; black annular
Fine Black glazed Redware
Whiteware, aqua transfer print

**Glass:** (4) window 1.4mm
melted

**Metal:** unid Iron mass

**Faunal:** (5) unid; 10gms

**Brick:** Type 3

**Lithics:** (3) Slate frags; 10gms

16S1E.2

**Pipes:** Stem; 6/64ths
Stem; 8/64ths

**Ceramics:** (2) unid. Red Earthenware
unid. undec. Slipped Redware, rim
undec. Whiteware
Reduced Greenware
Lancashire Mottled Manganese

Glass:
- Bottle frag
- Tableware rim
- Window frag; 1.4mm melted

Faunal:
- (2) unid

Brick:
- Type 3; 60gms

Lithics:
- Core Rejuv Flake: Prep.
- Blank or Tool: Retouched Flake

16S1E.2a
Metal:
- (4) unid Iron masses, <10gms

Faunal:
- (3) unid <10gms

16S2W.2
Pipes:
- Stem; 7/64ths

Ceramics:
- Coarse Black-glaze redware
- Staffordshire Yellow slip
- Fine "Midlands Purple"

Glass:
- Window; 2mm
- Bottle frag, black

Metal:
- Nail

Faunal:
- Bos Mandible, diastema frag, right, 1/2, chopped
- Bos Phalanx.1, whole, GL54 GBp25 GBd22
- Bos Rib frag, <1/2, chopped
- Bos Ulna, prox, left, <1/2, unfused, chopped (160gms total)

17S6E.1
Glass:
- Vessel, green; 2mm
- Window, green; 1.8mm

Metal:
- unid Iron mass, 66gms alone
- nail

Faunal:
- Bos P2 lower right, whole, ageH
- Bos Phalanx.2, whole, GL38 GBp27 GBd21 chopped

17S5E.1
Ceramics:
- unid. Red Earthenware

Glass:
- Window, 1.8mm
- Vessel

Lithic:
- Slate, <10gms

17S4E.2
Pipe:
- Bowl; Oswald Type 1

Ceramics:
- Reduced Greenware
- Melted

Faunal:
- Bos M3 upper, whole, ageD, GL30, GB16

Lithics:
- Blank or Tool: Retouched Flake
- Debitage

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17S1E.1

**Ceramics:**
- (4) Lancashire Mottled Manganese
- North Devon Gravel Tempered
- Pink-Buff body; black int. only
- Coarse Black-glaze Redware
- unid. Staffordshire paste
- unid. red Earthenware
- undec. Whiteware

**Glass:**
- Vessel, grey
- Vessel, aqua
- Vessel, green
- Window; 1.4mm

**Metal:**
- Nail

**Faunal:**
- (3) unid.

**Brick:**
- (3) Type 1
- (2) Type 3; 30gms

**Daub:**
- <10gms

**Lithics:**
- (2) Slate frags, 10gms

17S1E.2

**Pipes:**
- Stem: 7/64ths +
- Stem: 5/64ths

**Ceramics:**
- Lancashire Mottled Manganese
- Redware; mottled Manganese
- Porcelain, relief deco, blue handpainted
- unid. Red Earthenware
- unid. Staffordshire paste

**Glass:**
- Tableware, aqua
- Window; 1.6mm

**Metal:**
- (2) Turned Window Leads, unmarked

**Faunal:**
- Bos Radial carpal, left, 1/2, chopped

**Brick:**
- (3) Type 1; 35gms

**Lithics:**
- (3) Slate frags; <10gms

17S1E.2a

**Faunal**
- (2) unid; <10gms

17S0E.1

**Pipe:**
- Bowl; w/ spur; 17th c. volume
- Stem; 7/64ths

**Ceramics:**
- Whiteware, blue transfer
- True Buckley
- (2) undec. Whiteware, basal, Belfast mark
- "Everted Rim" ware
- Fine Black glazed redware
- Pink-Buff body; black int + ext.
- Pink-Buff body; delaminated

**Glass:**
- (2) Window; 1.2mm
- Vessel frag.

**Metal:**
- (2) unid Iron masses
- (3) Nail frags, 1 finishing
Faunal: (4) unid.
Brick: Type 1
Lithics: (2) Slate frags

17S0E.2
Pipes: Stem; 7/64thd +
Ceramics: (2) Reduced Greenware
(2) unid. Red Earthenware
"Everted Rim" ware
unid. undec. Slipped Redware
Glass: (2) window; .9mm
Metal: unid Iron mass
(9) Nail frags, 6 finishing 25gms total
Faunal: Bos M1or2 upper, whole, age F, GL25, GB19
unid 35gms total
Daub: 10gms
Lithics: Tool: Small Scraper,

17S1W.1
Pipes: Bowl; 18th c. thickness and volume
   Stem: 5/64ths
   Stem: 7/64ths +
Glass: Tableware, diseased; 1.2mm
   Vessel, Aqua
   (2) window; 1.6mm
Faunal: (5) unid.

17S10W.1
SmallFind: Brass Buckle, cast/engraved, 1.17th-18th c.

17S11W.1
Pipes: Bowl; unid. 18th c.
Ceramics: Fine Black-glazed redware, handle
   Fine Black-glazed Redware, basal; x-mend w/
F53.2a
   Reduced Greenware
   unid. Red Earthenware

18S7E.2
Pipes: Stem; 4/64ths
Ceramics: Reduced Greenware
   (5) Salterstown Yellowslip Sgraffito #2,
   --shallow dish, x-mend
   Reduced Greenware
Glass: Window; 1.4mm
Faunal: Bos Tibia, distal, <1/2
   ungulate metapodial, <1/2, chopped
   30gms total
Lithics: Core: Single Platform; Neolithic 130gms
   Slate frag

18S5E.1
Pipes: Bowl; unid. 18th c.
Ceramics: uned. Whiteware
Lancashire Mottled Manganese
Tin Glaze, undec. cream body
Coarse Black-glazed Redware
undec. Red Earthenware
Glass: Vessel, aqua
Window; 1.8mm
Faunal: (2) unid
Mortar: 10gms
Brick: Type 5; 20gms
Lithics: flake
Slate frag.

18S5E.2
Pipes: Bowl frag; 19th c. diameter
Ceramics: Tin Glaze; undec. cream body
Pink-Buff body; delaminated
Reduced Greenware
Glass: (2) window; 1.2mm
(2) Window; 1.8mm
Metal: (2) Nails
Faunal: (6) unid.
Brick: Type 3
Type 5
Lithics: Core Rejuv Flake:Prep,
Blank or Tool: unfinished
Slate frag.

18S5E.2a
Ceramics: (2) unid. Red Earthenware, base
Glass: (3) window; 1.6mm
Metal: nail
Faunal: (8) unid.

18S1E.1
Ceramics: Staffordshire combed slip
(4) unid. Red Earthenware
(2) undec. Whiteware
Salterstown Red Striated
Coarse Black-glazed Redware
(2) Pink-Buff body; delaminated
Glass: Vessel, green
Tableware, uncolored; 1mm
Window; 1.4mm
Metal: (3) Nails, finishing
Faunal: (3) unid
Brick: (3) Type 1
(2) Type 2
(2) Type 5; 50gms total
Lithics: (4) Slate frags, burned
18S1E.2

**Pipes:** Stem; 5/64ths

**Ceramics:**
- unid. Red Earthenware
- Reduced Greenware, rim
- True Buckley
- Tin Glaze; undec cream body
- Fine "Midlands Purple"
- North Devon Gravel Tempered

**Glass:** Vessel, uncolored

**Metal:** (4) nail frags, 2 finishing
- unid Iron mass

**Faunal:**
- Ovis M3 upper right ageJ

**Brick:** (2) Type 5

18S0E.1

**Ceramics:** Redware; mottled manganese
- Tin Glaze; blue cream body
- Pearlware, relief deco, base
- undec. Whiteware

**Glass:** Window, 1.8mm

**Lithics:** Slate

18S0E.2

**Pipes:** Spur and Stem; Type 12; 5/64ths
- Stem; 4/64ths
- Stem; 8/64ths +

**Ceramics:** Fine Black glazed Redware

**Metal:** Sheet brass scrap
- Spike

**Faunal:**
- Bos M1or2 lower, <1/2, ageJ, GB13

**Brick:** Type 4

**Daub:** 10gms

**Lithics:** Slate; 10gms

18S1W.2

**Pipes:** Bowl frag; 19th c.

**Ceramics:**
- (2) undec. Whiteware
- unglazed Buff body, handle
- undec. Whiteware
- Lancashire mottled Manganese
- Coarse Black-glazed Redware

**Glass:**
- (3) Window; 1.6mm

**Metal:**
- (3) Nail frags
- unid Iron mass

**Faunal:**
- (4) unid; 10gms
- Bos Incisor, lower, whole

**Brick:**
- Type 1
- Type 2
- Type 5

**Lithics:**
- (2) Slate frags; 10gms

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18S2W.2
  Pipes: Bowl; roulette rim, 17th c.
  Glass: Bottle, handblown Whiskey-lip; 19th c.
  Metal: Nail frag
  Faunal: Bos Rib frag, <1/2, chopped
          Bos Thor. Vert., <1/2
          Ovis M1 lower right age G
          Ovis M1 Upper right
          Ovis M2 lower left age F
  45gms total

18S10W.1
  Ceramics: "Everted Rim" ware
            (3) Reduced Greenware
  Metal:    (2) Nail frags; 10gms
  Faunal:   Bos Phalanx 1, <1/2,
            Bos Talus, >1/2, chopped

18S10W.2
  Ceramics: (3) Fine "Midlands Purple"
            Reduced Greenware, rim

18S11W.1
  Pipes: Foot and Stem; 6/64ths
  Ceramics: Fine Black-glazed Redware, basal

19S9E.1
  Ceramics: (2) Coarse Black-Glaze Redware
  Glass:    Bottle, modern
            (2) Window, green, 1.1mm
  Faunal:   (2) unid
  Brick:    (2) Type 2

19S9E.2
  Glass: Window; 1.6mm
         Bottle, green
  Faunal: Ovis M2 lower left age G
            (9) unid; 45gms total
  Brick:   Type 1
  Lithics: Core Rejuvination Flake: Spall

19S8E.1
  Pipes: Stem; 6/64ths +
  Ceramics: (4) Reduced Greenware
            Staffordshire Combed Slip
            undec. Whiteware
  Glass:  (3) Tableware, green; .9mm
            (2) Window; 1.4mm
            uncolored Modern
  Metal:  Horseshoe, complete
          nail
          handwrought architectural staple
(2) unid Iron mass

Faunal: Bos M1or2 upper, whole, ageG, GL27, GB19

Brick: Type 2
Type 4; 10gms total

Lithics: (2) Slate frags

19S8E.2
Pipes: Stem; 8/64ths +
Ceramics: (2) Salterstown yellowlead Redware, rim, 2pc x-mend
Unid. Red Earthenware
(2) Fine Black-glaze redware, ribbed

Glass: (4) Window; 1.4mm
Vessel, green, diseased

Metal: (2) nails, 1 finishing
(2) unid Iron masses

Faunal: (3) unid

Brick: (2) Type 3

Lithics: Flake

19S7E.1
Glass: Window, Modern; 2mm

19S7E.2
Ceramics: Reduced Greenware
Carrickfergus Brownware
(3) Tableware, green
(3) Bottle frags, green
(9) Window; 1.4mm

Metal: (2) Nails
(3) unid Iron masses

Faunal: Bos Metacarpus, prox, left, <1/2, fused, GBp51, chopped (5) unid; 140gms total

19S6E.1
Ceramics: undec. Whiteware
Fine "Midlands" Purple
Fine Midlands Blackware
unid. undec. Slipped Redware
(2) Unid. Red Earthenware
unid. Sgraffito
Staffordshire Mottled Manganese

Glass: Bottle, uncolored
(3) Bottle, green
(3) Window; 1.4mm

Faunal: Bos Scapula, blade, <1/2
(21) unid; 50gms total

Brick: Type 1, burned

Lithics: Core: Core

19S6E.2
Ceramics: Unid. Red Earthenware
Glass: Bottle, green
   (4) window; 1.4mm
Metal: (2) Nail frags; 20gms
Faunal: (8) unid; 40gms
Brick: Type 1
Lithic: Flake

19S6E.2a
Pipes: Stem; 9/64ths
Ceramics: "Lancashire" Mottled Manganese
Metal: (3) Nails
Faunal: Bos M3 upper, whole, age K, GL29, GB19
   Bos OsCentroTarsale, right, <1/2, unfused,
   Bos Phalanx.1, whole, GL50 GBp24 GBd24
   Bos Rib frag, <1/2, chopped
   Ovis Rib, shaft frag, chopped
Lithics: Flake

19S5E.1
Ceramics: "Lancashire" mott. manganese
   Reduced Greenware, basal, 2pc x-mend
   Reduced Greenware, basal, 2pc x-mend
   terra cotta pipe
   undec. whiteware
Glass: Bottle frag
Metal: Nail
Faunal: Bos Mlor2, upper, whole, age K, GL24, GB15

19S5E.2
Ceramics: undec. whiteware
   Fine Midlands Blackware
   Unid. Red Earthenware
   "Willow" pattern
Glass: (4) Window; 1.4mm
   (4) Vessel
Metal: Nail, finishing
Faunal: Ovis Mand, HorizRamus, <1/2
   Ovis P3 lower right age F
   sample, <10gms
Mortar: Slate frag.

19S5E.2a
Pipe: Bowl; Oswald Type 6
Ceramics: "Lancashire" mottled manganese
Glass: (2) Vessel
Metal: (4) nails; 40gms
   Unid. Iron mass
Faunal: (8) unid
19S3E.1
Ceramics: unid. undec. Slipped Redware
  Fine "Midlands" Purple
Glass: Window, Modern
  (2) Bottle, colorless
  Tableware; writhen ribs; .8-1.4mm
  Window; 1.4mm
Metal: Iron Blade?
SmallFind: Modern Battery Core

19S3E.2
Ceramics: Carrickfergus Brownware

19S2E.1
Ceramics: unid. Red Earthenware

19S2E.2
Ceramics: Whiteware
  (2) Salterstown Yellowslip Sgaffito #1, --shoulder, x-mend
Glass: Tableware, deco Loop
  (2) Window; 1.4mm
  Bottle, green
Metal: (8) Nails, 5 finishing
Faunal: (9) unid.; <10gms
Brick: Type 1
  (2) Type 4
Daub: (2); 10gms
Lithics: (2) Flakes
SmallFind: Iron Buckle, Figure-8, harness.

