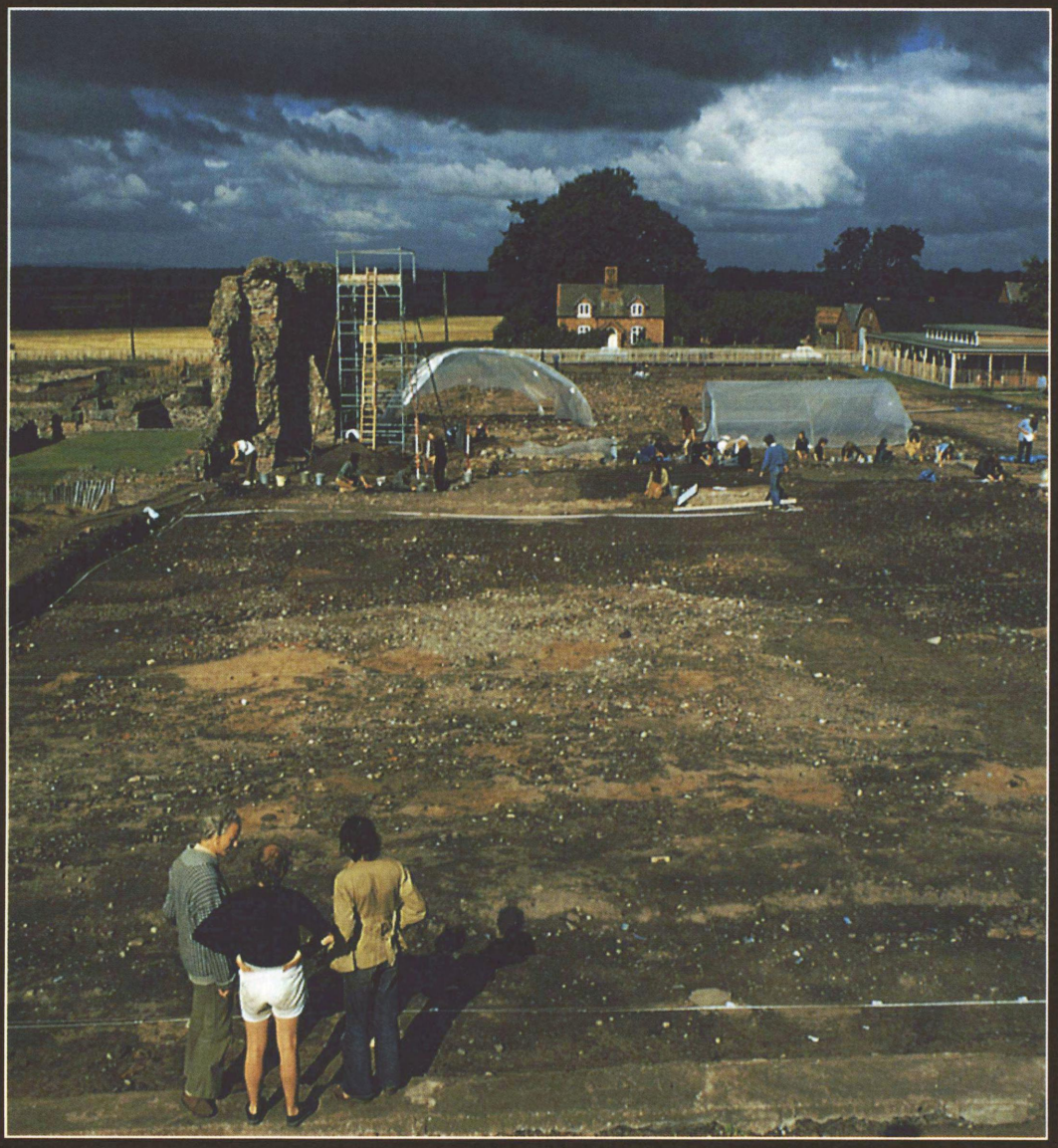
THE BATHS BASILICA WROXETER

Excavations 1966–90

Philip Barker, Roger White, Kate Pretty,
Heather Bird, and Mike Corbishley



ENGLISH HERITAGE

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Philip Barker, Roger White, Kate Pretty,
Heather Bird, and Mike Corbishley

with contributions by
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Contents

Illustrations vi
Loose-leaf figures x
Tables xiii
Acknowledgements xiv
Summary xvi
Résumé xvii
Zusammenfassung xix

1 Introduction
The city and the site 1
Circumstances and development of the excavation . . 2
Organisation and methodology of the excavation 8
Structure of the report 12
Archive 12

2 Previous archaeological work
Thomas Wright, 1859 15
George Fox, 1894 and 1896 16
Dame Kathleen Kenyon, 1936 and 1937 16
Dr Graham Webster, 1955–66 19

3 Summary of the structural development of the baths basilica and its surroundings
The baths basilica, phases S–Y 20
The east to west street and drains, phases S, W, and X 23
The *insula* 2 frontage, phases V–Y 23
The precinct, phases X and Y 24
The eastern side of *insula* 5 and the north to south street, phases W–Y 24
The great rebuilding, phases pre-Z and Z 25

4 A structural history of the baths basilica site
Phase S, the original basilica 27
Phase T, the herringbone-tile floor 52
Phase U, repairs 58
Phase V, repairs 64
Phase W, the last refloorings 68
Phase X, the building yard 89
Phase Y, partial dismantling 103
Peripheral areas 108
Phase pre-Z: preparatory work 121
Phase Z: the great rebuilding 138
The burial 167
The abandoned site 168
Dating 168

5 A catalogue and structural interpretation of the buildings
Introduction 169
Reconstructing the evidence 169
Metrical analysis 170
Catalogue of the buildings 172

6 The finds
Introduction 192
The dumps 195
Category A contexts 201

7 Archaeology and history: the site in its setting
The background and role of the baths basilica 221
The peripheral areas of the site before the great rebuilding 231
The demolition of the basilica and the great rebuilding 231
The implications of the evidence 245

Appendices

A: The artefacts
1 Small finds *by K Pretty* 249
2 Architectural fragments *by R White, with R Ixer* 259
3 Roman coinage *by R Brickstock and J Casey* . . . 264
4 Roman pottery *by R P Symonds, with M Hassall, R Tomber, R White, and F Wild* 269
5 Vessel glass *by K Pretty* 319