19S1E.1
Ceramics: Whiteware; common cable
  (2) Lancashire Mottled Manganese
  Whiteware, blue transfer
Glass: (2) Bottle, green
  (2) Window; 1.1mm
  Melted
Metal: Nail
Lithics: Core Rejuv Flake: Prep,

19S1E.2
Pipes: Bowl; unmarked 19th c.
  Bowl; unid.
Ceramics: unid. Red Earthenware, base
  Reduced Greenware
Glass: (2) Window; 1.4mm
Metal: (2) Nail, 1 finishing

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Faunal: \textit{unid Iron mass}

Charcoal: (5) \textit{unid; 10gms}

Lithics: (2) \textit{burned wood; 10gms}

Lithics: (2) \textit{Slate frags, burned}

\begin{tabular}{ll}
\textbf{19S0E.1} & \\
\textbf{Pipes:} & \textit{Bowl; hand and heart, 19th c.} \\
\textbf{Ceramics:} & \textit{Salterstown Yellowlead Redware, rim} \\
 & \textit{---x-mend with 14S2E.2} \\
 & \textit{undec. Whiteware} \\
 & \textit{unid. undec. Slipped Redware} \\
 & \textit{unid. Red Earthenware} \\
 & \textit{Coarse Black-glaze Redware} \\
 & \textit{Pink and Buff body; delaminated} \\
\textbf{Glass:} & (3) \textit{Melted} \\
 & \textit{Window; 1.6mm} \\
\textbf{Metal:} & \textit{Nail frag} \\
\textbf{Faunal:} & \textit{Bos M1or2 lower, whole, ageJ, GL24, GB13} \\
 & \textit{Ovis M2 upper left, ageE} \\
 & \textit{Bos Thor. Vert., <1/2, fused, chopped} \\
 & \textit{50gms total} \\
\textbf{Lithics:} & (2) \textit{Slate; burned} \\
\end{tabular}

\begin{tabular}{ll}
\textbf{19S0E.2} & \\
\textbf{Pipes:} & \textit{Bowl; Hand and Heart} \\
\textbf{Ceramics:} & (2) \textit{unid. red Earthenware} \\
 & \textit{Salterstown soft Redware} \\
\textbf{Metal:} & (3) \textit{Nail frags; 1 complete} \\
\textbf{Faunal:} & (4) \textit{unid.} \\
\textbf{Slag:} & \textit{Slag sample <10gms} \\
\end{tabular}

\begin{tabular}{ll}
\textbf{19S1W.1} & \\
\textbf{Ceramics:} & \textit{undec. Whiteware} \\
\end{tabular}

\begin{tabular}{ll}
\textbf{19S1W.2} & \\
\textbf{Pipe:} & \textit{Bowl; 17th c. volume} \\
\textbf{Ceramics:} & \textit{Pink-Buff body; mottled manganese, rim} \\
 & \textit{unid. Red Earthenware} \\
 & \textit{Fine Black-glazed Redware} \\
 & \textit{Reduced Greenware} \\
\textbf{Glass:} & \textit{Tableware, green} \\
 & (3) \textit{Window; 1.1mm} \\
 & \textit{Melted} \\
\textbf{Metal:} & (2) \textit{Nails; 1 cinched; 10gms} \\
\textbf{Faunal:} & \textit{Bos P2 lower right, ageG} \\
 & (12) \textit{unid; 25gms total} \\
\textbf{Lithics:} & (2) \textit{Slate} \\
\textbf{SmallFind:} & \textit{Bone Button, 4-hole} \\
\end{tabular}

\begin{tabular}{ll}
\textbf{19S1W.2a} & \\
\textbf{Ceramics:} & \textit{Salterstown Black-Speckled} \\
\end{tabular}
Glass: Window; 2mm
Faunal: Ovis I1, lower right, whole
         (11) unid; 10gms total
Daub: fired w/ melted slag

19S2W.1
Pipes: Stem: 7/64ths
Ceramics: Carrickfergus Brownware
         (2) unid. Red Earthenware
         Lancashire Mottled Manganese
         True Buckley
         North Devon Gravel Tempered
         Staffordshire Yellow-Slip
         Pink-Buff body; black int + ext.
         (4) Reduced Greenware, 1 rim
         Tin-Glaze; blue, cream body
         Whiteware, "willow" pattern
         Staffordshire Combed Slip
         (3) Coarse Black-glazed Redware
         undec Whiteware
         unid. Sgraffito, shoulder
Glass: Vessel, clear
         (3) Vessel frags, green
         (4) Window; 1.5mm
Metal: (2) Nail, finishing
Faunal: Bos 3rdTarsal, left, >1/2
         ungulate, Metacarpus, prox, <1/2, fused, chopped
         (3) unid; 10gms total
Brick: Type 1
       Type 5
Lithics: (4) Slate frags; 20gms
         Flake
SmallFind: Copper Rivet

19S2W.2
Pipes: Bowl; unid. 18th c.
Ceramics: Lancashire Mottled Manganese
         unid. Red Earthenware
         Fine Black-glazed Redware
         Coarse Black-glaze Redware
         Tin-Glaze; undec. cream body
         (2) Reduced Greenware
Glass: Tubing, handwrought; 8.3mm dia.
         Vessel, green
         Window; 1.6mm
Metal: (5) Nail frags; 2 finishing
Faunal: Bos Metatarsus, distal, left, <1/2, fused, GBd51, chopped
        Bos P2 lower, right, ageJ
        Bos Ramus, <1/2
        Canis Atlas, >1/2 (larger than Boxer in collection)
Ovis M2 upper right, age H
Ovis P4 deciduous, lower left, whole, age H
Ovis P4 deciduous, lower right, whole, age H
(18) unid; 190gms total

Brick: Type 5; <10gms
Small Find: Iron Knife Blade

19S3W.1

Ceramics: Yellowware
unid. undec. slipped redware
undec. whiteware
Yellowware
undec. whiteware

Glass: (2) Window; 1.4mm

Metal: (3) Nail frags; 30gms

Faunal: (5) unid

Brick: (3) Type 2

Slag: sample; <10gms

Lithics: Flake

19S3W.2

Pipes: Stem: 6/64ths
      Stem: 8/64ths

Ceramics: Carrickfergus Brownware
tin glaze, blue cream bod
reduced greenware
N. Devon gravel-temp

Glass: Window; 1.6mm

Melted

Metal: (3) Nails
Rove and Bolt

Faunal: Bos
Humerus, distal, right, <1/2, fused, GBd86, chopped
Bos Mandible, horiz. ramus frag, <1/2, chopped
Bos Rib, dorsal, left, <1/2, chopped
Bos Rib frag, <1/2, chopped
Bos Rib frag, <1/2, chopped
Bos Rib frag, <1/2, chopped
Bos Rib frag, <1/2, chopped
Ovis Humerus, distal, right, 1/2, fused
Ovis Mand. infradental, left, <1/2, chopped
Ovis Rib, dorsal, left, <1/2, chopped
(41) unid; 270gms total

Brick: Type 1
(3) Type 4

Daub: sample <10gms

Slag: sample 20gms

19S4W.1

Pipe: Bowl; unid 18th c.
      Bowl; Oswald Type 4
      Stem: 9/64ths +

Ceramics: Pink-Buff Body; delaminated
Glass: Bottle, green
Tableware; .9mm
Window; 1.4mm
Metal: Nail, finishing
Faunal: (6) unid. 20gms
Brick: Type 5
(2) Type 2; 120gms total
Lithics: Core Rejuv Flake: Prep.

19S4W.2
Pipes: Bowl: Footed belly bowl; 17th c.
Stem: 8/64ths +
Glass: Bottle bottom w/ pontil scar
Tableware rim
(2) Window; 1.2mm
Metal: (4) nail frags; 20gms
Faunal: Bos Ramus,<1/2
  Ovis Humerus,proximal,right, <1/2, unfused,
  chopped
  ungulate Atlas,<1/2
  ungulate Scapula,<1/2
(35) unid; 90gms total
Brick: (2) Type 4; 40gms
Daub: sample; 20gms
Charcoal: (6) frags burned wood
Lithics: Tool: Scraper
Flake

19S5W.1
Pipes: Stem: 6/64ths
Ceramics: Unid. Red Earthenware
Glass: Bottle, green; 3.2mm
Faunal: Sus Rib, 1/2
Brick: (2) Type 1; 30gms
Lithics: Flake

19S5W.2
Pipe: Bowl; unid 18th c.
(2) Stems: 7/64ths
Ceramics: Unid. Red Earthenware
(3) "Everted Rim": 1 w/ stippled waist
Fine Midlands handle
Carrickfergus Brownware
Reduced Greenware
undec. Whiteware
Glass: Melted
(2) Window; 1.6mm
(2) Window; 2.4mm
Metal: (6) Nails, 1 complete; 50gms
Faunal: Bos Lower Orbit, right
Bos P2 lower, left, ageG
Ovis OsCentroTarsale, right
Ovis P1 lower left, whole, ageG
(11) unid. 60gms total

**Brick:** Type 5

**Daub:** (8)

**Charcoal:** (6) burned wood

**Lithics:** (2) Flakes

19S6W.1

**Ceramics:** Unid. Red Earthenware
undeck. Whiteware, shoulder
Carrickfergus Brownware, rim
blue transfer Whiteware
undeck. whiteware, rim

**Metal:** Nail frag

**Faunal:**

Metacarpus, prox, right, 1/2, fused, GBp44, chopped
Bos Metatarsus, prox, right, <1/2, fused, GBp47
(4) unid

**Lithic:** Flake

19S10W.2a

**Ceramics:** Reduced Greenware

19S11W.2a

**Ceramics:** (6) Tin Glaze, purple spattered
Lancashire Mottled Manganese

20S5E.1

**Ceramics:** Reduced Greenware
Unid. Red Earthenware

**Glass:** (2) Bottle, green

**Metal:** (2) Nails, finishing

**Faunal:** Bos M1or2 upper, hand?, whole, ageG, GL27, GB19
Bos M3 upper, 1/2, ageC, GL26
Bos Rib frag, <1/2, chopped

**Lithics:** (4) Slate frags

20S5E.2

**Ceramics:** Unglazed Buff Body
"Lancashire" Mottled Manganese
Reduced Greenware

**Glass:** Window; .9mm
(2) Window; 1.2mm

**Metal:** (5) Nail frags, 1 finishing
Rove and nut; 30gms total

**Faunal:**
Bos Acetabulum, right, <1/2, chopped
Bos IntermRadialCarpal, whole, left
Bos Lumbar Vert., 1/2, unfused, split
Bos Mandible, P2-3, right
Bos P2, lower right, ageD
Bos P3, lower right, age D
Bos Phalanx 1, >1/2, GBd23
Bos Rib frag, <1/2, chopped
Bos Rib frag, <1/2, chopped
Bos Rib frag, <1/2, chopped
Bos Rib frag, <1/2, chopped
Bos Scapula, distal, Right, <1/2, fused, chopped
Gallus Radius, whole right, fused, GL67, GBd7
Gallus Ulna, distal right, 1/2, fused, GBd9
Ovis Rib, shaft frag, chopped
Ovis Rib, shaft frag, chopped
(30) unid; 255gms total

Brick:
Type 2
(4) Type 4

Lithics:
Slate frag

20S4E.2a
Ceramics: Salterstown yellowlead Redware

20S1W.1
Ceramics: (2) Fine Black-glaze Redware, basal
Fine "Midlands" Purple
(2) aqua transfer Whiteware, 2pc x-mend, rim
Staffordshire Slip Trailing
undec. Whiteware
undec. Pearlware
N.Devon gravel-tempered
18th c. Creamware, rim

Glass:
(2) Melted
(2) Vessel; .9mm
Window; 2mm

Metal:
(2) Nail frags
Wire Nail

Faunal:
(3) unid

Daub:
w/ wattle scar; <10gms

Brick:
Type 5

Type 3; <10gms total

Lithics:
(2) frags Slate

20S1W.2
Pipes:
Stem mouthpiece; 8/64ths
Stem 8/64ths

Ceramics:
Unid. Red Earthenware
"Everted Rim"
unid. Staffordshire Paste
unid. Sgraffito
Coarse Black-Glaze Redware
(2) Pink-Buff Body; delaminated

Glass:
Vessel, aqua; 1mm
(3) Window; 1.4mm
(2) Vessel, grey

Metal:
Nail
Faunal:  Bos Incisor, lower, whole
Ovis Humerus, prox, right, <1/2, unfused, chopped
Ovis Metatarsus, prox, left, <1/2, fused, GBp15
(16) unid; 25gms total
Brick:  (3) Type 2; 80gms total
Mortar:  w/ melted glass fused on; 70gms
Slate:  sample; <10gms
SmallFind: Coin; 1904 Edward H'penny

20S2W.1
Ceramics:  (2) Reduced Greenware
(2) Coarse Black-Glaze Redware
undec. Whiteware
aqua transfer Whiteware, rim
Whiteware, black transfer whiteware
Glass:  Bottle, green
Window; 1.4mm
Window; 1.6mm
Metal:  (2) Nails, complete
Nail frag, finishing
Iron Blade frag
Light chain, modern
Faunal:  (4) unid.
Brick:  (3) Type 2; <10gms
Lithics:  Slate frag

20S2W.2
Pipe:  Spur + Stem; 5/64ths
(3) Stems 7/64ths
Stem 4/64ths
Ceramics:  (7) Unid. Red Earthenware
(2) Carrickfergus Brownware
Tin Glaze, blue, cream body
(4) Reduced Greenware
(5) "Everted Rim"
Fine Black-glaze Redware
(3) Fine "Midlands" Purple
"Lancashire" mott. manganese
undec. Whiteware
undid. Sgraftito, rim
Coarse Black-Glaze Redware
Salterstown Black Speckled
Glass:  (3) Bottle, green
(3) Window; 1.6mm
Tableware, brtown; .8mm
(2) Tableware; 1.0mm
(7) Window; 1.4mm
Metal:  (29) Nail Frags; 16 finishing
Iron wire, flat in section
Sheet brass alloy; 1.5cm x 2.3cm
Faunal:  Bos Mandible, condyle process, left, 1/2, chopped
Bos M2 lower right 1/2, age D
Bos P2, lower, left, age A
Bos Phalanx. 2, > 1/2, GL33 Gbp23 GBd19 chopped
Bos Scapula, shaft, < 1/2, chopped
Ovis Scapula blade, < 1/2
ungulate Scapula, < 1/2
(82) unid; 250gms total

**Brick:**
(4) Type 1
(5) Type 4
(4) Type 2; 465gms total

**Daub:**
(8) frags; 145gms

**Slag:**
unid Slag

**Lithics:**
Core Rejuv Flake: Prep.
Flake

20S3W.1

**Ceramics:**
(4) Whiteware, pink + white relief, basal 3pc x-mend
Coarse Black-Glaze Redware

**Metal:**
(2) Nail frags, 1 finishing

20S3W.2

**Pipe:**
Bowl; 17th c. vol.
Bowl; unid 18th c.
Stem; 7/64ths +

**Ceramics:**
(3) Reduced Greenware
(3) Fine Black-glaze Redware, basal
Tin Glaze, rose bodied
(2) Unid. Red Earthenware, 1 base
Unglazed Buff rim
Fine "Midlands" Purple

**Glass:**
Bottle, green
Melted
(2) Window; 1.4mm

**Metal:**
Nail frag, finishing

**Faunal:**
Bos Phalanx. 1, < 1/2
Ovis M1 upper left age G
25gms total

**Lithics:**
Slate; < 10gms

**Small Find:**
Token; 1672 Mic. Wilson

20S3W.clay

**Faunal:**
Ovis Calcaneus, right, < 1/2, chopped
Ovis Mand. Ramus, < 1/2, chopped

20S4W.1

**Pipes:**
Stem: 5/64ths
Stem: 7/64ths

**Ceramics:**
Salterstown Black Speckled, rim, 2pc x-mend
Staffordshire slip trailed

**Metal:**
(2) Nail frags, 1 cinched

**Faunal:**
ungulate Phalanx. 3, < 1/2

**Lithics:**
(2) Slate frags
20S4W.2

**Pipes:** Stem: 8/64ths
(2) Stems: 7/64ths

**Ceramics:**
(2) Unid. Red Earthenware
(3) Reduced Greenware
(2) "Everted Rim", 2pc x-mend
Carrickfergus Brownware
undec. Whiteware, rim
Fine Blackglaze Redware

**Glass:**
Bottle, green
(4) Window; 1mm

**Metal:**
(6) Nail frags; 2 finishing
unid Iron mass

**Faunal:**
Calcaneus, left, whole, fused, GL117, GB37, chopped
Bos Cerv. Vert. ,<1/2
Bos Humerus, prox, right, <1/2, fused, chopped
Bos Innominate frag, left, <1/2, chopped
Bos Innominate frag, <1/2, chopped
Bos Lumbar Vert. ,<1/2, split
Bos M1or2 lower, whole, ageK, GL20, GB13
Bos M3, lower left, >1/2 ageF, GL30, GB14
Bos Mandible, empty tooth row, chopped
Bos Metacarpus, distal, left, <1/2, fused, Gbd49, chopped
Bos Phalanx. 3, whole, left, GDL60
Bos Talus, whole, right, GL59 chopped

**Brick:**
(2) Type 5; 55 gms

**Slag:**
unid Slag; <10gms

**Lithics:**
(4) Flakes
Blank or Tool: Retouched Flake
Slate frag

**SmallFind:**
Brass handwrought Thumb-Tack
Possible Gaming Counter, smooth discoid pebble

20S4W. below clay

20S5W.1

**Ceramics:**
Porcelain, undec. rim
Reduced Greenware
blue transfer Whiteware

**Glass:**
Window; 1mm

**Metal:**
(2) Nail frags, finishing

20S5W.2

**Pipes:**
Stem: 4/64ths

**Ceramics:**
Fine Black-glaze Redware, handle
"Everted Rim"

**Glass:**
Melted
Metal: 20S5W.2a
Faunal: unid
Daub: (2) frags; 10gms

20S5W.2b
Lithics: Core Rejuv Flake: Prep.

20S5W.below clay
Pipe: Foot + Stem 7/64ths
Ceramics: "Everted Rim"

21S5E.2
Faunal: Bos Cranium (14 frags, single animal), right.

21S5E.2a
Metal: (2) Nail frags; <10gms
Faunal: Bos Patella, distal, right, chopped
Bos Rib frag, <1/2, chopped
Bos Rib frag, <1/2, chopped
(7) unid: 175gms total
Daub: sample: 10gms

21S4E.1
SmallFind: Iron Knife Blade 17th c?