B: The environmental evidence
6 Plant remains *by M Monk, M Charles, and S Colledge* 324
7 Charcoal identification *by R Gale* 346
8 Faunal remains *by M Armour-Chelu* 350
9 Fish bones *by A Locker* 365
10 Human skull fragments *by L Wilkinson and P A Barker* 368

C: Context information
11 Context list by site and phase, divided into Categories A, B, and C 371

Bibliography 375

Index 383

Illustrations

Fig 1 Sites mentioned in text . . . 1
Fig 2 Wroxeter and environs . . . 2
Fig 3 Wroxeter showing cropmarks and excavated evidence . . . 3
Fig 4 Wroxeter, layout of *insulae* . . . 4
Fig 5 Plan of excavated area . . . 5
Fig 6 Site 68, excavation 1966 . . . 5
Fig 7 Site 71, west end of nave . . . 6
Fig 8 Building 7, facade . . . 6
Fig 9 Layout of site grid . . . 6
Fig 10 Annexe with archaeological trenches emptied . . . 7
Fig 11 Clearing layer I/II from the site, 1971 . . . 8
Fig 12 Cleaning part of north aisle, 1982 . . . 9
Fig 13 On-site planning . . . 10
Fig 14 The quadrupod in use . . . 10
Fig 15 Quadrupod photographs, viewer, and light box . . . 10
Fig 16 View of consolidated basilica . . . 11
Fig 17 Mosaic fragments found in north aisle, watercolour by George Maw, 1859 . . . 15
Fig 18 Junction of the west and south walls of the basilica . . . 17
Fig 19 Phased plan of the baths basilica, Kenyon 1940 . . . 18
Fig 20 East end of the Old Work, north side . . . 19
Fig 21 Baths complex, *c* AD 150 . . . 20
Fig 22 Layout of loose leaf plans, Phase S . . . 27
Fig 23 North portico colonnade, wall and drain . 28
Fig 24 Basilica, west and north wall junction . . . 28
Fig 25 North aisle, south aisle, and north portico colonnades, sections . . . 29
Fig 26 North portico colonnade, construction . . 30
Fig 27 North portico colonnade, stylobates, *in situ* . . . 31
Fig 28 Stylobate C454 . . . 31
Fig 29 Basilica, threshold in west door . . . 31
Fig 30 North wall, robber trench . . . 32
Fig 31 North wall, robbing hole . . . 32
Fig 32 Basilica, wall plaster . . . 32
Fig 33 Elevation of wall plaster . . . 33
Fig 34 North wall, possible water pipe inlet . . . 33
Fig 35 Old Work, west end, showing 1950's underpinning . . . 33
Fig 36 Old Work, north side . . . 34
Fig 37 Old Work, east end, underpinning . . . 34
Fig 38 South aisle colonnade, looking east . . . 35
Fig 39 South aisle colonnade, pier base . . . 36
Fig 40 South aisle colonnade, bedding layer and pier base . . . 36
Fig 41 South aisle colonnade, stylobate fragment . . . 37
Fig 42 North aisle colonnade . . . 37
Fig 43 North aisle colonnade, pier base . . . 37
Fig 44 Nave and south aisle, archaeological trench sections . . . 38
Fig 45 East wall of basilica, south wall of annexe, and drainage slot, junctions . . . 39
Fig 46 Thomas Wright archaeological trench, *frigidarium* doorway, section . . . 40
Fig 47 South aisle, mosaic showing laying-out line . . . 41
Fig 48 South aisle, mosaic and later patches . . . 41
Fig 49 *Frigidarium* doorway, sandstone slabs . . . 41
Fig 50 South wall, sandstone slab outside central doorway . . . 42
Fig 51 South wall doorway, threshold, and overlying herringbone-tile floor . . . 42
Fig 52 Nave, pre-basilican mortar surface cut through floor . . . 42
Fig 53 Nave, archaeological trench, section . . . 43
Fig 54 North aisle, mosaic fragment D435 . . . 44
Fig 55 North aisle, mosaic fragment D1076 . . . 45
Fig 56 North aisle, mosaic fragment D1095 . . . 47
Fig 57 North aisle, eastern edge of herringbone-tile patch and associated *tesserae* . . . 47
Fig 58 North aisle, mosaic laying-out line at west end . . . 48
Fig 59 Annexe, north room, mortar floor . . . 48
Fig 60 Portico, pebble tile floor . . . 48
Fig 61 Basilica, reconstructed cross-section . . . 50
Fig 62 Certosa di Pontignano, Siena, Italy, cloister colonnade . . . 51
Fig 63 Layout of loose leaf plans, Phase T . . . 52
Fig 64 South aisle, herringbone-tile floor, west . 53
Fig 65 South aisle, herringbone-tile floor, east . . 53
Fig 66 South aisle, junction between the *opus signinum* layers, mosaic, and herringbone-tile floor . . . 54
Fig 67 Nave, wear pattern, north edge of herringbone-tile floor . . . 55
Fig 68 Nave, east end, relaid area of herringbone-tile floor . . . 55
Fig 69 Nave, west end, herringbone-tile floor . . 56
Fig 70 North aisle, herringbone-tile floor patch . 56
Fig 71 Layout of loose leaf plans, Phase U . . . 58
Fig 72 Nave, north edge, area of herringbone-tile floor removal . . . 59
Fig 73 Nave, east end, interlinked areas of wear . 59
Fig 74 Nave, south, linear cut in edge . . . 59
Fig 75 Ridge of mortar with linear cut . . . 60
Fig 76 Linear cut, sections . . . 61
Fig 77 Nave, north-west corner, cut . . . 62
Fig 78 North aisle, west end, wear pattern . . . 62
Fig 79 North aisle, large pit D791 . . . 63
Fig 80 Annexe cross wall, junction with east wall . . . 63
Fig 81 Annexe, south room, industrial pits . . . 63
Fig 82 Building 74, stake-holes . . . 63
Fig 83 Layout of loose leaf plans, Phase V . . . 64
Fig 84 Nave and south aisle, wear pattern and patch . . . 65