21S2E.2
Pipes: Stem: 7/64ths +
Stem: 6/64ths
Ceramics: Fine Black-glaze Redware
Reduced Greenware
Salterstown Black Speckled
unid. undec. Slipped Redware
Unid. Red Earthenware
Glass: Tableware rim, aqua; 1.9mm
Melted
Window; 1.4mm
Metal: Nail frag, finishing
Lithics: Thumbnail Scraper, early Bronze Age
SmallFind: Lead/ White metal Button, mount integral in casting, vestigial fabric cover on face; 8mm dia; 1.7mm thick at rim.

21S1E.1
Ceramics: Carrickfergus Brownware
undec. Whiteware
Glass: Bottle, uncolored
Melted
Window; 1.8mm
Metal: Nail
(3) unid Iron masses; 25gms total
Faunal: (2) unid; 20gms
Brick: Type 2; 315gms
Lithics: Slate; 10gms

21S1W.1
Ceramics: undec. Whiteware

21S1W.2
Ceramics: Unid. Red Earthenware
Purple striated stoneware
"Everted Rim"
Glass: Tableware, wrythen ribbed w/ rim
Metal: Nail
Unid Iron Mass
Faunal: Bos Phalanx.2, whole, GL36 GBp22 GBd19 chopped
Bos Femur, prox, left, <1/2, chopped
Brick: Type 2
SmallFind: Coin; 1881 Victoria H'penny

21S2W.1
Pipes: Stem: <4/64ths!
Ceramics: (2) Fine Black-glaze Redware
(2) blue transfer Whiteware
Pink-Buff Body; delaminated
aqua transfer Whiteware, rim
Pink-Buff Body; black int + ext.
(2) undec. Whiteware, 1 rim
"Willow" patten, rim
Unid. Red Earthenware
Glass: Bottle, neck, green
(2) Bottle, clear
Tableware, clear; .8mm
(4) Window; 1.4mm
Metal: Spike
(2) Nails, finishing
Faunal: Bos M3 lower left >1/2, ageF, GL33, GB14
Bos M3 lower right, >1/2 ageF, GL33, GB14
60gms total
Slag: unid Slag; 30gms
SmallFind: Brass Button, cast-in loop; 19th c

21S2W.2
Pipes: (2) Stems: 7/64ths +
Ceramics: (2) Unid. Red Earthenware
Purple striated stoneware
True Buckley
(2) Reduced Greenware
Fine Black-glaze Redware
N. Devon gravel-tempered

Glass: Bottle, green
Window; 1.7mm
(4) Window; 1.4mm
Metal: (15) Nail frags; 9 finishing
Faunal: Bos Cerv. Vert., <1/2, chopped
Bos M1or2 lower, whole, age G, GL23, GB11
Bos M1or2 upper, >1/2, age H, GL21
35gms total
Charcoal: sample; <10gms
Brick: Type 4; 25gms
Daub: <10gms

21S3W.1
Ceramics: Unid. Red Earthenware, base or rim
Metal: (4) Barbed Wire frags; modern
Nail frag
Brick: (2) Type 2; 120gms
Slag: sample; 70gms

21S3W.2
Pipe: Bowl; Oswald Type 12; 5/64ths
Ceramics: N. Devon gravel-tempered
Pink-Buff Body; delaminated
Glass: (2) Window; 1.7mm
(2) Window; 1.4mm
Metal: Nail frag; finishing
Slag: unid Slag; 40gms
Small Find: Iron Handle, 18th c.

21S3W.2, above clay
Ceramics: Coarse Black-Glaze Redware
Unid. Red Earthenware

21S4W.1
Ceramics: Reduced greenware, rim
Glass: (3) Window; 1.4mm
Metal: wire strand
Brick: Type 2; 105gms
Lithics: Slate frag; 30gms

21S4W.2
Pipes: Stem; 8/64ths
Ceramics: Tin Glaze, undec, cream body
Pink-Buff Body; black int + ext.
(2) Reduced Greenware
unid. undec. Slipped Redware
N. Devon gravel-tempered
Glass: (2) Melted
Window: 1.4mm
Bottle, purple, 19th c.

**Metal:** Staple, handwrought architectural
Rove and Bolt
(3) finishing Nails

**Faunal:**
Bos Disiduous, whole, age C
Bos P3 upper, age F
Bos Phalanx, 1,<1/2, 25gms total

**Brick:**
Type 8
(2) Type 4

**Lithics:** Core Rejuvenation Flake: Spall
Slate frag, 10gms

21S4W.2a

**Faunal:**
Ovis Cranium, foramen magnum
basion, unfused, split

**Daub:**
(3) samples; 90gms

21S4W.clay

**Faunal:**
Sus M3, age A, GL18, GB9
Sus M3, age C, GL17, GB9
Sus P2, age A

21S5W.1

**Ceramics:** unid. Staffordshire paste
**Metal:** (2) Iron wire frags
**Faunal:** Bos M3 lower left, >1/2, age F, G, <3, GB13

21S5W.2

**Pipes:**
(2) Stem: 7/64ths +
Stem 4/64ths

**Ceramics:** "Everted Rim", basal
unid. Sgraffito
Carrickfergus Brownware
(2) Unid. Red Earthenware
undec. Whiteware
Staffordshire Combed-slip, rim
Pink-Buff Body; delaminated

**Glass:**
Tableware
(3) Window; 1.4mm

**Metal:**
(3) Nail frags
Rove and Bolt

**Faunal:**
ungulate metapodial, <1/2, chopped
Bos Calcaneus, right, <1/2,
Bos M2 upper right 1/2, age C
Bos Radius, prox, right, <1/2, fused, GBp68, chopped

Bos Tibia, distal, right, <1/2, fused,
GBd57, chopped
Ovis M2 lower left, age F
Ovis M2, lower left, age D
ungulate vert., <1/2, chopped
Brick:
Daub:
Lithics: Flake
     Slate frag

21S5W. below clay
Metal: Nail, finishing
Faunal: Bos OsCentroTarsale,right,<1/2,unfused,GBd44
        Ovis I2,lower left

22S2E.1
Ceramics: Unid. Redware
Glass: Bottle, uncolored, modern
       Tableware, rim, wrythen ribbing; .7-1.5mm

22S2E.2
Ceramics: "Lancashire" Mottled Manganese
Reduced Greenware
       unid. Sgraffito
Carrickfergus Brownware
Glass: Melted
Metal: (4) unid Iron masses; 25gms
Lithics: (2) flakes

22S1E.1
Pipes: Stem, 7/64ths
Metal: Nail, cinched
Lithics: Slate frag; 10gms

22S1W.1
Pipes: Stem, 8/64ths
Ceramics: red+green transfer Whiteware
Glass: Unid. Red Earthenware
Faunal: Bos M3 lower left whole, ageE, GL33, GB12
Brick: Type 4; 20gms

22S1W.2
Ceramics: Carrickfergus Brownware
"Lancashire" Mottled Manganese
Glass: Window; 1.6mm
Metal: (2) Nail frags, finishing
Faunal: Bos Radius, prox, right,<1/2, fused, GBp68, chopped

        Bos Innominate frag,<1/2, chopped
        Bos Phalanx.1,1/2,
        Bos Tibia, distal, left,<1/2, fused, chopped
        Ovis M1 lower left ageG
        Ovis M1 lower right, ageG
        Ovis M3, lower right, whole, ageB, GL20, GB7
145gms total
Brick: (6) Type 4
(2) Type 5; 175gms total

22S2W.1
Ceramics: Unid. Red Earthenware
          Coarse Black-Glaze Redware
          Fine Black-glaze Redware, handle
Glass: Window; 1.1mm
Metal: Nail Frag
Faunal: Bos M1or2, upper, whole, ageC, GL22, GB16
Brick: (2) Type 4; 50gms

22S2W.2
Pipes: Stem, 8/64ths
Ceramics: (2) N.Devon gravel-tempered, 1 rim
          True Buckley
          Carrickfergus Brownware
          unid. Sgraffito
Glass: Tableware, grey
       Tableware, green, rim
       (2) Window; 1.2mm
Metal: (4) Nail frags, 1 finishing
Faunal: Bos Rib frag,<1/2, chopped
        Bos M3 upper, whole, ageA, GL26, GB14
        Ovis M2, lower right, ageC
        Ovis M2 lower right, ageG
        Ovis M2 upper left ageE
        Ovis M3, lower left, whole, ageA, GL19, GB6
        Ovis Mand. Condyle Process, right, 1/2, chopped
        Sus Rib, <1/2
80gms total
Brick: Type 1

22S2W.2a
Faunal: Ovis M1 lower left, erupting
        Ovis M2 lower left, erupting, GL16.7, GB6.4
        Ovis Mand. tooth row P2-M2, left
        Ovis P2, lower left, ageA
        Ovis P3 lower left, ageA

22S3W.1
Pipe: Bowl; hand + heart 19th c.
Ceramics: Reduced Greenware
          Fine Midlands Blackware
Glass: Tableware, green; 2.5mm
Metal: Nail frag, finishing
Faunal: unid

22S3W.2
Pipe: Bowl; Oswald Type 6
Glass: Rhoemmer base w/ pinch and roll applied deco
       Bottle, green
       Melted
       (4) Tableware .6mm
Metal: (2) Nail frags
       (3) undid Iron masses; 95gms total
Faunal: Bos distal, right, <1/2, fused, GBd56, chopped
        Bos Talus, <1/2, chopped
        Bos Tibia, distal, right, <1/2, fused,
        Ovis Rib, shaft frag, chopped
        200gms total
Brick: Type 2
       Type 4; 110gms total
Lithics: Flake

22S3W.2a
Ceramics: Tin Glaze, rose bodied
Glass: Vessel; 1mm
Faunal: Ovis M1 lower right, ageE
        Ovis M2, lower right, ageB
        Ovis M2 lower right, ageE, GL13.3, GB6
        Ovis Mand, tooth row P1-M2, right
        Ovis P1 lower right, ageE
        Ovis P2 lower right, ageE
        Ovis P3 lower right, ageE
        Ovis Rib, dorsal, left, <1/2, chopped
        60gms total
Daub: (2) samples; 50gms

22S4W.1
Pipes: Stem, 6/64ths +
       Stem, 5/64ths
Ceramics: Pearlware, blue transfer, rim
          (2) undec. Whiteware
          Reduced Greenware
Metal: Wire Nail
Brick: Type 3; 190gms

22S4W.2
Pipes: Stem, 8/64ths +
Ceramics: Coarse Black-Glaze Redware
        Unid. Red Earthenware
        "Lancashire" Mottled Manganese
Glass: Tumbler, uncolored, modern
       (4) Bottle, green
       Window; 1.4mm
(3) Tableware; .7mm, 2 stemware basal rims w/ folded rim
melted

**Metal:**
(2) Iron straps
(4) Nail frags
Lead sheet scrap

**Faunal:**
Bos OsCentroTarsale,right,<1/2,unfused
Bos P2,upper,left,ageD
Bos Phalanx.2,whole,GL38,GBp26 GBd24 chopped
Bos Phalanx.3,whole,left,GBD60
ungulate vert.,<1/2,chopped
90gms total

**Brick:**
Type 1
(5) Type 4; 125gms

**Lithics:**
Blank or Tool: possible microlith
(2) debitage
Slate frag; <10gms

**22S5W.1**

**Ceramics:** "Lancashire" Mottled Manganese
Reduced Greenware
Coarse Black-Glaze Redware

**Glass:** Bottle, green

**Brick:** Type 7

**22S5W.2**

**Pipe:**
Bowl; unid 18th c.

**Ceramics:** Pink-Buff Body; delaminated
Carrickfergus Brownware
(2) "Everted Rim", handle, 2pc x-mend
Reduced Greenware
Fine Black-glazed Redware, handle
Unid. Red Earthenware

**Metal:** Hand-Wrought Rove/Nut

**Faunal:**
Bos Talus,>1/2,chopped
Bos Mlor2 lower,whole,ageA,GB23,GB11
(3) unid; 35gms total

**Daub:** sample, <10gms

**23S3W.1**

**Ceramics:** undec. Whiteware, basal

**Glass:** Window; .9mm

**Metal:** unid Iron mass

**Faunal:**
Bos Ramus,<1/2,
(5) unid; 20gms total

**23S4W.1**
Ceramics: undec. Whiteware
  Pink-Buff Body; black int. only
  Unid. Red Earthenware, base or rim
  Pearlware, shelledge, rim
Metal: Nail frag
Brick: Type 3

23S5W.2a
Pipe: Bowl; Oswald Type 2
Ceramics: Pink-Buff Body; delaminated
Metal: (5) Nail frag, 3 finishing
Faunal: Bos Rib frag, <1/2, chopped
  (4) unid; 40 gms total
Brick: Type 3
Lithics: Slate frag; <10gms

23S6W.1
Pipes: Stem, 8/64ths +
Ceramics: undec. Whiteware
  Coarse Black-Glaze Redware
  N.Devon gravel-tempered
Brick: (2) Type 5; 10gms

24S7E.1
Pipe: Spur + Stem Oswald Type 12, 7/64ths
  Stem, 7/64ths
Ceramics: Fine Black-glaze Redware

24S7E.2
Glass: (2) Window, modern; 2.6mm
  Window; 1.6mm
Metal: (2) Nail frags, finishing
Faunal: Bos Mandible, diastema frag, left, <1/2, chopped
  (9) unid; 30gms total
Brick: Type 4
Lithics: Flake
  Slate frag.

24S6E.1
Ceramics: blue transfer Whiteware, rim
  undec. whiteware
Glass: Bottle, aqua lip, 19th c.
Brick: Type 7; 25gms

24S6E.2
Pipes: Stem, 7/64ths

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Ceramics: "Lancashire" Mottled Manganese
Pink-Buff Body; black int + ext.
Reduced Greenware
(2) Coarse Black-Glaze Redware

Glass: Bottle, uncolored neck
(6) Window; 1.4mm

Metal: Brass strap

Faunal: (3) unid; 15gms

Brick: Type 3; <10gms

Lithics: Core Rejuvenation Flake: Decortical Flake
(4) Flake

24S5E.1
Lithics: Flake
Slate frag; 10gms

24S3E.1
Metal: Nail frag; <10gms
Faunal: Bos Metacarpus, prox, right, <1/2, fused, chopped
Brick: Type 3; 10gms

24S3E.2
Pipes: Stem, 6/64ths +
Ceramics: undec. Whiteware
Glass: Melted
Metal: (8) Nail frags; 4 finishing
Faunal: (5) unid, 15gms
Mortar: (2) samples; 35gms
Lithics: Slate frag; 10gms

24S2E.1
Ceramics: unid. undec. Slipped Redware
Faunal: unid; <10gms
Brick: Type 7
Type 4; 35gms total

24S2E.2
Ceramics: Fine Black-glaze Redware
Glass: Window; .9mm
Window; 1.4mm
Bottle, green
Metal: Nail, finishing
Faunal: (2) unid; <10gms
Brick: (2) Type 4; 30gms
Daub: 10gms
Slag: sample; 40gms
Lithics: (2) Flakes
Slate frag.