Fig 85 South aisle, worn and unworn postholes in herringbone tile floor 65
Fig 86 Building 61, west-facing elevation 67
Fig 87 Annexe, surface B618 67
Fig 88 Layout of loose leaf plans, Phase W 68
Fig 89 Old Work, water pipes at foot of 69
Fig 90 Old Work, offset, showing relaid mosaic border 69
Fig 91 South aisle, sections through water pipes . 70
Fig 92 South aisle, pebble surface by *frigidarium* doorway 70
Fig 93 South aisle, west end, mortar floor 71
Fig 94 Mortar floor between surfaces in north aisle and nave 72
Fig 95 Nave, east end, beaten earth floor 72
Fig 96 Nave, east end, rough final reflooring 73
Fig 97 Nave, centre, areas of *opus signinum* 73
Fig 98 Nave, west end, pebble floor 74
Fig 99 Nave, edge of pebble floor, worn sandstone blocks 75
Fig 100 Building 30 75
Fig 101 Buildings 65 and 66, charcoal platforms . 76
Fig 102 Buildings XXVI and XXVII, Hen Domen, Montgomery 77
Fig 103 Buildings 65 and 66 and hollow-way between 78
Fig 104 Building 65, earth and pebble floors, section 78
Fig 105 Nave, west end, dark earth layers 79
Fig 106 North aisle, baby burial 80
Fig 107 North aisle, east end, mortar floors 80
Fig 108 North aisle, path into portico 81
Fig 109 Annexe, north room 81
Fig 110 Annexe, casting pit with baby burial 82
Fig 111 Charred threshold plank 82
Fig 112 Annexe, south room, Phase W1, industrial complex 83
Fig 113 Building 59, hearth 84
Fig 114 Building 59, iron trowel 84
Fig 115 Building 60, hearths and mortar mixing area beneath 84
Fig 116 Buildings 60ii and 59ii 85
Fig 117 Building 67, cross wall 86
Fig 118 Annexe, cross wall showing wear. 86
Fig 119 West portico, sandstone path leading to west door 87
Fig 120 North portico, subsidence. 87
Fig 121 North portico, eroded water course 88
Fig 122 North portico, west end, subsidence 88
Fig 123 Layout of loose leaf plans, Phase X. 90
Fig 124 Building 54, east end of south aisle 90
Fig 125 Building 54, flagstone hearth 91
Fig 126 Building 53 by doorway in south aisle. . . 91
Fig 127 Nave, east end and Building 55 92
Fig 128 Lime pit half-sectioned 92
Fig 129 Lime pit interpretatation. 93
Fig 130 Lime pit 94
Fig 131 Lime pit, later layers 94
Fig 132 Building 56 95
Fig 133 North aisle, Phase X 96
Fig 134 Annexe, south-east corner, lime layer . . . 96
Fig 135 Buildings 63 and 64, postholes, sections . 97
Fig 136 Oven D371 98
Fig 137 Oven D371, dissection 98
Fig 138 Oven D371, sections. 99
Fig 139 North portico, joist lines 100
Fig 140 North portico, ox skull between joists of boardwalk 100
Fig 141 Lines marking joist positions. 100
Fig 142 North portico, stake or solution holes showing joist positions 101
Fig 143 Oven D501 102
Fig 144 Building 58, stylobates and posthole . . . 102
Fig 145 Building 58, step to cobble street 102
Fig 146 Building 57, east of Building 58 103
Fig 147 Layout of loose leaf plans, Phase Y 104
Fig 148 South aisle, east end, rubble dump 104
Fig 149 South aisle, west end, Building 52 and surfaces. 104
Fig 150 South aisle, west end, worn rubble surfaces. 105
Fig 151 Nave, west end, worn rubble surface. . . . 105
Fig 152 Nave, east end, flagstones 105
Fig 153 Building 61, collapsed daub wall-facing . 106
Fig 154 North aisle, floor, fragment of basilica wall 106
Fig 155 North wall, flagstone surface associated with doorway 106
Fig 156 West portico 107
Fig 157 North portico, worn surfaces, subsidence 107
Fig 158 North portico, colonnade, robber trench. 107
Fig 159 Basilica, stone gutter. 109
Fig 160 Gutter stones 109
Fig 161 Graffito on gutter stone. 109
Fig 162 Water pipes, north of gutter stones 110
Fig 163 Voids in road surface showing underlying pipes 111
Fig 164 Iron pipe collar showing wood traces . . 111
Fig 165 Water pipe after excavation 111
Fig 166 Iron pipe collar, mortar covering still in place 112
Fig 167 Roadside fountain, excavation sequence . 113
Fig 168 Corbridge and Pompeii, stone roadside water tanks 114
Fig 169 Box-pipe E219 114
Fig 170 Stone robbing hole E271 114
Fig 171 Water channel, before and after excavation 115
Fig 172 Section through road showing box-pipe. . 116
Fig 173 Possible central road drain E176. 116
Fig 174 Possible central road drain C188 117
Fig 175 Industrial furnace C439 117
Fig 176 Gully network 118
Fig 177 Pit C440 118
Fig 178 Building 36 . . . . . between pages 120/121
Fig 179 The Post House, Kiev, 1852 120
Fig 180 Pipe trench B86 121

Fig 181 Pebble floor A435 122
Fig 182 Pit and gully system 122
Fig 183 Pit A252, section 123
Fig 184 Pit A345, sections 123
Fig 185 Pits A318 and A345 124
Fig 186 Pits A318 and A347, profiles 125
Fig 187 Furnaces A50, A150, A245, A323, and hearth A14 126
Fig 188 Furnace A50 127
Fig 189 Fence line A258–A317 127
Fig 190 Building 1 128
Fig 191 Layout of loose leaf plans, Phases pre and post-Z 130
Fig 192 Robber trench, section 130
Fig 193 Gravel street, during excavation 131
Fig 194 Gravel street, after excavation 131
Fig 195 Gravel street, sections across 132
Fig 196 Gravel street, section along 133
Fig 197 Gravel street, during excavation 134
Fig 198 North portico, hearths 135
Fig 199 Possible cauldron stand 136
Fig 200 Fallen wall fragment C109 136
Fig 201 Hearths, Phase pre-Z4 136
Fig 202 North portico, dumps, sections 137
Fig 203 Layout of loose leaf plans, Phase Z 138
Fig 204 South aisle, Phase Z platforms 139
Fig 205 Buildings 10 and 11, rubble platforms . 140
Fig 206 Building 10, rubble raft 141
Fig 207 Porch pad-stones 142
Fig 208 Rubble raft fragment D100E 143
Fig 209 Rubble raft fragment D100G 143
Fig 210 Building 11, dwarf walls 144
Fig 211 Basilica, western doorway, worn path . . 144
Fig 212 Rubble path D132 and raft D100 145
Fig 213 Building 31 146
Fig 214 Annexe, north room, dump 147
Fig 215 Building 38 147
Fig 216 Building 37 148
Fig 217 West portico, tile hearth 148
Fig 218 Building 33 148
Fig 219 Building 33, north wall 149
Fig 220 Oven D371 with rubble dump in front . 149
Fig 221 Building 14 150
Fig 222 Gravel street surface, modern water-eroded channel 151
Fig 223 Gravel street, west end 151
Fig 224 Gravel street, joist lines 151
Fig 225 Building 42 153
Fig 226 Gravel street, west end 153
Fig 227 Building 26, west end of cobble street . . 153
Fig 228 Building 26, west wall construction detail 154
Fig 229 Cobble street, Phase Z1, linear dumps . 154
Fig 230 Southern frontage, *insula* 2, Phase Z1 . . 155
Fig 231 Building 51 155
Fig 232 Building 47 156
Fig 233 Building 46 156
Fig 234 Building 35, porch 157
Fig 235 Building 7, facade 158
Fig 236 Building 22 159
Fig 237 Building 8, porch on cobble street, Phase Z3 160
Fig 238 Building 68 161
Fig 239 Building 23 161
Fig 240 Building 24 162
Fig 241 Section of B176 163
Fig 242 Lead flashing within B176 164
Fig 243 Building 24, northern end 164
Fig 244 North–south street, Phase Z 166
Fig 245 Male burial 167
Fig 246 Reconstruction of Building 1 172
Fig 247 Reconstruction of Building 4 173
Fig 248 Reconstruction of Building 6 173
Fig 249 Reconstruction of Building 7 174
Fig 250 Reconstruction of Building 8 174
Fig 251 Reconstruction of Building 9 174
Fig 252 Reconstruction of Building 10 175
Fig 253 Reconstruction of Building 11 175
Fig 254 Reconstruction of Building 12 176
Fig 255 Reconstruction of Building 13 176
Fig 256 Reconstruction of Building 15 177
Fig 257 Reconstruction of Building 17 177
Fig 258 Reconstruction of Building 18 177
Fig 259 Reconstruction of Building 19 178
Fig 260 Reconstruction of Building 20 178
Fig 261 Reconstruction of Building 21 178
Fig 262 Reconstruction of Building 22 179
Fig 263 Reconstruction of Building 23 179
Fig 264 Reconstruction of Building 24 180
Fig 265 Reconstruction of Building 26 180
Fig 266 Reconstruction of Buildings 27 and 28 . 181
Fig 267 Reconstruction of Building 29 181
Fig 268 Reconstruction of Building 31 181
Fig 269 Reconstruction of Building 33 182
Fig 270 Reconstruction of Building 34 182
Fig 271 Reconstruction of Building 36 183
Fig 272 Reconstruction of Building 38 183
Fig 273 Reconstruction of Building 39 183
Fig 274 Reconstruction of Building 44 184
Fig 275 Reconstruction of Building 45 184
Fig 276 Reconstruction of Building 46 184
Fig 277 Reconstruction of Building 47 185
Fig 278 Reconstruction of Building 49 185
Fig 279 Reconstruction of Building 50 185
Fig 280 Reconstruction of Building 51 186
Fig 281 Reconstruction of Building 52 186
Fig 282 Reconstruction of Building 53 186
Fig 283 Reconstruction of Building 54 187
Fig 284 Reconstruction of Building 55 187
Fig 285 Reconstruction of Building 56 188
Fig 286 Reconstruction of Building 57 188
Fig 287 Reconstruction of Building 58 189
Fig 288 Reconstruction of Building 59ii 189
Fig 289 Reconstruction of Building 60ii 189
Fig 290 Reconstruction of Building 63 190
Fig 291 Reconstruction of Building 64 190
Fig 292 Reconstruction of Building 67 190
Fig 293 Reconstruction of Building 68 191