24S1E.1
Ceramics: "Willow" pattern, Whiteware
Unid. Red Earthenware
unid. undec. Slipped Redware, rim
18th c. Creamware, rim

Glass:
Window; 1.4mm

24S1E.2
Pipes: Stem, 7/64th +
Ceramics: unid. undec. Slipped Redware
Salterstown Hard Red Striated
Glass: Tableware, wrythen ribbed w/ rim
Tableware; 1.2mm
Window; 1.6mm
Metal: (3) Nail frags; 1 finishing
Iron blade
Faunal: (2) unid; <10gms
Brick: (2) Type 3
Lithic: (2) Slate frags, burned; 25gms

24S0E.1
Ceramics: Salterstown soft Redware
Fine Black-glaze Redware, handle
(2) blue transfer Whiteware, 2pc x-mend
undec. Whiteware
unid. undec. Slipped Redware
Purple striated stoneware

24S0E.2
Ceramics: Purple striated stoneware
terra cotta pipe
undec. Whiteware
N.Devon gravel-tempered
Glass: Aqua; 1.4mm
Window; .9mm
Faunal: unid; <10gms
Brick: Type 4; 10gms

24S1W.2
Pipes: Stem, 8/64ths +
Ceramics: Coarse Black-Glaze Redware
"Everted Rim"
Glass: (2) Window; 1.2mm
Metal: Nail; 15gms
Faunal: (2) unid <10gms
Lithics: Core: Core water softened
(2) Slate frags

24S1W.2a
Faunal: unid; 15gms
Lithics:debitage

24S2W.1
Pipes: Stem, 8/64ths +
Stem, 6/64ths

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<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ceramics</strong></td>
<td>Pearlware, undeco.</td>
</tr>
<tr>
<td></td>
<td>Carrickfergus Brownware</td>
</tr>
<tr>
<td></td>
<td>Pearlware, blue, scrolled rim</td>
</tr>
<tr>
<td></td>
<td>Tin Glaze, blue, cream bod</td>
</tr>
<tr>
<td></td>
<td>Coarse Black-Glaze Redware</td>
</tr>
<tr>
<td></td>
<td>Pink-Buff Body; delaminated</td>
</tr>
<tr>
<td><strong>Metal</strong></td>
<td>Nail; 10gms</td>
</tr>
<tr>
<td><strong>24S2W.2</strong></td>
<td>Coarse Black-Glaze Redware</td>
</tr>
<tr>
<td></td>
<td>(2) Fine Black-glaze Redware</td>
</tr>
<tr>
<td></td>
<td>blue transfer Whiteware</td>
</tr>
<tr>
<td><strong>Faunal</strong></td>
<td>(2) unid; &lt;10gms</td>
</tr>
<tr>
<td><strong>Brick</strong></td>
<td>(3) Type 4</td>
</tr>
<tr>
<td></td>
<td>Type 2; 255gms total</td>
</tr>
<tr>
<td><strong>24S3W.1</strong></td>
<td>undec. Whiteware</td>
</tr>
<tr>
<td><strong>24S3W.2</strong></td>
<td>Reduced Greenware</td>
</tr>
<tr>
<td></td>
<td>Coarse Black-Glaze Redware</td>
</tr>
<tr>
<td><strong>Glass</strong></td>
<td>(2) Window; 1.0mm</td>
</tr>
<tr>
<td></td>
<td>(2) Window; 1.4mm</td>
</tr>
<tr>
<td></td>
<td>(2) Vessel, green</td>
</tr>
<tr>
<td><strong>Metal</strong></td>
<td>(4) Nail frags; 25gms</td>
</tr>
<tr>
<td><strong>Faunal</strong></td>
<td>Equus P3 lower right, age D?</td>
</tr>
<tr>
<td></td>
<td>(3) unid; 40gms total</td>
</tr>
<tr>
<td><strong>Slag</strong></td>
<td>unid Slag; 10gms</td>
</tr>
<tr>
<td><strong>Lithics</strong></td>
<td>Slate; &lt;10gms</td>
</tr>
<tr>
<td><strong>24S4W.1</strong></td>
<td>Reduced Greenware</td>
</tr>
<tr>
<td></td>
<td>Pink-Buff Body; delaminated</td>
</tr>
<tr>
<td></td>
<td>undec. Whiteware</td>
</tr>
<tr>
<td></td>
<td>Coarse Black-Glaze Redware</td>
</tr>
<tr>
<td></td>
<td>Whiteware, pink + white, relief, basal</td>
</tr>
<tr>
<td></td>
<td>unid. undec. Slipped Redware</td>
</tr>
<tr>
<td><strong>Faunal</strong></td>
<td>Bos Mior2 lower, whole, age K, GL22, GB12</td>
</tr>
<tr>
<td></td>
<td>Bos Mior2 upper, whole, age H, GL24, GB16</td>
</tr>
<tr>
<td></td>
<td>25gms total</td>
</tr>
<tr>
<td><strong>24S4W.2</strong></td>
<td>Salterstown yellowslip Sgraffito #2</td>
</tr>
<tr>
<td></td>
<td>N. Devon gravel-tempered</td>
</tr>
<tr>
<td></td>
<td>Unid. Red Earthenware</td>
</tr>
<tr>
<td></td>
<td>Coarse Black-Glaze Redware</td>
</tr>
<tr>
<td><strong>Glass</strong></td>
<td>Bottle, green shoulder</td>
</tr>
<tr>
<td></td>
<td>Bottle, black</td>
</tr>
<tr>
<td></td>
<td>Window; 1.4mm</td>
</tr>
</tbody>
</table>
Window; 2.3mm

**Metal:** Nail frag; 15gms

**Faunal:** (3) unid: 10gms

**Brick:** Type 3
(2) Type 4; 75gms

Type 2, pre-drilled, then fired

**Lithics:** Tool: Scraper
Slate frag; <10gms

24S5W.1

**Ceramics:** (2) Unid. Red Earthenware

**Glass:** Bottle, green, basal

**Faunal:** Bos M1or2 upper, whole, age C, GL26, GB17

unid; 35gms total

24S5W.2

**Ceramics:** Reduced Greenware

24S6W.1

**Pipes:** Stem, 5/64ths +

**Ceramics:** Unid. Red Earthenware, base or rim
(2) unid. undec. Slipped Redware, 1 rim

Whiteware, blue handpainted, rim

Yellowware; relief deco
(2) blue transfer Whiteware, 1 rim

Fine "Midlands" Purple

**Metal:** Iron sheet/blade 30cm X 23cm
(3) Nail frags

**Faunal:** Bos P3, lower, left, age C

Bos Phalanx.2, 1/2, chopped; 25 gms total

**Daub:** sample 40gms

**Lithics:** (2) Slate frags

**DIAGONAL TRENCH**

1-2m.1

**Ceramics:** "Everted Rim", handle, 2pc x-mend

Fine Black-glazed Redware

Coarse Black-Glaze Redware
(4) Unid. Red Earthenware

Staffordshire combed slip

Mottled Manganese redware

Iberian storage
(2) Reduced Greenware

**Glass:** (3) Window; 1.5mm

Vessel, green

**Metal:** (4) Nail frags; 50gms

**Faunal:** Bos M1or2 lower, whole, age K, GL22, GB12

Bos M1or2 lower, >1/2, age J, GB13

Ovis M2 upper right, age E
Brick: Type 1
Type 3
(3) Type 2
Daub: 2 samples; 10gms
Lithics: (2) Flakes

2-3m.1
Ceramics: Fine Black-glaze Redware
(2) N.Devon gravel-tempered
Glass: Burned Window; 1.8mm
Bottle, black
Metal: (2) Nail frags; <10gms
Brick: (3) Type 3
(2) Type 4
Lithics: Core Rejuvination Flake

3-4m.1
Ceramics: Pearlware, bluehandle
Fine Black-glaze Redware
Unid. Red Earthenware
Glass: Window; 1.4mm
Metal: (5) Nail frags; 40gms
Faunal: Bos P2 lower right, whole, ageH
Ovis M2 lower left ageG
Sus P3, ageA
50gms total
Brick: Type 1
Type 2
Type 5
Daub: 2 samples
Slag: unid. Slag; 10gms

4-5m.1
Pipes: (2) Stems, 8/64ths
Ceramics: "Everted Rim"
(2) unid. Sgraffito, rim and shoulder, 2pc
x-mend
Reduced Greenware
Glass: (3) Window; 1.4mm
Window; 1.9mm
Window; 1mm
Window; 2.3mm
Metal: Nail frag
Faunal: (8) unid; 30 gms
Brick: Type 4
(6) Type 3; 100gms total
Lithics: Flake

5-6m.1
Ceramics: (2) Reduced Greenware, 1 rim
(2) Pink-Buff Body; delaminated
Fine Black-glaze Redware
Glass:
Faunal:
Brick:
Lithics:

6-7m.1
Pipes:
Ceramics:
Glass:
Metal:
Faunal:
Brick:
Lithics:

7-8m.1
Pipes:
Ceramics:
Glass:
Metal:
Faunal:
Brick:
Lithics:

8-9m.1
Pipes:
Ceramics:

Coarse Black-Glaze Redware
(2) "Everted Rim", 1 rim
Salterstown soft redware
Rhenish Salt-glazed Stoneware
(3) Window; 1.4mm; burned
unid, burned
Type 1
Type 2; 350gms total
Slate frag

Stem, 8/64ths
(3) Coarse Black-Glaze Redware
Salterstown soft redware
Salterstown Hard Red Striated Reduced Greenware, rim
(2) Window; 1mm; 10gms
Nail frag
Bos Incisor, lower, whole
Bos M3 upper, >1/2, ageE, GL26, GB17
Bos Rib frag, <1/2, chopped
70gms total
Type 2; 70gms
Core Rejuvenation Flake

Stem, 7/64ths +
"Everted Rim"
(2) unid. Staffordshire paste
undec. Slipped Redware
undec. Whiteware, basal
Pink-Buff Body; black int + ext.
blue transfer Whiteware
Bottle, diseased
Window, burned; 1mm
Window: 1.7mm
(4) Nails, 1 cinched
undec Iron mass
Bos Ilium, shaft, left, <1/2, chopped
Bos M3 upper, whole, ageD, GL28, GB16
Bos Metacarpus, prox, left, <1/2, fused, GBp47
100gms total
(2) Type 2; 100gms
Slate frag

Stem, 6/64ths
Stem, 9/64ths
Tin Glaze, undec. cream body
Unid. Red Earthenware
"Willow" pattern Whiteware
<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glass</td>
<td>Vessel, wrythen ribbed; .6-1.4mm</td>
</tr>
<tr>
<td>Metal</td>
<td>(3) Nail frags</td>
</tr>
<tr>
<td>Faunal</td>
<td>Bos Incisor, lower, whole (4) unid; 30gms</td>
</tr>
<tr>
<td>Slag</td>
<td>unid slag w/ fused glass; 50gms</td>
</tr>
<tr>
<td>9-10m.1</td>
<td>Bowl; 17th c. vol.</td>
</tr>
<tr>
<td></td>
<td>Bowl; unid 18th c.</td>
</tr>
<tr>
<td></td>
<td>Stem, 5/64ths</td>
</tr>
<tr>
<td></td>
<td>Stem, 7/64ths +</td>
</tr>
<tr>
<td>Ceramics</td>
<td>Pink-Buff Body; mottled manganese unid. Staffordshire paste</td>
</tr>
<tr>
<td></td>
<td>Fine &quot;Midlands&quot; Purple</td>
</tr>
<tr>
<td></td>
<td>Coarse Black-Glaze Redware</td>
</tr>
<tr>
<td></td>
<td>&quot;Everted Rim&quot;</td>
</tr>
<tr>
<td></td>
<td>Reduced Greenware</td>
</tr>
<tr>
<td></td>
<td>Staffordshire yellow slip</td>
</tr>
<tr>
<td></td>
<td>Salterstown Hard Red Striated</td>
</tr>
<tr>
<td>Glass</td>
<td>Melted Window; 1.4mm</td>
</tr>
<tr>
<td></td>
<td>Vessel, green</td>
</tr>
<tr>
<td></td>
<td>Stemware, basal, folded rim, grey</td>
</tr>
<tr>
<td></td>
<td>Tableware, wrythen ribbed, green</td>
</tr>
<tr>
<td>Metal</td>
<td>(2) Nail frags</td>
</tr>
<tr>
<td>Faunal</td>
<td>Bos Mior2 upper, whole, ageH, GL28, GB20 (8) unid; 70gms total</td>
</tr>
<tr>
<td>Brick</td>
<td>(4) Type 5</td>
</tr>
<tr>
<td>SmallFind</td>
<td>Iron Knife w/ tang e.17th c.</td>
</tr>
</tbody>
</table>

**FEATURES**

**F1 (13S1-3E)**
- Ceramics: Pink-Buff Body; black int + ext.  
  - (2) undec. Whiteware  
  - Staffordshire paste  
  - "Everted Rim"  
- Glass: (4) Window; 1.4mm  
- Metal: (2) Nail frags  
- Faunal: (7) unid; 10gms  
- Charcoal: (4) burned wood  
- Slag: unid slag; <10gms  
- Lithics: Slate frag

**F3.a (12S3E.2a)**
- Pipes: Stem, 8/64ths  
- Faunal: Bos Metatarsus, distal, left, <1/2, fused, GBd44, chopped  
  - Bos Mior2 lower, whole, ageB, GL24, GB10  
  - ungulate Scapula, <1/2  
  - 85gms total  
- Daub: 20gms
F3.b (12S3E.2b)
Pipe: Bowl; Edinburgh; Oswald Type 1
Glass: (3) Window; 1.4mm
Window; .8mm
Metal: (5) Nail frags, finishing
Faunal: Bos Radius, distal, right, >1/2, unfused, GBd49
Bos M2, lower, age B
Bos Mandible, M2, chopped
Bos Metacarpus, prox, right, <1/2, fused, GBp46, chopped
Bos Phalanx.1, whole, GL54 GBp27 Gbd25
Ovis Horn Core
ungulate, Scapula, diseased, <1/2
Mortar: Large sample; 380gms
Plaster: sample; 10gms
Charcoal: burned worked lumber

F5 (19S4E)
Brick: Type 4; 10gms
Daub: (6) samples; 35gms

F7a (18-19S1-3E, clay pad)
Metal: Nail frag
Faunal: Bos Phalanx.1, whole, GL52 GBp26 Gbd23
Equus M1, upper left, age C-D?
(30gms total)
Brick: (7) Type 4; 150gms
Small Find: Brass Pin-head

F7b (18S2E, shallow pit under clay pad)
Metal: unid Iron mass
(2) Nail frag, 1 finishing
Faunal: (10) unid; 75gms
Daub: Fired w/ woven wattle impressions
unfired
Charcoal: burned wood sample

F14 (19-20S5E)
Metal: Nail frag, finishing
Faunal: (10) unid; 30gms
Brick: Type 5; <10gms
Daub: (2) samples; 30gms

F20 (18S5E)
Brick: Type 1; 20gms

F21 (18-19S1-3E)
Ceramics: Mottled Manganese redware
Whiteware, handpainted, rim
(2) Salterstown Black Speckled, rim, 2pc x-mend
unid. undec. Slipped Redware
"Everted Rim"
Coarse Black-Glaze Redware
Reduced Greenware
Unid. Red Earthenware, base or rim
undec. Whiteware
"Lancashire" Mottled Manganese
Whiteware, black annular deco.

Glass: Window; 1.4mm
Metal: (4) Nail frags; 20gms
Faunal: Bos Cerv.Vert.,1/2, unfused, split
Bos M1or2 upper, whole, age K, GL24, GB19
Ovis Metacarpus, prox, left, <1/2, fused, GBp19
(15) unid; 150gms total
Brick: Type 5; 220gms
Daub: (8) samples; 140gms
Slag: unid Slag <10gms
Lithics: (2) Flakes

F23 (19S1E)
Metal: (3) Nail frags
Faunal: (12) unid; 30gms
Brick: Type 5
Daub: (18) samples, 4 w/ wattling impressions, fired; 160gms total
Charcoal: (7) burned wood, 20gms

F25 (18S5E)
Metal: Nail frag
Faunal: Bos M1or2 lower, whole, age K, GL23, GB13
Brick: (3) Type 6; 65gms

N.B. For record-keeping purposes the artifacts from F26.2 were bagged together in the field every few centimeters down within Stratum 2; hence the proveniences below marked "F26.2 >63cm", etc. The Clay platform around the well was considered part of the the same feature, but was excavated keeping all artifacts separate. Hence the designations "F26.above clay" or "below clay", etc.