Fig 294 Reconstruction of Building 74 191
Fig 295 Distribution of post-Roman finds 193
Fig 296 Wound-wire headed pins. 194
Fig 297 Anglo-Saxon strap-end 195
Fig 298 Objects from dump C527 196
Fig 299 Objects from dump C527 197
Fig 300 Bone counters from dump C527. 198
Fig 301 Objects from dump D1569 199
Fig 302 Objects from dump D1569 200
Fig 303 *Martio barbuli* 204
Fig 304 Late military metalwork 205
Fig 305 Shale objects 207
Fig 306 Decorated ironwork 208
Fig 307 Decorated iron styli 208
Fig 308 Crossbow brooches 209
Fig 309 Penannular brooches 210
Fig 310 Protozoomorphic pins 211
Fig 311 Ringheaded pin. 212
Fig 312 Six votive plaster eyes 213
Fig 313 Plaster eyes 214
Fig 314 Plaster eyes, including rejected examples 215
Fig 315 Votive sheet gold eyes 216
Fig 316 Votive copper-alloy eye 216
Fig 317 Votive eye cut from samian sherd 216
Fig 318 Skull fragment showing cut marks indicating scalping 216
Fig 319 Special finds by phase 218
Fig 320 Reconstruction of baths basilica, Phase S 222
Fig 321 Western baths and *tepidarium* 226
Fig 322 Wright's 1859 excavations. 227
Fig 323 Reconstruction of the site, Phase Y. . . . 230
Fig 324 Reconstruction of the site, Phase Z. . . . 233
Fig 325 Barkerville, British Columbia, main street 1868–98 and 1902. 235
Fig 326 Tombstone of Cunorix 238
Fig 327 Reconstruction of post-Roman territory 243
Fig 328 The Berth at Baschurch 244
Fig 329 Saxon? halls at Atcham 244
Fig 330 Aerial view of Shrewsbury. 244
Fig 331 Intaglios 250
Fig 332 Objects from category A contexts 253
Fig 333 Objects from category A context 255
Fig 334 Objects from category A contexts 257
Fig 335 Architectural fragments from north portico colonnade robber trench 260
Fig 336 A stylobate from north portico colonnade 261
Fig 337 Architectural fragments from north aisle colonnade robber trench and elsewhere . . 262
Fig 338 Column base from Wroxeter *lapidarium*. . 263
Fig 339 Capital from Finger-post Cottage, near Wroxeter. 263
Fig 340 Coins from all Wroxeter sites 264
Fig 341 Coins from other Wroxeter sites 265
Fig 342 Coins from the baths basilica site (Barker) 265
Fig 343 Coins from the baths site (Webster) . . . 265
Fig 344 Coins from Sites C, D, and E 266
Fig 345 Coins from Site A 266
Fig 346 Coins from Site B, Precinct 267
Fig 347 Coins from Site B, Annexe 267
Fig 348 Severan coin mould 267
Fig 349 Coin of Constantine I 267
Fig 350 Red wares i 274
Fig 351 Red wares ii 275
Fig 352 Red wares iii 276
Fig 353 Red wares iv 277
Fig 354 Grey wares i 280
Fig 355 Grey wares ii. 282
Fig 356 Black-burnished wares i 283
Fig 357 Black-burnished wares ii 284
Fig 358 Black-burnished wares iii 285
Fig 359 Calcite-gritted wares 286
Fig 360 Nene Valley wares 287
Fig 361 Oxfordshire ware. 289
Fig 362 Other Fine wares 290
Fig 363 Miscellaneous wares 292
Fig 364 Miscellaneous wares, graffitti, and stamps 307
Fig 365 Coarse ware fabrics in stratigraphic phase order 311
Fig 366 Fine ware fabrics in stratigraphic phase order 312
Fig 367 Red wares in stratigraphic order 312
Fig 368 Grey wares in stratigraphic order 313
Fig 369 Black-burnished wares in stratigraphic order 313
Fig 370 Black-burnished wares in stratigraphic order 313
Fig 371 Calcite-gritted wares in stratigraphic order 313
Fig 372 Various imported wares in stratigraphic order 314
Fig 373 Pottery in Phase W 314
Fig 374 Pottery in Phase Z 314
Fig 375 Nene Valley wares, all phases 315
Fig 376 Severn Valley wares, all phases 317
Fig 377 Decorated samian sherds 317
Fig 378 Glass vessels 321
Fig 379 Bread-wheat prime versus tail grains. . . 329
Fig 380 Spikelet measurements from D626 329

Loose-leaf illustrations

A1 Robber trenches and archaeological disturbances

Composite sections

A2 North–south along 61m east
A3 North–south along 100m east
A4 North–south along 120m east
A5 North–south along 10m north

Interpretative phase plans

A6 The original building, Phase S
A7 Repairs and modifications, Phases T,U, and V
A8 The last reflooring, Phase W
A9 The building yard, Phase X
A10 Partial dismantling of the basilica, Phase Y
A11 The great rebuilding, Phase Z
A12 The last building and a burial, Phase post-Z
A13 West portico, south, Phase S
A14 West portico, north, Phase S
A15 North portico colonade, west end, evidence and interpretation
A16 North portico colonade, centre and east end, evidence and interpretation
A17 North portico colonade,robber trench east end
A18 North wall, robber trench, west end, entre and east end evidence
A19 South aisle, west end, evidence and interpretation, Phases S, T, and U
A20 South aisle, centre, evidence and interpretation Phases S, T, and U
A21 South aisle, east, evidence and interpretation Phases S, T, and U
A22 South aisle, extreme east end, evidence and interpretation, Phases S, T, and U
A23 South aisle, annexe, evidence, Phases S, T, and U
A24 South aisle colonnade, west end and centre, evidence and interpretation
A25 South aisle colonnade, east end, evidence and interpretation
A26 North aisle colonnade, west end and centre, evidence and interpretation
A27 North aisle colonnade, centre to extreme east end, evidence and interpretation
A28 Nave, west end, evidence, Phases S, T, U, and V
A29 Nave, middle, evidence, Phases S, T, U, and V
A30 Nave, east end, evidence, Phases S, T, U, and V
A31 Nave, extreme east end, evidence, Phases S, T, U, and V
A32 North aisle, west end, evidence and interpretation, Phases S and T
A33 North aisle, middle, evidence and interpretation, Phases S and T
A34 North aisle, east end, evidence and interpretation, Phases S and T
A35 North aisle, extreme east end, evidence and interpretation, Phases S and T
A36 North aisle, middle to east end, evidence and interpretation, Phase S
A37 North aisle, east to extreme east end, evidence and interpretation, Phase S
A38 Annexe, interpretation, Phase S
A39 South aisle, interpretation, Phases T and U
A40 Annexe, interpretation, Phase T
A41 North aisle, west end, evidence, Phases U and V, also Phase W
A42 North aisle, middle, evidence, Phases U and V, also Phase W
A43 North aisle, east end, evidence, Phases U and V, also Phase W
A44 North aisle, extreme east end, evidence, Phases U and V, also Phase W
A45 Annexe, interpretation, Phase U
A46 South aisle, west end, evidence and interpretation, Phase V
A47 South aisle, middle, evidence and interpretation, Phase V
A48 South aisle, east end, evidence and interpretation, Phase V
A49 Annexe, evidence and interpretation, Phase V
A50 South aisle, west end, evidence and interpretation, Phase W1, W2–3
A51 South aisle, middle, evidence and interpretation, Phase W1, W2–3
A52 South aisle, east end, evidence and interpretation, Phase W1, W2–3
A53 Nave, west end, evidence, Phase W1
A54 Nave, middle, evidence, Phase W1
A55 Nave, east end, evidence, Phase W1
A56 Nave, extreme east end, evidence, Phase W1
A57 Nave, west end, evidence, Phase W2
A58 Nave, west end, evidence, Phases W3–X
A59 Nave, middle, evidence, Phases W3–X
A60 Annexe, evidence, Phase W1
A61 Annexe, interpretation, Phase W1
A62 Annexe, evidence, Phase W2
A63 Annexe, interpretation, Phase W2
A64 West portico, evidence, Phase W
A65 North portico, west end, evidence, Phases W1 and 2
A66 North portico, west end to middle, evidence, Phases W1 and 2
A67 North portico, middle, evidence, Phases W1 and 2
A68 North portico, east end, evidence, Phases W1 and 2
A69 North portico, extreme east end, evidence, Phases W1 and 2
A70 South aisle, Phase X, east end, evidence and interpretation
A71 South aisle, extreme east end, evidence and interpretation, Phase X
A72 Nave, east end, evidence, Phases W3–X
A73 Nave, extreme east end, evidence, Phases W3–X
A74 Nave, extreme east end, interpretation, Phase X
A75 North aisle, middle to east end, evidence and interpretation, Phase X

A76 North aisle, east end, evidence and interpretation, Phase X
A77 Annexe, evidence, Phase X
A78 West portico, south, evidence and interpretation, Phase X
A79 West portico, north, evidence and interpretation, Phase X
A80 North portico, west end to middle, evidence and interpretation, Phase X
A81 North portico, middle to east end, evidence and interpretation, Phase X
A82 North portico, east end, evidence and interpretation, Phase X
A83 North portic, extreme east end, evidence and interpretation, Phase X
A84 South aisle, west end, evidence and interpretation, Phase Y1
A85 South aisle, west end, evidence and interpretation, Phase Y2
A86 South aisle, middle, evidence and interpretation, Phase Y
A87 South aisle, east end, evidence and interpretation, Phase Y
A88 South aisle, extreme east end, evidence and interpretation, Phase Y
A89 Nave, west end, evidence, Phase Y
A90 Nave, middle, evidence, Phase Y
A91 Nave, east end, evidence, Phase Y
A92 Nave, extreme east end, evidence, Phase Y
A93 North aisle, west end, evidence and interpretation, Phase Y
A94 North aisle, middle, evidence and interpretation, Phase Y
A95 North aisle, east end, evidence and interpretation, Phase Y
A96 Annexe, evidence, Phase Y
A97 West portico, evidence, Phase Y
A98 North portico, evidence, Phase Y
A99 East–west street, west end, evidence, Phases pre-Z and Z
A100 *Insula* 2, east end, evidence and interpretation, Phases V and W
A101 *Insula* 2, east end, evidence and interpretation, Phase X
A102 *Insula* 2, east end, evidence, Phases Y and Z1
A103 *Insula* 2, east end, interpretation, Phases Y and Z1
A104 Precinct, west, evidence, Phases X, Y, and Z1
A105 Precinct, east, evidence, Phases X, Y, and Z1
A106 Precinct, west, interpretation, Phases X, Y, and Z1
A107 Precinct, east, interpretation, Phases X, Y, and Z1
A108 North–south street and frontages, evidence, Phases W and X
A109 North–south street and frontages, evidence, Phase Y1
A110 North–south street and frontages, interpretation, Phase Y1
A111 North–south street and frontages, interpretation pit and gully systems 1 and 2, Phase Y1
A112 North–south street and frontages, evidence, Phase Y2
A113 North–south street and frontages, interpretation, Phase Y2
A114 North portico, evidence, Phase pre-Z1
A115 North portico, evidence, Phases pre-Z2 and 3
A116 North portico, evidence, Phase pre-Z4
A117 South aisle, west end, evidence and interpretation, Phase Z
A118 South aisle, middle, evidence and interpretation, Phase Z
A119 South aisle, east end, evidence and interpretation, Phase Z
A120 South aisle, extreme east end, evidence and interpretation, Phase Z
A121 North portico, north aisle, and nave, west end, evidence, Phase Z
A122 North portico, north aisle, and nave, west, evidence, Phase Z
A123 North portico, north aisle, and nave, middle, evidence, Phase Z
A124 North portico, north aisle, and nave, east, evidence, Phase Z
A125 North portico, north aisle, and nave, east end, evidence, Phase Z
A126 North portico, north aisle, and nave, extreme east end, evidence, Phase Z
A127 North portico, north aisle, and nave, west end, interpretation Phase Z
A128 North portico, north aisle, and nave, west, interpretation, Phase Z
A129 North portico, north aisle, and nave, middle, interpretation, Phase Z
A130 North portico, north aisle, and nave, east, interpretation, Phase Z
A131 North portico, north aisle, and nave, east end, interpretation, Phase Z
A132 North portico, north aisle, and nave, extreme east end, interpretation, Phase Z
A133 Annexe, evidence, Phase Z
A134 Annexe, interpretation, Phase Z
A135 West portico, south, evidence and interpretation, Phase Z1
A136 West portico, north, evidence and interpretation, Phase Z1
A137 West portico, south, evidence and interpretation, Phase Z2
A138 West portico, north, evidence and interpretation, Phase Z2
A139 West portico, south, evidence and interpretation, Phase Z3
A140 West portico, north, evidence and interpretation, Phase Z3
A141 West portico, evidence and interpretation, Phase Z4
A142 North portico, east end, evidence and interpretation, Phase Z

A143 North portico, extreme east end, evidence and interpretation, Phase Z
A144 East–west street, west end, evidence and interpretation, Phase Z3
A145 East–west street, west, evidence and interpretation, Phase Z2
A146 East–west street, middle, evidence and interpretation, Phase Z2
A147 East–west street, east, evidence and interpretation, Phase Z2
A148 East–west street, east end, evidence and interpretation, Phase Z1
A149 East–west street, east end, evidence and interpretation, Phase Z2
A150 East–west street, east end, evidence and interpretation, Phase Z3
A151 *Insula* 2, west end, evidence and interpretation, Phase Z1
A152 *Insula* 2, middle, evidence and interpretation, Phase Z1
A153 *Insula* 2, east end, interpretation, Phase Z2
A154 *Insula* 2, west end, evidence and interpretation, Phase Z2
A155 *Insula* 2, centre, evidence and interpretation, Phase Z2
A156 *Insula* 2, east end, evidence, Phases Z2 and Z3
A157 *Insula* 2, east end, interpretation, Phase Z2
A158 *Insula* 2, east end, interpretation, Phase Z3
A159 Precinct, west, evidence, Phase Z2
A160 Precinct, east, evidence, Phase Z2
A161 Precinct, west, interpretation, Phase Z2
A162 Precinct, east, interpretation, Phase Z2
A163 Precinct, west, evidence, Phase Z3
A164 Precinct, east, evidence, Phase Z3
A165 Precinct, west, interpretation, Phase Z3
A166 Precinct, east, interpretation, Phase Z3
A167 Precinct, west, evidence, Phase Z4
A168 Precinct, east, evidence, Phase Z4
A169 Precinct, west, interpretation, Phase Z4
A170 Precinct, east, interpretation, Phase Z4
A171 North–south street and frontages, evidence, Phase Z
A172 North–south street and frontages, interpretation Phase Z
A173 North–south street and frontages, dissection of cistern A17
A174 North portico and north aisle, west, evidence, Phase post-Z
A175 North portico and north aisle, east, evidence, Phase post-Z
A176 North portico and north aisle, west, interpretation, Phase post-Z
A177 North portico and north aisle, east, interpretation, Phase post-Z