F26.2
Ceramics: Coarse Black-Glaze Redware
Unid. Red Earthenware
(3) Carrickfergus Brownware
(8) Reduced Greenware, 2 basal
(2) N. Devon gravel-tempered
Purple Striated Stoneware
(2) Tin Glaze, blue, cream body
Iberian storage
"Everted Rim"

**Glass:**
- (2) Bottle, green
- (3) Window, 1.7mm

**Faunal:**
- Bos M1 or 2 lower, age B, C
- Bos Disiduous, whole, age A
- Bos M1 or 2, lower, whole, age K, GL22, GB14
- Bos M3 lower, whole, age F, GL30, GB20
- Bos P2 lower, left, age G
- Bos Tibia, distal, right, <1/2, fused, GBd51, chopped

**Ovis Ear Structure**
- Ovis M1 lower left, age G
- Ovis M1 upper right, age G
- Ovis Phalanx 1, whole, GL32, GBp10, GBd8, chopped

**Brick:**
- (3) Type 5, 65gms

**Lithics:**
- Blank or Tool: Retouched Flake
- Flake
- Core Rejuvenation Flake: Prep
- Core Rejuv Flake: Spall
- Tool: Notched Scraper, heavily patinated

**F26 above clay**

**Pipes:**
- Stem, 7/64ths
- Stem, 9/64ths

**Ceramics:**
- unid. Redware
- Reduced Greenware, basal
- North Devon Gravel-Tempered

**Glass:**
- (5) Window, 1.2mm
- Window, 1.6mm
- Window, 2.4mm
- Bottle, green

**Metal:**
- (6) Nails, complete, 50gms
- (16) Nail frags, 7 finishing
- Rove and nut

**Faunal:**
- Bos Metacarpus, prox, left, 1/2, fused, GBp57
- Bos Scapula, distal, left, <1/2, fused
- Bos OsCarpale 2+3, 1/2
- Ovis M3, lower right, whole, age H, GL17, GB7
- Sus Incisor

**Brick:**
- Type 1
- (3) Type 2
- (3) Type 3
- (15) Type 4
- Type 5
- (2) Type 7 (720gms total)

**Charcoal:**
- <10gms

**Lithics:**
- debitage

**F26 clay (also called F84)**

**Pipes:**
- Stem: 7/64ths +

**Ceramics:**
- (4) Unid. Red Earthenware
- (2) Reduced Greenware, 1 basal
Salterstown soft redware
Iberian storage
(3) Carrickfergus Brownware

Glass:
Bottle, green
Window; 1.4mm
Window; 1.2mm

Metal:
(2) Rove and nut
Nail, complete
(2) Iron straps

Faunal:
Bos o Calcaneus, right, whole, fused, GL109, GB34, chopped
Bos M1 or 2 lower, whole, age K, GL23, GB12
Bos M3 lower, <1/2, age J, GB14
Ovis M2 upper left, age H
(70gms total)

Daub: 30gms

Wood: Charred Oak, carpentered

Small Find: Iron Knife w/ tang e.17th

F26. below clay (also called F84)

Pipes: Foot + Stem; 7/64ths +
Ceramics: "Everted Rim"

Metal:
(3) Nail frags, 2 finishing

Faunal:
Ovis Tibia, distal, right, <1/2, unfused

Brick: (2) Type 6

Daub: <10gms

F26.2 >63cm

Pipes:
Stem 9/64ths
Stem, 7/64ths +
Ceramics: "Everted Rim"
North Devon Gravel Tempered
Reduced Greenware
Redware, Mottled Manganese
Carrickfergus Brownware
Buff Body lead glaze

Glass:
(3) Window; 1.4mm
Window, 1.7mm

Metal:
(16) Nail frags, 5 finishing
Rove and nut; 130gms total

Brick:
(4) Type 4
Type 2; 85gms total

Daub: 35gms
Charcoal: burned wood; <10gms

Lithics: Flake

F26.2 >85cm

Pipes: unid Bowl frag.
Ceramics: Buff body unglazed
unid Redware

Glass: Melted
Window; 1.4mm  
Vessel, green; 1.7mm

Metal:  
(11) Nail frags, 6 finishing

Brick:  
(2) Type 1  
Type 3; <10gms

Daub:  
10gms

Mortar:  
10gms

Charcoal:  
(3) samples

Lithics:  
Flake

F26.2 >94cm

Brick:  
Type 5; 10gms

Lithics:  
 Butt-trimmed Biface; late Meso-Lithic

F26.2 >125cm

Mortar:  
20gms

F26.2 >132cm

Ceramics:  
(2) Iberian storage

Glass:  
Rhoeemmer basal rim w/ applied deco

Metal:  
(6) unid Iron masses

Rove and nut

Nail, complete

Faunal:  
(2) unid; 10gms

Brick:  
(3) Type 4; 35gms

Daub:  
10gms

Wood:  
Oak; 65gms

F26.f

Pipe:  
Bowl; unid e.18th c.

Bowl; unid e.18th c.

Stem, 8/64ths +

Ceramics:  
(3) Reduced Greenware

N.Devon gravel-tempered

(2) Carrickfergus Brownware, 1 handle

Glass:  
Bottle, green

Tableware, green

Melted

(2) window; 1.9mm

Metal:  
Sheet Iron/poss Blade; 115cm long, 4.7mm thick

(3) unid Iron masses

section iron tubing, unid; .7mm dia

Nail, complete

Faunal:  
Bos Tibia, distal, right, <1/2, fused, chopped

Bos Ulna, whole, left, >1/2, unfused

Ungulate Scapula, dist, right, <1/2, fused

Anser Radius, left, whole, GL146, GB11

Bos M1 or 2 lower, age B, C

Bos M3 upper, whole, age F, GL27, GB17

Bos Scapula, distal, left, >1/2, fused, chopped

Bos Scapula, right, distal, <1/2, fused, GLP57, chopped
Bos Thor.Vert., <1/2
Bos Radius, prox, <1/2, fused
(630gms, total)

**Brick:**
(3) Type 3
(4) Type 4
Type 7
Type 1; 285gms total

**Daub:**
25gms

**Floral:**
Evergreen fronds, waterlogged

**F26.g**

**Metal:**
(2) unid Iron masses

**Faunal:**
Bos Rib frag, <1/2, chopped
Ovis M2, lower left, age D
Ovis M2 lower left age H
20gms total

**F26.h**

**Pipes:**
Stem, 6/64ths

**Ceramics:**
Carrickfergus Brownware

**Faunal:**
Bos Tibia, distal, right, <1/2, unfused, GBd54

**Brick:**
Type 1
Type 6

**Floral:**
unid Seed pod, waterlogged

**Lithics:**
Core: Polyhedral Neolithic to Early Christian

**F26.i**

**Pipes:**
Stem, 8/64ths

**Metal:**
Nail, complete

**Faunal:**
Bos Metatarsus, distal, left, <1/2, fused, GBd47, chopped
Bos Radius, prox, left, <1/2, unfused, GBp68, defleshed
Bos Tibia, distal, right, <1/2, unfused, chopped
Bos Femur, prox, right, <1/2, unfused
Bos M2 lower left, age F, GL20, GB13.5
Bos M3 lower left, age F, GL32, GB13.6
Bos Mandible, M2-3, left
Bos Rib frag, <1/2, chopped
Bos Rib frag, <1/2, chopped
Bos Thor. Vert., <1/2
Ovis Lumbar Vert. >1/2, unfused
Ovis Mand, Ramus, right, <1/2, chopped
Ovis Occipital/Frontal Suture, 1/2 (Ovis!)
Ovis Scapula, blade, left, <1/2, chopped

**Floral:**
(6) Oak frags, worked
(15) Birchbark strands
Complete Stave-built Bucket

**Lithics:**
Blank or Tool: Retouched Flake,

**F29 (19S3W)**

**Glass:**
Window; 1.4mm

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Faunal: ungulate metapodial, <1/2, chopped
Daub: (3) samples, burned; 10gms

F30 (24S3E)
Sample of Ironpan

F34 (24S5-6E)
Faunal: Bos Condyle Process, right, <1/2, unfused, chopped
Brick: (2) Type 4, <10gms

F35 (18-19S3W)
Ceramics: Reduced Greenware
(3) Tin Glaze, rose bodied, x-mend
Faunal: Bos OsCarpale2+3, 1/2
Bos OsCarpale2+3, 1/2
Bos Rib frag, <1/2, chopped
Ovis P3 lower right, ageG
(25gms total)

F36 (24S2W)
Faunal: Bos Rib frag, <1/2, chopped
Daub: sample, <10gms

F38 (13S5E)
Pipes: Stem, 8/64ths
Glass: Vessel, green, w/ applied handle
Vessel, green
(8) melted
(13) Window; 1.4mm
Metal: (3) Nail frags; 1 finishing
Faunal: Bos Rib frag, <1/2, chopped
Bos Scapula, shaft, left, <1/2, chopped
Bos Talus, >1/2, chopped
Ovis Rib, shaft frag, chopped
ungulate vert., <1/2, chopped
Brick: Type 4; 10gms
Daub: (4); 80gms total
Charcoal: burned wood; <10gms
Lithics: Slate frag; <10gms

F39 (24S4W)
Faunal: Bos Mandible, P3, left 45gms

F43 (diag 1-2m, 22S4-5W)
Ceramics: Crucible frag.
Salterstown yellow Sgaffito; plate rim
Faunal: Bos M1, upper, ageJ
Ovis Scapula, blade, right, <1/2, chopped
Sus Canine, upper left, whole
F43.2 (22S4W.2; below stone rubble)

**Ceramics:** Carrickfergus Brownware
**Glass:** Window; 1.4mm
**Metal:** Iron strap, handforged, perforated
**Faunal:**
- Bos Maxilla,M1, chopped
- Bos Maxilla P3, chopped
- Bos P2 upper left, >1/2, ageH
- Bos P3, upper, ageJ
- Bos Phalanx.2, whole, GL36 GBp25 GBd21 chopped (14) unid; 50gms
**Brick:** Type 3
**Daub:** sample
**Lithics:** Tool: End Scraper, retouched

F44 (20S3-4W)

**Ceramics:** (2) Carrickfergus Brownware
(2) Reduced Greenware, 2pc x-mend
**Faunal:**
- Bos M1 or 2 lower, <1/2, age K, GB13

F45 (11S1W)

**Ceramics:** Salterstown Hard Red Striated

F48 (12S0E)

**Pipes:** Stem, 7/64ths

F50 (17S3E)

**Glass:** Window; 1.4mm
**Faunal:**
- Bos Metacarpus, distal, right, <1/2, fused, GBd49
**Brick:** Type 4; 110gms
**Mortar:** 60gms

F53.2 (diag 8-10.)

**Ceramics:** (2) Unid. Red Earthenware, 1 basal
- Coarse Black-Glaze Redware
- Fine Blackglaze Redware
**Faunal:**
- Bos Radius, distal, left, 1/2, fused
- Bos Cerv.Vert., <1/2, fused, chopped
- Bos Cerv.Vert., <1/2, fused, chopped
- Bos Lumbar Vert., <1/2, split
- Bos Lumbar Vert., <1/2, unfused, split
- Bos Lumbar Vert., <1/2, split
- Bos M1 or 2 lower, >1/2, age G, GL20, GB12
- Bos M1 or 2 upper, >1/2, age KB20
- Bos Mandible, horiz. ramus frag, <1/2, chopped
- Bos Mandible, infradental, <1/2
- Bos Os Carpale 2+3, 1/2
- Bos Phalanx.3, whole, left, GDL70
- Bos Rib frag, <1/2, chopped
- Bos Rib frag, <1/2, chopped
- Bos Rib frag, <1/2, chopped
- Bos Rib frag, <1/2, chopped
Ovis Scapula blade, <1/2

Small Find: Iron Knife Blade, 1.17th c., 2pc. x-mend

F53.2a

Pipes: Stem, 6/64ths
Stem, 9/64ths

Ceramics: Reduced Greenware, rim
Fine Black-glaze Redware, basal, 2pc x-mend
(3) "Everted Rim"
Salterstown Hard Red Striated
Carrickfergus Brownware

Glass: (3) Window; 1.2mm
(22) Window; 1.4mm
Tableware; .7mm

Metal: (7) Nail frags, 4 finishing; 45gms

Faunal: Bos Incisor, lower, whole
Bos Incisor, lower, whole
Bos M1, lower left, age F
Bos M2, lower left, age F, GL22.5, GB14
Bos M2, lower right, age C, GL22, GB11
Bos M2 lower right, age D, GL17, GB7
Bos M3, lower right, age C, GL32, GB11
Bos M3 lower right, age D, GL21, GB7
Bos Mandible P1-M3, right
Bos Mandible, P3, M1-2, left
Bos P1 lower, left, age B
Bos P1 lower, right, age B
Bos P1, lower right, age C
Bos P1, upper, left, age E
Bos P2, lower, left, age D
Bos P2, lower, left, age G
Bos P2, lower right, age C
Bos P2, upper, hand?, age E
Bos P3, lower left, age F,
Bos P3, lower right, age C
Bos Phalanx 1, whole, GL54, GBp24, GBd21
Bos Phalanx 1, whole, GL54, GBp25, GBd23
Bos Phalanx 1, whole, GL55, GBp25, GBd24
Bos Phalanx 2, 1/2, chopped
Bos Radius, distal, left, <1/2, chopped
Bos Scapula, distal, right, <1/2, fused, chopped
Bos Thoracic Vert., <1/2, chopped
Bos Thor. Vert., <1/2
Felis Calcaneus, right, whole
Felis Caudal Vert, whole
Felis Caudal Vert, whole
Felis Caudal Vert, whole
Felis Crania, frontal orbit, right, 1/2
Felis Femur, distal, left, 1/2
Felis Femur, prox, right, <1/2, fused
Felis Femur, right, whole
Felis Humerus, distal, right, 1/2, fused
Felis Humerus, prox, right, <1/2, fused
Felis Humerus, whole, left fused
Felis I, lower
Felis M1
Felis Mandible, left, 1/2
Felis Metacarpal, left, whole
Felis Metacarpal, left, whole
Felis OsCoxae, left, 1/2
Felis OsCoxae, right, 1/2
Felis P2
Felis P2
Felis Radius, distal, left, 1/2
Felis Radius, prox, left, 1/2
(11) Felis Rib frag
Felis Scapula, left, 1/2
Felis Scapula, right 1/2
Felis Talus, right, whole
Felis Tibia, distal, left, 1/2
Felis Tibia, distal, right, m1/2
Felis Tibia, prox, left, 1/2
Felis Tibia, prox, right, >1/2
Felis Ulna, prox, left, <1/2, fused
Felis Ulna, prox, right, <1/2, fused
(17) Felis Vertebrae frag
Ovis Horn Root
Ovis Humerus, prox, right, <1/2, unfused, GBp20
Ovis M1, lower left, ageG
Ovis M2, lower left, ageG, GL15, GB8
Ovis M3, lower left, whole, ageE, GL20, GB7
Ovis Mand. tooth row P2-M2, left
Ovis Mand. CondyleProcess, right, 1/2, chopped
Ovis Mand. infradental, left, <1/2, chopped
Ovis P2, lower left, ageG
Ovis P3, lower left, ageG
Ovis Ramus, right, <1/2
Ovis Ramus, <1/2
Ovis Scapula, blade, left, <1/2, ungulate Mandible frag, <1/2

Daub: 120gms daub
Lithics: Flake

F53.2c
Pipes: Stem, 8/64ths
Ceramics: Reduced Greenware
"Everted Rim"
Fine Black-glaze Redware
Glass: (22) Window; 1.4mm
Melted
Tableware rim
(3) green, 2.2mm

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**Metal:**  (3) Nail frags, 1 finishing, 1 cinched  
Rove and Nut  
**Faunal:**  Bos Metatarsus, distal, <1/2  
Bos Tibia, shaft, left, <1/2, chopped  
Avian Pelvis frag, <1/2  
Avian Pelvis frag, <1/2  
Bos Calcaneus, left, >1/2, fused, GB37, chopped  
Bos Cerv. Vert., <1/2, chopped  
Bos Condyle Process, left, <1/2, chopped  
Bos Ear structure, <1/2  
Bos Femur, prox, right, <1/2, unfused, chopped  
Bos Foramen Magnum, left, 1/2, split  
Bos Innominate, <1/2  
Bos M1 or 2 upper, whole age K, GL23, GB20  
Bos Mandible, diastema frag, left, <1/2, chopped  
Bos Mandible, M2-3, right  
Bos Os Carpale 2+3, left, whole, GB31  
Bos P2, lower, right, age D  
Bos Phalanx 2, <1/2, chopped  
Bos Phalanx 3, right, 1/2  
Bos Phalanx 3, <1/2  
Bos Radius, prox, left, <1/2, fused,  
Bos Rib, dorsal, right, <1/2, chopped  
Bos Rib frag, <1/2, chopped  
Ovis Mand. tooth row, P2, right  
Ovis P2, lower right, age K  
Ovis Rib, shaft frag, chopped  
Sus M2, lower right, age B, GL16.5, GB10.5  
Sus M3, lower right, age B, GL21.9, GB11.5  
Sus Mandible, M2-3, right, <1/23, age B  
(835gms total)  
**Daub:**  (4) samples; 205gms  
**Charcoal:**  burned wood; <10gms  
**Lithics:**  Blank or Tool: Retouched Flake  
Whetstone  
Core Rejuv Flake: Prep  
**Small Find:**  Iron Buckle; fig 8, spur/knee  
(2) Iron Knife Blade frags  
**F55** (diag. 3-4m.)  
**Ceramics:**  Staffordshire combed slip  
**Metal:**  Nail frag  
**Faunal:**  Ovis M1, lower left, age B  
**F56** (14S1W)  
**Faunal:**  Bos Rib, dorsal, 1/2, chopped  
**F57** (14S4W)
Glass: Window; 1.1mm

Faunal:
- Bos Talus, whole, right, GL55 chopped
- Sus M2, lower left, age D, GL15.2, GB8.2
- Sus M3, age A, unerupted, GL21, GB12
- Sus Mandible, M2, left, <1/2, age D
(70gms total)

F63 (19S3E)
- Faunal: unid; <10gms
- Brick: Type 1
  Type 4; 100gms total

F68b (6S2W)
- Ceramics: Salterstown Yellowslip, rim

F70 (plough scar!)
- Ceramics: Salterstown Yellowslip Sgraffito #1
- Faunal: Bos P1 lower, right, age B

F77a (19S1W)
- Glass: Window; 1.2mm

F77b (19S1W)
- Faunal: Bos Phalanx.1, whole, GL53 GBp27 GBd25

F78 (15S3W)
- Glass: Bottle, diseased black
- Faunal: Bos Metatarsus, distal, left, <1/2, fused, GBd46, chopped
  Bos Metatarsus, distal, left, <1/2, fused, GBd46, chopped
  Bos Cerv. Vert., <1/2, fused,
  Bos Femur, prox, right, <1/2, unfused,
  Bos Innominate frag, left, <1/2, chopped
  Bos Rib frag, <1/2, chopped
  Bos Rib frag, <1/2, chopped
  Bos Rib frag, <1/2, chopped
  Ovis M1 upper right, age E
  Ovis M2 upper right, age H
  Ovis M3 upper right, age A
(250gms total)

1988 TRENCH 1 AND TRENCH 2

T1N.1
- Pipes: Bowl; hatched star
  Bowl; unid 18th c.
- Ceramics: (2) Coarse Black-Glaze Redware
  Staffordshire Mottled Manganese
  und. Sgraffito
  (8) undec. Whiteware
Faunal:
Bos Lumbar Vert., <1/2, split
Bos Rib frag, <1/2, chopped

Lithics:
Flake
Flake

TIN.2

Pipes:
(6) Stems, 6/64ths
Stem, 7.64ths
Bowl; Heart + Hand; 19th c.
Bowl, unid, 117th c.