List of tables

1 Phase linkages across site 13
2 Dimensions of the basilica 49
3 Estimation of hard-core used in Phase Z building platforms 131
4 Dimensions of buildings in Phase W 170
5 Dimensions of buildings in Phase X 170
6 Dimensions of buildings in Phase Y 170
7 Dimensions of buildings in Phase Z 171
8 Dimensions of buildings in Phase post-Z 171
9 Finds from C527 and D1569 by function . . . 195
10 Number of finds in category A contexts by context, area, and phase 202
11 Finds from category A contexts and layer I/II by functional categories 203
12 Tools and weapons in Category A contexts . . 203
13 Personal jewellery type loss by phase 206
14 Personal jewellery from category A contexts by material 206
15 Human bone by phase and area 217
16 Mended sherds, by phase and ware 218
17 Dating evidence (baths basilica site) 239
18 Pottery fabric proportions showing sub-fabrics and groupings 271
19 Pottery fabric proportions showing main fabrics and broad groupings 273
20 List of samian forms present 309
21 Proportion and types of drinking cups in the latest levels 320
22 Glass and site phases 322
23 Functional analysis of glass vessels by period . . 322
24 1981–5, charred plant remains 325
25 1981–5, charred plant remains, totals and ratios . . . 328
26 Major plant categories grouped by type 333
27 Major plant categories grouped spatially 334
28 Charcoal summary 347
29 Percentage of loose teeth present 350
30 Percentage of eroded bones present 351
31 Percentage of canid gnawed bones present . . . 351
32 Percentage of fragments less than 25% whole . 351
33 Number of bones recorded by site and phase . 352
34 Relative frequency of pig, cattle, and sheep/goat 352
35 Wroxeter compared with Welsh Border sites . 352
36 Relative proportions of pig, cattle, and sheep/goat 353
37 Comparative sizes of Iron Age and Roman pig bones 353
38 Age classification of cattle horncores 354
39 Contexts containing aged cattle horncores . . . 354
40 Cattle withers height from sexed metapodials 354
41 Withers height of sexed metacarpals 355
42 Withers height of sheep 356
43 Comparison of sheep metacarpal lengths 356
44 Withers height of dogs 356
45 Cow innominates showing osteoarthritis symptoms 357
46 Cattle mandibles with congenital absence of PM2 and posterior cusp of M3 358
47 Frequencies of edible wild mammals 358
48 Bird species identified 359
49 Sex of the chicken bones 360
50 Contexts analysed for bone 364
51 Fish species by site 365
52 Fish bones by phase and species 365
53 Fish lengths by species 366

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The report has been written as a collaborative effort between Philip Barker, Roger White, Kate Pretty, Mike Corbishley and Heather Bird with sections of the text being prepared by one of the group and then fully discussed and approved by the rest. This approach has grown directly from the methods used while the site was being excavated. It is true to say, in fact, that the post-excavation discussions started in 1966 and have been going on ever since. This approach was possible because of the general continuity of the staff from supervisors to trowellers who returned year after year, and because there was little pressure in terms of time. Excavation targets were set for each season and were generally adhered to but within this framework, the work was discussed while it was in progress, often to great benefit in terms of insights into what the evidence was saying and in overall strategy. The final revision of the text took place in December 1993.

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Summary

Excavations from 1966–90 on the northern half of insula 5 in the Roman town of Viroconium Cornoviorum, Shropshire, uncovered the entire floor of the basilica, and the frontages of buildings on the adjacent insulae 2 and 6. The basilica was of conventional design with aisles divided from a central nave by colonnades, an annexe to the east, and external porticos to the west and north. To the east lay a service area; there was no portico on the eastern side of the insula.

The basilica was laid out in the 120s and completed c 150. The aisles were floored with alternate wide and narrow panels of blue and white geometric mosaics; each narrow panel standing behind one of the colonnade columns. The nave is though to have been floored in opus signinum. The porticos may have been surfaced with pebble and tile, perhaps with flagstones around the doorways. There was little evidence of decorative detail; the aisle columns were Corinthian-style and the portico columns Tuscan. Walls seem to have been plastered, with the white background enlivened by red panels in outline.

The original surfaces received extensive wear, were patchily repaired, and finally replaced at some time after AD 270 with opus spicatum (herringbone tile floor) laid in most of the south aisle, the east and west ends of the nave, and in the centre of the north aisle. A small room was partitioned off at the west end of the north aisle, and minor repairs took place in the first half of the fourth century. At some time after AD 367, the basilica was refloored throughout. Two more complete refloorings followed, with extensive patching between. The dividing cross wall of the annexe was demolished and then rebuilt. Its southern room was given over to industrial use, after which a small room was built in the south-east corner. This was demolished at the same time that the annexe roof was taken down and a door knocked through the cross wall. Two open-fronted lean-to structures were built in the north room and rebuilt after the cross wall demolished. Associated with these lean-to buildings were hearths, casting pits, mortar mixing areas, and many dumps of building material, suggesting that the annexe functioned as a builder's yard, probably the base for the maintenance work on the basilica.

Outside the basilica, maintenance involved replacing part of the stone conduit along the street edge with a box drain, replacing water pipes, and creating a timber roadside drinking trough or fountain. The road itself was of large cobbles, possibly with a central drain.

Subsequently, between the end of the fifth century and the mid sixth, the basilica fell into disrepair and public access was restricted. The portico roof and colonnades were taken down, possibly as a safety measure. Two buildings, one a bakery, were built across the west portico. The western part of the north portico was floored with a timber boardwalk; at the eastern end two buildings were constructed. The builder's yard took over the eastern end of the basilica; an area of floor was quarried away, hearths built, a lime pit dug, and several wattle buildings erected.