Ceramics:
(4) Unid. Red Earthenware
18th c. Creambasal
Tin Glaze, undec. cream body
Pearlware, blue transfer
(2) Fine Black-glaze Redware, basal
Unglazed Buff rim
(2) Tin Glaze, blue, cream body
Pearlware, blue hand-paint
N. Devon gravel-temp
Pink-Buff Body; Mottled Manganese

Glass:
(2) Melted
Aqua; 1.4mm
(2) Window; 1.2mm
(3) Vessel, uncolored
(3) Window; 2.7mm; modern
(6) Window; 1.4mm

Metal:
Spike
unid Iron sheet
(14) Nail frag, 2 finishing
unid Iron mass
(2) wire nails; 85gms total

Faunal:
Bos OsCentroTarsale, left, <1/2, unfused, GBd46
Bos Phalanx.2, <1/2, chopped
Bos Rib, dorsal, right, <1/2, chopped
Bos Rib frag, <1/2, chopped
Bos Rib frag, <1/2, chopped
Bos Rib, <1/2
Bos Talus. <1/2, chopped
Bos Tibia, prox, right, <1/2, fused
Ovis M2, lower left, ageF
Ovis Tibia, distal, right, 1/2, fused,
    GBd23, chopped
ungulate, Rib, <1/2
Bos Humerus, distal, right, <1/2
(260gms total)

Brick:
(5) Type 4
(2) Type 3
Type 2; 110gms total

Plaster:
interior surfaces; 190gms.

Charcoal:
20gms

Lithics:
(8) Slate frags; 40gms

TIN.2a

Pipes:
Bowl; 17th c. vol.
    Stem 5/64ths
    Stem, 6/64ths
    Stem, 7/64ths

Ceramics:
(3) Unid. Red Earthenware
    Fine Black-glaze Redware, 1 handle
    Carrickfergus Brownware
    undec. Whiteware
    True Buckley

Glass:
Tableware, wrythen ribbing w/ rim
(2) Melted
(2) Bottle, green
(7) Window; 1.4mm
    Window; 1.7mm

Metal:
(2) unid Iron masses
(11) Nail frags, 4 finishing; 85gms

Faunal:
Bos Tibia, prox, left, <1/2, fused, G6p90
    Anser Humerus, distal, right, 1/2, fused,
    Bos Calcaneus, left, 1/2, chopped
    Bos Humerus, prox, left, <1/2
    Bos Incisor, whole
    Bos Innominate frag, left, <1/2, chopped
    Bos Innominate, <1/2, chopped
    Bos LumbarVert., <1/2
    Bos M1, upper left, ageF
    Bos M1 or 2 upper, >1/2, ageK, GL23, GB18
    Bos M2, upper left, ageF, GL26.5, GB19.4
    Bos Mandible, condyle process, right, 1/2, chopped

    Bos Maxilla, M1-2, left
    Bos Occipital frag, 1/2
    Bos Rib frag, <1/2, chopped
    Canis Calcaneus, right, whole, fused, GL30, GB12
    (Smaller than Boxer in Collection)
    Ovis M1 upper right ageF
    Ovis M2 lower right, ageF

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Lithics:
(2) Slate frags
(2) Flakes

T1S.1
Pipes:  Bowl; unmarked 19th c.
Ceramics:  (4) Unid. Red Earthenware
18th c. Creamware
"Willow" pattern Whiteware, shoulder
Whiteware, blue relief, rim
(3) blue transfer whiteware
Purple striated stoneware
(4) Carrickfergus Brownware
undec. Whiteware
Reduced Greenware, basal
unid. undec. Slipped Redware
Faunal:  Bos Innominate frag,<1/2, chopped
Bos Phalanx.2,>1/2, GL36 GBd20 chopped
Bos Rib frag,<1/2, chopped
Ovis Mand.infradental,right,<1/2, chopped
Lithics:  Tool: Hollow Scraper

T1S.2
Pipes:  (4) Stems, 8/64ths
Stem, 4/64ths
Ceramics:  Staffordshire yellow-slip red spatter
(4) Unid. undec. Slipped Redware
(2) Staffordshire combed, 1 basal
(4) Unid. Red Earthenware
(2) Fine Black-glaze Redware, basal
(5) Coarse Black-Glaze Redware
(2) Reduced Greenware, 1 rim
Purple striated stoneware
18th c. Creamware, rim
unid. Sgraffito
"Lancashire" Mottled Manganese
(2) undec. Whiteware
(2) Salterstown soft redware, 1 rim
Tin Glaze, blue, cream body
(2) Tin Glaze, undec. cream body
Carrickfergus Brownware
Glass:  (2) Bottle, green
(2) Melted
(12) Window; 1.4mm
Tableware, green; .6mm
Metal:  (30) Nail frags; 11 finishing
(3) wire frags; 120gms total
Faunal:  Bos Humerus, distal, right,<1/2

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Bos Metacarpus, prox, left, 1/2, fused, GBp50
Bos Tibia, distal, right, <1/2, fused, defleshed
Bos Cervical Vert., 1/2, fused, split
Bos Innominate frag, <1/2, chopped
Bos M1 or 2 upper, whole, age C, GL27, GB16
Bos M3 upper, whole, age A, GL27, GB16
Bos M3 upper, whole, age D, GL29, GB16
Bos Mandible, horiz. ramus frag, <1/2, chopped
Bos P1, upper, hand?, age B
Bos P3 upper right, whole, age E
Bos Phalanx.1, >1/2, GL54
Bos Phalanx.3, whole, left, GDL55
Bos Phalanx.3, whole, right, GDL63
Bos Phalanx.3, <1/2
Bos Rib, dorsal, left, <1/2, chopped
Bos Rib frag, <1/2, chopped
Bos Rib frag, <1/2, chopped
Bos Rib frag <1/2, chopped
Bos Rib frag, <1/2, chopped
Bos Rib frag, <1/2, chopped
Bos Scapula, blade, <1/2
Bos Tibia, distal, <1/2, unfused,
Ovis M1 lower right, age G
Ovis M1 upper left age D
Ovis M3 upper right age B
Ovis Metatarsus, prox, right, <1/2, fused, GBp19
Ovis Phalanx.3, left, whole
Ovis Rib, shaft frag, chopped
Ovis Rib, shaft frag, chopped
Ovis Scapula, blade, <1/2
Ovis Scapula, left, <1/2, chopped
740gms total
Brick: (3) Type 4; 20gms
Daub: 15gms
Slag 20gms
Lithics: Core Rejuvination Flake: Decortical
(3) Flakes
(10) Slate frags; 60gms
SmallFind: Oval Sleeve Button 18th century

T1.1
Pipes: (2) Bowl frags; 19th c. volumes
Stem; 6/64ths
Ceramics: (6) undec. Whiteware, 1 shoulder
Staffordshire combed slip, handle
Reduced Greenware
Fine Black-gaze Redware
Coarse Black-Glaze Redware
Whiteware, black transfer, handle

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Whiteware, shell-edge, rim

Glass: (8) Window; 1.4mm
Vessel, uncolored, modern

Metal: (3) Iron blade frags; x-mend
(3) wire frags
(4) Nail frags

Lithics: Slate frag; <10gms

T1.2
Ceramics: unid. Sgraffito
SmallFind: Sleeve Button, 18th c. brass alloy w/ link

T2.1
Pipes: Bowl; Oswald Type 22
Stem, 5/64ths
Stem, 6/64ths
Stem, 7/64ths
Ceramics: unid. undec. Slipped Redware, rim
Unid. Red Earthenware
(2) Salterstown yellowslip Sgraffito #2
Glass: Bottle, green
Metal: (5) Nail frags; 2 finishing
Faunal: (3) unid; 55gms
Brick: Type 7
Type 4; 170gms
Daub: (3) 55gms
Charcoal: <10gms
Lithics: Slate frags; 20gms

T2.2
Pipes: Bowl; unid 18th c.
Bowl w/ spur; 18th c. volume; 4/64ths
Stem, 8/64ths
Stem, 7/64ths +
Ceramics: (2) "Lancashire" Mottled Manganese
(3) Coarse Black- Glaze Redware
unid. Staffordshire paste, basal
Fine Black-glaze Redware, ribbed
Salterstown "lead and green"
Glass: Vessel, uncolored
Window; 2mm
(2) Window; 1.4mm
Metal: unid. Iron mass
(9) Nail frags, 2 finishing; 65gms
Mortar: interior facing; 20gms
Lithics: Slate frag; 10gms

UNPROVENIENCED
Ceramics: unid. Staffordshire paste
(3) Fine Black-glaze Redware, handle
(2) "Everted Rim"
True Buckley
Faunal:

Bos Tibia, prox, left, <1/2, unfused
Bos Axis, <1/2, split
Bos M1or2 lower, age B, C
Bos M1or2 lower, whole, age M, GL20, GB14
Bos M1or2 upper, whole, age K, GL22, GB19
Bos M1or2 upper, >1/2, age K, GL23, GB21
Bos P2, lower, left, age F
Bos P3, upper, hand?, age D
Ovis, P2 lower
Ovis M1 lower
Ovis M3, lower left, whole, age G, GL20, GB7
Ovis P2 lower right >1/2
Ovis P3 upper
Ovis P4 deciduous, lower left, whole, age H
Sus M3, age A, GB13
Sus M3, age F, GB10
Bos Phalanx.3, whole, left, GDL62
APPENDIX C

The following is a complete catalogue of all information recorded on the faunal collections from Salterstown. All measurements were made in accordance with the conventions established by Von Den Driesch, 1976.

<table>
<thead>
<tr>
<th>Specimen</th>
<th>Description</th>
<th>Right/Left</th>
<th>Fusion</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>12S3W.1</td>
<td>Bos Metatarsus, whole, right, fused</td>
<td>GL190 GBd47</td>
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<tr>
<td>6SOE.2a</td>
<td>Bos Metatarsus, proximal, left, &lt;1/2, fused</td>
<td>GBp40 GBd47</td>
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<td>19S2W.2</td>
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<td>F26a.c.</td>
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<td>F26.F</td>
<td>Ungulate Scapula, dist, right, &lt;1/2, fused</td>
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<td>13S1W.2</td>
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<td>F26.I</td>
<td>Bos Tibia, distal, right, &lt;1/2, fused, chopped</td>
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<td>F26.F</td>
<td>Bos Tibia, distal, right, &lt;1/2, fused, chopped</td>
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<td>T1S.2</td>
<td>Bos Tibia, distal, right, &lt;1/2, fused, defleshed</td>
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<td>F26.F</td>
<td>Bos Ulna, whole, left, &gt;1/2, unfused</td>
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<td>15S2W.2</td>
<td>Bos Metatarsus, distal, left, &lt;1/2, fused, GBd46, chopped</td>
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<td>F53.2c</td>
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<td>Bos Metacarpus, distal, left, &lt;1/2, GBd51, chopped</td>
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<td>F29</td>
<td>Ungulate Metapodial, &lt;1/2, chopped</td>
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<td>18S7E.2</td>
<td>Ungulate Metapodial, &lt;1/2, chopped</td>
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<tr>
<td>21S5W.2</td>
<td>Ungulate Metapodial, &lt;1/2, chopped</td>
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<td>19S6W.2</td>
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<td>Bos Metacarpus, prox, right, &lt;1/2, fused, GBp44, chopped</td>
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<tr>
<th>Sample Code</th>
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<td>827</td>
<td>Metacarpus, prox, right, &lt;1/2, fused, GBp46, chopped</td>
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<td>Tibia, prox, right, &lt;1/2, fused</td>
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<td>Tibia, prox, right, &lt;1/2, fused</td>
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<td>Tibia, distal, right, &lt;1/2, fused, GBd57, chopped</td>
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<td>Tibia, distal, right, &lt;1/2, fused, Gbd55, chopped</td>
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<td>Tibia, distal, right, &lt;1/2, fused, Gbd57, chopped</td>
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<td>Tibia, distal, right, &lt;1/2, fused,</td>
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<td>Tibia, distal, &lt;1/2, unfused,</td>
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<td>18S7E.2</td>
<td>Tibia, distal, &lt;1/2</td>
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<td>26F.H</td>
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<td>Humerus, prox, right, &lt;1/2, fused, chopped</td>
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<td>38F</td>
<td>Scapula, shaft, left, &lt;1/2, chopped</td>
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<td>Scapula, distal, Right, &lt;1/2, fused, chopped</td>
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<tr>
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<td>Acetabulum, right, &lt;1/2, chopped</td>
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<td>Acetabulum, left, &lt;1/2, chopped</td>
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<tr>
<td>12S2W.2</td>
<td>Acetabulum, left, &lt;1/2, chopped</td>
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<td>7-8m.1</td>
<td>Ilium, shaft, left, &lt;1/2, chopped</td>
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<td>Acetabulum, left, &lt;1/2, chopped</td>
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<td>ungulate acetabulum, &lt;1/2</td>
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<td>Femur, prox, right, &lt;1/2, unfused</td>
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<td>Femur, prox, left, &lt;1/2, chopped</td>
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<td>78F</td>
<td>Femur, prox, right, &lt;1/2, unfused,</td>
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<td>9S0E.2</td>
<td>Femur, prox, &lt;1/2, chopped</td>
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<td>Tibia, prox, right, &lt;1/2, chopped</td>
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<td>OsCentroTarsale, left, &lt;1/2, unfused, GBd46</td>
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<td>OsCentroTarsale, right, &lt;1/2, unfused,</td>
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<td>22S4W.2</td>
<td>OsCentroTarsale, right, &lt;1/2, unfused,</td>
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<td>22S1W.2</td>
<td>Tibia, distal, left, &lt;1/2, fused, chopped</td>
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<tr>
<td>13S4W.2a</td>
<td>Tibia, distal, Right, &lt;1/2, unfused, chopped</td>
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<td>24S3E.1</td>
<td>Metacarpus, prox, right, &lt;1/2, fused, chopped</td>
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<td>Metacarpus, prox, left, &lt;1/2, fused, chopped</td>
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<td>16S3W.2</td>
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<td>12S3W.2a</td>
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<td>Ulna, prox, Left, &lt;1/2,</td>
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<td>F53.2a</td>
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<td>21S5W.2</td>
<td>Radius, prox, right, &lt;1/2, fused, GBp68, chopped</td>
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F53.2c  *Bos* Radius, prox, left, <1/2, fused, 
14S5W.1  *Bos* Radius, prox, <1/2, fused, chopped
15S2W.2  *Bos* Phalanx.3, <1/2,
T1N.2a  *Bos* Calcaneus, left, 1/2, chopped
21S5W.2  *Bos* Calcaneus, right, <1/2,
F53.2c  *Bos* OsCarpale2+3, left, whole, GB31
F26a.c.  *Bos* OsCarpale2+3, 1/2
F53  
F53.2c  *Bos* OsCarpale2+3, 1/2
F35  
F53  
F53  
F53  
F53.2c  *Bos* Phalanx.3, left, whole, GB37, chopped
20S4W.2  *Bos* Phalanx.3, whole, fused, GL117, GB37, chopped
F26c1ay  *Bos* Calcaneus, right, whole, fused, GL109, GB34, chopped
11S2E.2  *Bos* Calcaneus, right, whole, unfused, GL91, GB29, chopped
F53  
T1S.2  *Bos* Phalanx.3, whole, left, GDL55
T1S.2  *Bos* Phalanx.3, whole, right, GDL63
20S4W.2  *Bos* Phalanx.3, whole, left, GDL60
T1S.2  *Bos* Phalanx.3, whole, right, GDL67
F53.2c  *Bos* Phalanx.3, whole, left, GDL62
F53.2c  *Bos* Phalanx.3, right, 1/2
14S3W.2  *Bos* Phalanx.3, whole, right, GDL67
15S2W.2  *Bos* Phalanx.3, whole, left, GDL68
22S4W.2  *Bos* Phalanx.3, whole, left, GDL60
F53.2c  *Bos* Phalanx.3, <1/2
F53.2c  *Bos* Phalanx.3, <1/2
F53.2c  *Bos* Condyle Process, left, <1/2, chopped
F34  
8S2W.2  *Bos* Ramus, <1/2, chopped
12S3W.2a  *Bos* Corionion, (Mandible), right <1/2, chopped
23S3W.1  *Bos* Ramus, <1/2,
19S2W.2  *Bos* Ramus, <1/2
19S4W.2  *Bos* Ramus, <1/2
F53.2c  *Bos* Innominate, <1/2
14S3W.2  *Bos* Patella, left, 1/2, chopped
22S1W.2  *Bos* Phalanx.1, 1/2,
F53.2a  *Bos* Phalanx.1, whole, GL54 GBp25 GBd23
T1S.2  *Bos* Phalanx.1, >1/2, GL54
21S4W.2  *Bos* Phalanx.1, <1/2,
15S2E.2  *Bos* Phalanx.1, whole, GL50 GBp26 GBd24
F53.2a  *Bos* Phalanx.1, whole, GL55 GPb25 GBd24
19S6E.2a  *Bos* Phalanx.1, whole, GL50 GBp24 GBd24
16S3W.2  *Bos* Phalanx.1, whole, GL54 GBp25 GBd22
18S10W.1  *Bos* Phalanx.1, <1/2,
F53.2a  *Bos* Phalanx.1, whole, GL54 GBp24 GBd21
12S4W.2a  *Bos* Phalanx.1, whole, GL54 GBp24 GBd23
12S3W.2a  *Bos* Phalanx.1, whole, GL53 GBp24 GBd23
20S5E.2  *Bos* Phalanx.1, >1/2, GBd23
F3  *Bos* Phalanx.1, whole, GL54 GBp27 GBd25
F7  *Bos* Phalanx.1, whole, GB52 GBp26 GBd23
F77  *Bos* Phalanx.1, whole, GL53 GBp27 GBd25
17S6E.1  *Bos* Phalanx.2, whole, GL38 GBp27 GBd21 chopped
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<td>Bos Phalanx 2, &gt;1/2, chopped</td>
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20S3E.2 Bos Rib frag,<1/2,chopped
T1N.1 Bos Rib frag,<1/2,chopped
T1S.2 Bos Rib frag,<1/2,chopped
15S3W.2 Bos Rib frag,<1/2,chopped
14S3W.2 Bos Rib frag,<1/2,chopped
15S2W.2 Bos Rib frag,<1/2,chopped
F35 Bos Rib frag,<1/2,chopped
12S4W.2a Bos Rib frag,<1/2,chopped
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14S2W.2 Bos Rib frag,<1/2,chopped
F53 Bos Rib frag,<1/2,chopped
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12S4W.2a Bos Rib frag,<1/2,chopped
F36 Bos Rib frag,<1/2,chopped
23S5W.2a Bos Rib frag,<1/2,chopped
20S5E.2a Bos Rib frag,<1/2,chopped
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T1S.2 Bos Rib frag,<1/2,chopped
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19S6E.2a Bos Rib frag,<1/2,chopped
T1S.2 Bos Rib frag,<1/2,chopped
12S2W.2 Bos Rib frag,<1/2,chopped
T1N.2 Bos Rib frag,<1/2,chopped
F53 Bos Rib frag,<1/2,chopped
12S3W.2a Bos Rib frag,<1/2,chopped
12S2W.2 Bos Rib frag,<1/2,chopped
13S3W.2a Bos Rib frag,<1/2,chopped
21S5E.2a Bos Rib frag,<1/2,chopped
12S2W.2 Bos Rib frag,<1/2,chopped
14S3W.2 Bos Rib frag,<1/2,chopped
12S3W.2a Bos Rib frag,<1/2,chopped

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12S4W.2a Bos Rib frag,<1/2,chopped
15S3W.2 Bos Rib frag,<1/2,chopped
12S2W.2 Bos Rib frag,<1/2,chopped
6-7m.1 Bos Rib frag,<1/2,chopped
14S3W.2 Bos Rib frag,<1/2,chopped
19S3W.2 Bos Rib frag,<1/2,chopped
12S2W.2 Bos Rib frag,<1/2,chopped
12S1W.1 Bos Rib frag,<1/2,chopped
F53.2a Bos Thor.Vert.,<1/2
F26.1 Bos Thor.Vert.,<1/2
18S2W.2 Bos Thor.Vert.,<1/2
F26.F Bos Thor.Vert.,<1/2
13S3W.2a Bos Thor.Vert.,<1/2
12S2W.2 Bos Lumb.Vert.,<1/2
21S5E.2 Bos Cranium (14 frags,single animal),right.
19S5W.2 Bos Lower Orbit,right
F53.2c Bos ForamenMagnum,left,1/2,split
T1N.2a Bos Occipital frag,1/2
F53.2c Bos Ear structure,<1/2
12S1E.2a Bos Ear structure,<1/2
9S1W.2a Bos Frontal frag.
F53.2c Bos Mandible,diastema frag,left,<1/2,chopped
24S7E.2 Bos Mandible,diastema frag,left,<1/2,chopped
T1N.2a Bos Mandible,condyle process,right,1/2,chopped
15S3W.2 Bos Mandible,condyle process,1/2,chopped
20S2W.2 Bos Mandible,condyle process,left,1/2,chopped
15S3W.2 Bos Mandible,condyle process,1/2,chopped
16S3W.2 Bos Mandible,diastema frag,1/2,chopped
9S1W.2 Bos Mandible,horiz.ramus frag,<1/2,chopped
15S1W.2 Bos Mandible,horiz.ramus frag,<1/2,chopped
T1S.2 Bos Mandible,horiz.ramus frag,<1/2,chopped
19S3W.2 Bos Mandible,horiz.ramus frag,<1/2,chopped
F53 Bos Mandible,horiz.ramus frag,<1/2,chopped
12S3E.2a Bos Mandible,horiz.ramus frag,1/2,chopped
T1N.2a Bos Incisor,whole
F53.2a Bos Mandible P1-M3,right
20S4W.2 Bos Mandible,empty tooth row,chopped
F39 Bos Mandible,P3,left
F3 Bos Mandible,M2,chopped
13S3W.2a Bos Mandible,M2,chopped
F53.2c Bos Mandible,M2-3,right
F26.1 Bos Mandible,M2-3,left
F53.2a Bos Mandible,P3,M1-2,left
20S5E.2 Bos Mandible,P2-3,right
T1N.2a Bos Maxilla,M1-2,left
F43.2 Bos Maxilla,M1,chopped
F43.2 Bos Maxilla P3,chopped
13S3W.2a Bos Mandible P1,right
15S2W.2 Bos Mandible P1
T1N.2 Bos Talus,<1/2,chopped
17S1E.2 Bos Radial carpal,1/2,chopped

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19S2W.1 Bos 3rd Tarsal, left, >1/2
15S4W.2 Bos 3rd Tarsal, <1/2
12S3W.2a Bos Intermedial Tarsal, left, >1/2
T1S.2 Bos Phalanx.3, <1/2
12S2W.2 Bos Phalanx.3, <1/2
12S4W.2a Bos Radial Carpal, right, <1/2
13S4W.2a Bos Rib frag, <1/2
20S3W.2 Bos Phalanx.1, <1/2
12S4W.2a Bos Phalanx.1, <1/2
T1N.2a Bos Lumbar Vert., <1/2
14S3W.2 Bos Lumbar Vert., <1/2
20S4W.2 Bos Cerv. Vert., <1/2
12S3E.2a Bos Cerv. Vert., <1/2
14S3W.2 Bos Atlas, 1/2
13S4W.2a Bos Cerv. Vert., <1/2
F78 Bos Rib frag, <1/2, chopped
8S1E.1 Bos Rib frag, <1/2, unfused, chopped
9S1E.2 Bos Rib frag, <1/2, chopped
T1S.2 Bos Rib frag, <1/2, chopped
7S2W.2a Bos Rib frag, <1/2, chopped
12S4W.2a Bos Rib frag, <1/2, chopped
21S5E.2a Bos Patella, distal, right, chopped
? Bos Axis, <1/2, split
20S2W.2 ungulate Scapula, <1/2
F3 ungulate, Scapula, diseased, <1/2
14S5W.2 ungulate, Scapula, <1/2
F26.F ungulate Radius, prox, <1/2, fused
16S2E.2b ungulate, Scapula blade, <1/2
12S4W.2a ungulate, Scapula frag <1/2
13S4W.2a Bos Rib, <1/2
F53.2a ungulate Mandible frag, <1/2
T1N.2 Bos Rib, <1/2
T1N.2 ungulate, Rib, <1/2
15S2W.2 ungulate, Ramus, <1/2
13S4W.2a Bos Atlas, <1/2
F53 Bos Mandible, infradental, <1/2
6S1E.1 ungulate Cranial Zygomatic, unfused
19S4W.2 ungulate Atlas, <1/2
20S4W.1 ungulate Phalanx.3, <1/2
13S4W.2a ungulate Scapula blade, <1/2
9S1W.2 ungulate scapula blade, <1/2
19S4W.2 ungulate Scapula, <1/2
F3.2a ungulate Scapula, <1/2
22S4W.2 Bos P2, upper, left, ageD
9S1E.2 Bos P2, upper, hand?, ageD
15S7W.2 Bos P2, upper, hand?, ageE
8S1E.2 Bos P3, upper, hand?, ageD
F53.2a Bos P1, upper, left, ageE
8S1E.2 Bos P3, upper, hand?, ageE
F53.2a Bos P2, upper, hand?, ageE
13S4E.1 Bos, P1, upper, left, ageE
20S2W.2 Bos P2, lower, left, ageA
14S0E.1 Bos P2, upper, ageD
T1S.2 Bos P1, upper, hand?, ageB
? Bos P3, upper, hand?, ageD
12S3W.2a Bos P2, lower, right, ageB
F53.2a Bos P2, lower, left, ageG
? Bos P2, lower, left, ageE
24S6W.1 Bos P3, lower, left, ageC
F53.2c Bos P2, lower, right, ageD
14S3W.1 Bos P2, lower, left, ageD
F53.2a Bos P2, lower, left, ageD
13S4W.2a Bos P3, lower, right, ageC
14S5W.2 Bos P3, lower, left, ageD
9S1W.2 Bos P2, lower, right, ageF
F70 Bos P1 lower, right, ageB
19S2W.2 Bos P2 lower, right, ageJ
19S5W.2 Bos P2 lower, left, ageE
F53.2a Bos P1 lower, right, ageF
15S1W.2 Bos P1 lower, left, ageE
F53.2a Bos P1 lower, left, ageB
F70 Bos P1 lower, right, ageB
20S4W.2 Bos M3, lower left, >1/2, ageF, GL30, GB14
21S2W.1 Bos M3 lower right, >1/2, ageF, GL33, GB14
21S2W.1 Bos M3 lower left, >1/2, ageF, GL33, GB14
13S3W.2a Bos M3 lower left whole, ageE, GL33, GB13
22S1W.1 Bos M3 lower left whole, ageE, GL33, GB12
20S5W.1 Bos M3 lower left, >1/2, ageF, GL33, GB13
10S1E.1 Bos M3 lower left whole, ageF, GL36, GB15
14S0E.1 Bos M3 lower left whole, ageF, GL32, GB13
15S1W.1 Bos M3 lower left whole, ageF, GL36, GB15
14S0E.1 Bos M1or2 upper hand?, <1/2
20S5E.1 Bos M1or2 upper, hand?, whole, ageG, GL27, GB19
14S8W.1 Bos M1or2 upper, >1/2, ageE, GL22, GB19
? Bos M1or2 upper, >1/2, ageK, GL23, GB21
14S0E.1 Bos M1or2 upper, whole, ageJ, GL27, GB20
F53 Bos M1or2 upper, >1/2, ageKGB20
F53.2c Bos M1or2 upper, whole, ageK, GL23, GB20
5S0E.2 Bos M1or2 upper, whole, ageK, GL25, GB17
14S5W.2 Bos M1or2 upper, whole, ageJ, GL24, GB19
F26 Bos M3 lower, whole, ageF, GL30, GB20
7S1E.2 Bos M1or2 upper, whole, ageK, GL26, GB18
? Bos M1or2 upper, whole, ageK, GL22, GB19
F21 Bos M1or2 upper, whole, ageK, GL24, GB19
17S0E.2 Bos M1or2 upper, whole, ageF, GL25, GB19
T1S.2 Bos M1or2 upper, whole, ageC, GL27, GB16
24S5W.1 Bos M1or2 upper, whole, ageC, GL26, GB17
24S4W.1 Bos M1or2 upper, whole, ageH, GL24, GB16
22S2W.1 Bos M1or2 upper, whole, ageC, GL22, GB16
12S3W.1 Bos M1or2 upper, whole, ageF, GL25, GB17
9-10m.1 Bos M1or2 upper, whole, ageH, GL28, GB20
11S2E.2 Bos M1or2 upper, whole, ageK, GL25, GB17
12S2W.1 Bos M1or2 upper, whole, ageJ, GL25, GB17
19S8E.1 Bos M1or2 upper, whole, ageG, GL27, GB19
19S5E.1 Bos Mior2, upper, whole, ageK, GL24, GB15
10S2E.2 Bos Mior2, upper, whole, ageJ, GL20, GB14
14S4E.2a Bos Mior2 upper, >1/2, ageJ, GL20, GB19
T1N.2a Bos Mior2 upper, >1/2, ageK, GL23, GB18
21S2W.2 Bos Mior2 upper, >1/2, ageJ, GL21
F43.2 Bos P2 upper left, >1/2, ageH,
6-7m.1 Bos M3 upper, >1/2, ageE, GL26, GB17
22S2W.2 Bos M3 upper, whole, ageA, GL26, GB14
19S5E.2a Bos M3 upper, whole, ageK, GL29, GB19
14S1E.1 Bos M3 upper, >1/2, ageC, GL30, GB16
17S4E.2 Bos M3 upper, whole, ageD, GL30, GB16
7-8m.1 Bos M3 upper, whole, ageD, GL28, GB16
T1S.2 Bos M3 upper, whole, ageE, GL29, GB16
14S1E.1 Bos M3 upper, whole, ageC, GL23, GB15
14S8W.1 Bos M3 upper, whole, ageC, GL30, GB17
T1S.2 Bos M3 upper, whole, ageA, GL27, GB16
F26. F Bos M3 upper, whole, ageF, GL27, GB17
20S5E.1 Bos M3 upper, 1/2, ageC, GL26
12S4W.2a Bos M3 upper, whole, ageA GL28, GB16
20S4W.2 Bos Mior2 lower, whole, ageK, GL20, GB13
19S0E.1 Bos Mior2 lower, whole, ageJ, GL24, GB13
21S2W.2 Bos Mior2 lower, whole, ageG, GL23, GB11
F26 Bos Mior2 lower, whole, ageK, GL22, GB14
F44 Bos Mior2 lower, <1/2, ageK, GB13
18S0E.2 Bos Mior2 lower, <1/2, ageK, GB13
F53 Bos Mior2 lower, >1/2, ageE, GL20, GB12
12S3W.1 Bos Mior2 lower, whole, ageK, GL24, GB12
10S1W.2a Bos Mior2 lower, whole, ageJ, GL24, GB16
12S3W.2a Bos Mior2 lower, whole, ageK, GL23, GB11
14S3W.2 Bos Mior2 lower, >1/2, ageF, GB10
13S5E.2 Bos Mior2 lower, whole, ageK, GL24, GB14
1-2m.1 Bos Mior2 lower, >1/2, ageJ, GB13
F25 Bos Mior2 lower, whole, ageK, GL23, GB13
F26 clay Bos Mior2 lower, whole, ageK, GL23, GB12
13S1E.1 Bos Mior2 lower, whole, ageC, GL26, GB11
13S3W.2a Bos Mior2 lower, whole, ageA, GL28, GB11
F26 clay Bos M3 lower, >1/2, ageJ, GB14
8S2E.1 Bos Mior2 lower, whole, ageA, GL26, GB9
14S0E.1 Bos Mior2 lower, whole, ageG, GL25, GB13
12S3W.1 Bos Mior2 lower, whole, ageA, GL26, GB11
22S3W.2 Bos Mior2 lower, whole, ageA, GL23, GB11
1-2m.1 Bos Mior2 lower, whole, ageK, GL22, GB12
24S4W.1 Bos Mior2 lower, whole, ageK, GL22, GB12
F3.2a Bos Mior2 lower, whole, ageB, GL24, GB10
9S1W.2 Bos Mior2 lower, whole, ageL, GL20, GB14
? Bos Mior2 lower, whole, ageM, GL20, GB14
12S4W.2a Bos Mior2 lower, whole, ageN, GL19, GB13
3-4m.1 Bos P2 lower right, whole, ageH
17S6E.1 Bos P2 lower right, whole, ageH
12S3W.1 Bos Deciduous, whole, ageA
F26 Bos Deciduous, whole, ageA
21S4W.2 Bos Deciduous, whole, ageC
9S1W.2 Bos Deciduous, whole, age C
12S4W.2a Bos Incisor, lower, whole
15S2E.1 Bos Incisor, lower, whole
7S0E.2 Bos Incisor, lower, whole
13S4W.2a Bos Incisor, lower, whole
8-9m.1 Bos Incisor, lower, whole
F53.2a Bos Incisor, lower, whole
6-7m.1 Bos Incisor, lower, whole
18S1W.2 Bos Incisor, lower, whole
20S1W.2 Bos Incisor, lower, whole
F53.2a Bos Incisor, lower, whole
13S5E.1 Bos Incisor, lower, whole
21S4W.2 Bos P3 upper, age F
19S1W.2 Bos P2 lower right, age G
9S1E.1 Bos M2 upper right, 1/2, age D
21S5W.2 Bos M2 upper right 1/2, age C
20S2W.2 Bos M2 lower right 1/2, age D
T1S.2 Bos P3 upper right, whole, age E
? Bos M1or2 lower, age B, C
15S4W.2 Bos M1or2, lower, age B, C
F26. F Bos M1or2 lower, age B, C
13S4W.2a Bos M1or2 lower, age B, C
F26 Bos M1or2 lower, age B, C
F53.2a Bos M2, lower right, age C, GL22, GB11
F53.2a Bos M3, lower right, age C, GL32, GB11
F53.2a Bos P1, lower right, age C
F53.2a Bos P2, lower right, age C
F53.2a Bos P3, lower right, age C
F3 Bos M2, lower, age B
13S3W.2a Bos M2, lower, age B
F53.2a Bos M2 lower right, age D, GL17, GB7
F53.2a Bos M3 lower right, age D, GL21, GB7
F26. I Bos M2 lower left, age F, GL20, GB13.5
F26. I Bos M3 lower left, age F, GL32, GB13.6
F53.2a Bos P3 lower left, age F,
F53.2a Bos M1, lower left, age F
F53.2a Bos M2, lower left, age F, GL22.5, GB14
20S5E.2 Bos P2, lower right, age D
20S5E.2 Bos P3, lower right, age D
T1N.2a Bos M1, upper left, age F
T1N.2a Bos M2, upper left, age F, GL26.5, GB19.4
F43 Bos M1, upper, age J
F43.2 Bos P3, upper, age J
13S3W.2a Bos P1, lower, age B
15S2W.2 Bos P1, lower, age B
14S3W.2 Ovis Tibia, distal, right, <1/2, fused
19S4W.2 Ovis Humerus, proximal, right, <1/2, unfused, chopped
20S1W.2 Ovis Humerus, prox, right, <1/2, unfused, chopped
13S4W.2a Ovis Femur, prox, left, <1/2, fused, chopped
12S4W.2a Ovis Femur epiphysis, prox., <1/2, unfused
13S1W.1 Ovis Radius, prox, right, <1/2, fused, GBp24
12S2W.2 Ovis Mandible, condyle process, right, <1/2
| F21  | Ovis Metacarpus, prox, left, <1/2, fused, GBp19 |
| T1S.2 | Ovis Metatarsus, prox, right, <1/2, fused, GBp19 |
| 20S1W.2 | Ovis Metatarsus, prox, left, <1/2, fused, GBp15 |
| T1N.2a | Ovis Metatarsus, prox, right, <1/2, fused, GBp16 |
| 9S1W.2 | Ovis Humerus, distal, right, <1/2, fused, GBd25 |
| F53.2a | Ovis Humerus, prox, right, <1/2, unfused, GBp20 |
| 13S4W.2a | Ovis Humerus, shaft, left, <1/2, |
| T1N.2 | Ovis Tibia, distal, right, 1/2, fused, GBd23, chopped |
| 13S3W.2a | Ovis Tibia, distal, left, <1/2, fused, GBd20, chopped |
| F26b.c. | Ovis Tibia, distal, right, <1/2, unfused |
| 14S4E.2a | Ovis Calcaneus, left, whole, unfused, GL49, GB16 |
| 20S3W.2clay | Ovis Calcaneus, right, <1/2, chopped |
| T1S.2 | Ovis Phalanx.3, left, whole |
| F53.2a | Ovis Ramus, right, <1/2 |
| 12S2W.2 | Ovis Ramus, right, <1/2 |
| F53.2a | Ovis Ramus, <1/2 |
| 13S3W.2a | Ovis Phalanx.2, whole GL20, GBp14, GBd11, chopped |
| F26 | Ovis Phalanx.1, whole GL32, GBp10, GBd8, chopped |
| 19S3W.2 | Ovis Humerus, distal, right, 1/2, fused |
| 15S2W.2 | Ovis Scapula, left, <1/2, chopped |
| F43 | Ovis Scapula, blade, right, <1/2, chopped |
| T1S.2 | Ovis Scapula, blade, left, <1/2, chopped |
| 13S3W.2a | Ovis Scapula, blade, left, <1/2, fused, chopped |
| F53.2a | Ovis Scapula, blade, left, <1/2, |
| 12S2W.2 | Ovis Scapula, blade, right, <1/2, |
| 13S4W.2a | Ovis Scapula, blade, right, <1/2 |
| T1S.2 | Ovis Scapula, blade, <1/2 |
| 20S2W.2 | Ovis Scapula, blade, <1/2 |
| F53 | Ovis Scapula blade, <1/2 |
| 21S4W.2a | Ovis Cranium, foramen magnum basion, unfused, split |
| F26.I | Ovis Lumbar Vert. >1/2, unfused |
| 13S4E.2 | Ovis Cerv. Vert., <1/2, unfused, split |
| 12S4W.2a | Ovis ThoracicVert., <1/2, chopped |
| 19S3W.2 | Ovis Rib, dorsal, left, <1/2, chopped |
| 22S3W.2a | Ovis Rib, dorsal, left, <1/2, chopped |
| 12S4W.2a | Ovis Rib, shaft frag, chopped |
| 13S3W.2a | Ovis Rib, shaft frag, chopped |
| 7S1W.2 | Ovis Rib, shaft frag, chopped |
| 9S1W.2 | Ovis Rib, shaft frag, chopped |
| 12S4W.2a | Ovis Rib, shaft frag, chopped |
| F38 | Ovis Rib, shaft frag, chopped |
| F53.2c | Ovis Rib, shaft frag, chopped |
| 12S2W.2 | Ovis Rib, shaft frag, chopped |
| 20S5E.2 | Ovis Rib, shaft frag, chopped |
| 4S1W.2a | Ovis Rib, shaft frag, chopped |
| 20S5E.2 | Ovis Rib, shaft frag, chopped |
| 13S3W.2a | Ovis Rib, shaft frag, chopped |
| 12S4W.2a | Ovis Rib, shaft frag, chopped |
| 19S6E.2a | Ovis Rib, shaft frag, chopped |

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T1S.2  Ovis  Rib, shaft frag, chopped
8S0E.1  Ovis  Rib, shaft frag, chopped
13S4W.2a  Ovis  Rib, shaft frag, chopped
15S3W.2  Ovis  Rib, shaft frag, chopped
13S4W.2a  Ovis  Rib, shaft frag, chopped
15S2W.2  Ovis  Rib, shaft frag, chopped
13S3W.2a  Ovis  Rib, shaft frag, chopped
12S2W.2  Ovis  Rib, shaft frag, chopped
12S3W.1  Ovis  Rib, shaft frag, chopped
T1S.2  Ovis  Rib, shaft frag, chopped
22S3W.2  Ovis  Rib, shaft frag, chopped
13S4W.2a  Ovis  Rib, shaft frag, chopped
12S4W.2a  Ovis  Rib, shaft frag, chopped
12S4W.2a  Ovis  Rib, shaft frag, chopped
13S4E.1  Ovis  Rib, shaft frag, chopped
12S1E.2b  Ovis  Foramen Magnum, 1/2, split
F53.2a  Ovis  Horn Root
F3  Ovis  Horn Core
9S1W.2a  Ovis  Horn Core
F26.1  Ovis  Occipital/Frontal Suture, 1/2 (Ovis!)
F26  Ovis  Ear Structure
12S2W.2  Ovis  Nasal
F53.2a  Ovis  Mand.infradental, left, <1/2, chopped
T1S.1  Ovis  Mand.infradental, right, <1/2, chopped
19S3W.2  Ovis  Mand.infradental, left, <1/2, chopped
14S3W.2  Ovis  Mand, horiz Ramus, left, <1/2, chopped
15S2W.2  Ovis  Mand, horiz Ramus, left, <1/2, chopped
F26.1  Ovis  Mand, Ramus, right, <1/2, chopped
15S2W.2  Ovis  Mand, Ramus, left, <1/2, chopped
20S3W. clay  Ovis  Mand, Ramus, <1/2, chopped
9S1W.2  Ovis  Mand, horiz Ramus, left, <1/2, chopped
22S2W.2  Ovis  Mand, Condyle Process, right, 1/2, chopped
13S4W.2a  Ovis  Mand, Condyle Process, right, 1/2, chopped
F53.2a  Ovis  Mand, Condyle Process, right, 1/2, chopped
19S5E.2  Ovis  Mand, horiz Ramus, <1/2
12S2W.2  Ovis  Mand, P2-M3 tooth row, right
12S2W.2  Ovis  P2, lower right, age F-G
12S2W.2  Ovis  P3, lower right, age F-G
12S2W.2  Ovis  M1, lower right, age F-G
12S2W.2  Ovis  M2, lower right, age F-G, GL12.8, GB7.9
12S2W.2  Ovis  M3, lower right, age F-G, GL23, GB8.2
12S2W.2  Ovis  Mandible, tooth row M1-2, right
12S2W.2  Ovis  M1, lower right, age D
12S2W.2  Ovis  M2, lower right, age D, GL16.6, GB6
F53.2c  Ovis  Mand, tooth row, P2, right
F53.2c  Ovis  P2, lower right, age K
F53.2a  Ovis  Mand, tooth row P2-M2, left
F53.2a  Ovis  P2, lower left, age G
F53.2a  Ovis  P3, lower left, age G
F53.2a  Ovis  M1, lower left, age G
F53.2a  Ovis  M2, lower left, age G, GL15, GB8
22S3W.2a  Ovis  Mand, tooth row P1-M2, right
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<td>Ovis</td>
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F53.2a *Felis* Humerus, prox, right, <1/2, fused
F53.2a *Felis* Humerus, distal, right, 1/2, fused
F53.2a *Felis* Humerus, whole, left fused
F53.2a *Felis* Scapula, right 1/2
F53.2a *Felis* Scapula, left, 1/2
F53.2a *Felis* Os Coxae, right, 1/2
F53.2a *Felis* Os Coxae, left, 1/2
F53.2a *Felis* Calcaneus, right, whole
F53.2a *Felis* Talus, right, whole
F53.2a *Felis* Tibia, prox. right, >1/2
F53.2a *Felis* Femur, right, whole
F53.2a *Felis* Femur, distal, left, 1/2
F53.2a *Felis* Tibia, distal, right, m1/2
F53.2a *Felis* Tibia, distal, left, 1/2
F53.2a *Felis* Metacarpal, left, whole
F53.2a *Felis* Metacarpal, left, whole
F53.2a *Felis* Caudal Vert, whole
F53.2a *Felis* Caudal Vert, whole
F53.2a *Felis* Caudal Vert, whole
F53.2a *Felis* Crania, frontal orbit, right, 1/2
F53.2a *Felis* Radius, distal, left, 1/2
F53.2a *Felis* Radius, prox, left, 1/2
F53.2a *Felis* Vertebrae frag
F53.2a *Felis* Vertebrae frag
F53.2a *Felis* Vertebrae frag
F53.2a *Felis* Vertebrae frag
F53.2a *Felis* Vertebrae frag
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F53.2a *Felis* Vertebrae frag
F53.2a *Felis* Rib frag
F53.2a *Felis* Rib frag
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F53.2a *Felis* Rib frag
F53.2a *Felis* Rib frag
F53.2a *Felis* Rib frag
F53.2a *Felis* Rib frag
F53.2a *Felis* Tibia, prox. left, 1/2
F53.2a *Felis* Mandible, left, 1/2

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F53.2a Felis I, lower
F53.2a Felis P2
F53.2a Felis P2
F53.2a Felis M1
12S3E.2a Sus Calcaneus, right, 1/2, fused, GB40, chopped
8S0E.2a Sus Mand. Gonion Ventrale, <1/2, chopped
T1N.2a Sus Cranium, lower orbit, left, fused
15S1W.2 Sus Maxilla, M2-3, left, age F
15S1W.2 Sus M2, upper left, age F, GL18.3, GB14.3
15S1W.2 Sus M3, upper left, age F, GL30, GB17.6
14S1W.1 Sus Maxilla, P2-4, right, <1/2, age F
14S1W.1 Sus P4, upper right, age F, GL12.8, GB12.3
15S2W.2 Sus Maxilla, P2-3, right, <1/2, age E
15S2W.2 Sus P2, upper right, age E, GL11.9, GB5.7
15S2W.2 Sus P3, upper right, age E, GL12.7, GB9
F57 Sus Mandible, M2, left, <1/2, age D
F57 Sus M2, lower left, age D, GL16.2, GB8.2
F53.2c Sus Mandible, M2-3, right, <1/23, age B
F53.2c Sus M2, lower right, age B, GL16.5, GB10.5
F53.2c Sus M3, lower right, age B, GL21.9, GB11.5
8S0E.2a Sus Mandible, M2-3, left, age E+C
8S0E.2a Sus M2, lower left, age E, GL16, GB9
8S0E.2a Sus M3, lower left, age E, GL21.5, GB9.7
15S2W.2a Sus Mandible, M1-3, left, age A+E+K
15S2W.2a Sus M1, lower left, age K, GL13.3, GB8.8
15S2W.2a Sus M2, lower left, age E, GL18.2, GB10.7
15S2W.2a Sus M3, lower left, age A/erupting, GL26, GB11
T1N.2a Sus Scapula, left, <1/2
22S2W.2 Sus Rib, <1/2
19S4E.1 Sus Scapula, <1/2
9S1W.2a Sus Maxilla frag, <1/2
12S4W.2a Sus Metatarsus, whole, fused, GL65
19S5W.1 Sus Rib, <1/2
F43 Sus Canine, upper left, whole
14S3W.2 Sus Canine, lower right, whole
14S5W.2 Sus M3, lower, age A, GL31, GB12
F57 Sus M3, age A, unerupted, GL21, GB12
? Sus M3, age F, GB10
? Sus M3, age A, GB13
3-4m.1 Sus P3, age A
14S3W.2 Sus M3, age G, GL14, GB9
14S1W.1 Sus M1, age J
15S2W.2 Sus P3, age D
14S1W.1 Sus P3, age F
21S4W clay Sus M3, age A, GL18, GB9
21S4W clay Sus M3, age C, GL17, GB9
21S4W clay Sus P2, age A
7S1W.2 Sus Canine, lower
14S1W.1 Sus Incisor
F26a.c. Sus Incisor
12S3W.2a Sus Incisor
7S0E.2 Sus Incisor

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Of the identified specimens, 448 or 51% are *Bos* (cattle). This number does not include possible *Bos* ribs, which could add another 82 fragments, bringing the *Bos* contribution to the total assemblage to 61.2%. The number of individual specimens (NISP) for all identified species is:

- **Bos** (448) 51.0% of total
- *Ovis/ Capra* (152) 17.6%
- *Felis Catus domesticus* (67) 7.7%
- *Sus* (24) 2.8%
- *Gallus domesticus* (6) .7%
- *Anser* (5) .6%
- *Equus* (4) .5%
- *Canis familiaris* (2) .2%
- unidentified *Avian* (4) .5%
- unidentified ungulate (29) 3.3%
- poss. *Bos* ribs (82) 10.2%
- poss. *Ovis/Capra/Sus* ribs (41) 4.0%