The basilica roof was then taken down and the walls partially demolished. The floor was levelled with earth dumps. Paths made of roofing slates show that the shell of the building was open to public use, but the only sign of occupation was a small lean-to structure in the south-west corner.

North of the basilica, only the east end of insula 2 was excavated to depth. An early clay-walled building and adjacent furnace were replaced with a system of water bearing pits and gullies which were filled in the fifth century and covered with a massive post-built building set on clay and cobble post-pads. The area was subsequently levelled with a spread of clay, and a path laid across it.

The service area of the baths was refloored with a pebble surface, containing water pipes, which then subsided and was levelled with wet-laid dumps.

Beyond the service area, on the edge of insula 5, an early, possibly original, pebble floor was levelled with a thick dump. Into this was cut a system of pits and gullies and two consecutive bow-sided buildings with associated hearths, all surrounded by a stake fence. The area was levelled, and another bow-sided building was constructed. These buildings were in use in the fourth century and may have survived into the fifth.

The whole site was then redeveloped. This was a highly organised operation, and the original preparation involved demolishing the north wall of the basilica, laying the rubble as building platforms, and digging out a stretch of the east to west street, which was then filled with gravel and earth.

The redeveloped site was dominated by a huge timber-framed building, facing south, and lying across the centre of the north portico, north aisle, and nave, with a narrower timber-framed building attached to its west side. All the buildings of this phase appear to have used the Roman foot as the unit of measurement. To the south were seven lean-to structures of a standard size, and to the west was a masonry lean-to; all were built against the remaining walls of the basilica. Similar building platforms on the west portico provide evidence for three sub-phases of timber buildings, some with associated hearths. Rebuilding extended to insula 2, where two phases of timber-framed buildings were laid out on uniformly sized plots. The second phase buildings were more widely spaced and more substantial, possibly two-storeyed, and some had elaborate porched facades. Evidence for similar buildings was found on the western side of insula 6, and on other sites nearby.

Small temporary booths, perhaps a market, were set up on the south side of the pedestrianised gravel street and a boardwalk was laid out to the north. A small timber building on the remaining cobble street to the west may have controlled access. The cobble street to the east was dumped over and encroached on by the buildings of insula 2.

Further east, the service area was also part of the redevelopment, and a series of substantial lean-to buildings and one massive barn was found. On the eastern side of insula 5, a large cistern was constructed, but no buildings.

There was no artefactual dating evidence for this phase found anywhere on site, but it is thought to have started by the mid to late sixth century, and the number of sub-phases and the wear on surfaces suggests it lasted at least 75 years.

All the late timber-framed buildings were carefully demolished and much of the material was presumably salvaged. One last timber building was constructed over the platform of the main basilica building. To the south, but not necessarily associated with this building, was a burial radiocarbon dated to Cal AD600–790 (Birm-1045; 1340±60 BP). A ninth-century strap-end found in the south colonnade robber trench shows that stone from the site was being sought, perhaps for the church of St Andrew in Wroxeter village. Thereafter the site was abandoned.

Résumé

Les fouilles entreprises entre 1966–90 dans la moitié nord de l' *insula* 5 dans la ville romaine de *Viroconium Cornoviorum*, dans le comté de Shropshire, ont mis à jour dans sa totalité le sol de la basilique ainsi que les façades de bâtiments des *insulae* 2 et 6 qui lui sont adjacentes. La basilique était de type conventionnel avec des bas-côtés séparés de la nef centrale par des colonnades, une annexe à l'est et des portiques externes à l'ouest et au nord. A l'est se trouvait une aire utilitaire; il n'y avait pas de portique du côté est de l' *insula*.

La basilique fut tracée dans les années 120 et terminée vers 150. Le sol des bas-côtés était recouvert de panneaux, alternativement larges et étroits, de mosaïques géométriques blanches et bleues, chaque panneau étroit se trouvait placé derrière une des colonnes de la colonnade. On pense que le sol de la nef avait été recouvert en *opus signinum*. Il se peut que le sol des portiques ait été recouvert de galets et de tuiles, peut-être avec des pierres autour des encadrements de portes. On n'a trouvé que peu de témoignages d'éléments de décoration; les colonnes des bas-côtés étaient de style corinthien et celles du portique de style toscan. Il semble que les murs aient été plâtrés et qu'on ait ajouté des panneaux rouges sur les contours pour égayer le fond blanc.

Les surfaces d'origine présentent d'importantes traces d'usure, elles ont été réparées par endroits et ont finalement été remplacées à un certain moment après 270 ap J-C par de l' *opus spicatum* (carrelage en arêtes de poisson) posé sur la plus grande partie du bas-côté sud, aux extrémités est et ouest de la nef, et au centre du bas-côté nord. Une petite pièce avait été séparée par une cloison à l'extrémité ouest du bas-côté nord, et des réparations mineures avaient été effectuées dans la première moitié du quatrième siècle. A un certain moment après 376 ap J-C, le plancher de la basilque fut totalement remplacé. Deux fois encore le plancher fut entièrement remplacé avec d'importantes réparations entre temps. Le mur transversal qui séparait l'annexe fut démoli puis reconstruit. La pièce qui se trouvait au sud fut transférée à un usage industriel, après quoi une petite pièce fut construite dans le coin sud-est. Elle fut démolie en même temps que le toit de l'annexe était démonté et qu'une porte était percée dans le mur de séparation. Deux appentis ouverts devant furent construits dans la pièce nord, puis reconstruits après la démolition du mur. Associés à ceux-ci on a trouvé des foyers, des fosses de coulée, des endroits pour mélanger le mortier, des matériaux de construction, ce qui laisse à penser que l'annexe était utilisée comme chantier de maçon et servait probablement de base pour les travaux d'entretien de la basilique.

A l'extérieur de la basilique, le système de drainage original, qui consistait en un caniveau de pierre et un tuyau à eau associés à une auge ou une fontaine en bordure de route, fut remplacé par un tuyau d'écoulement à section rectangulaire et une série de tuyaux à eau.

Plus tard, entre la fin du cinquième et le milieu du sixième siècle, la basilique tomba en ruines et l'accès du public fut restreint. Le toit du portique et les colonnades furent démontés probablement par mesure de sécurité. Deux bâtiments, dont l'un était une boulangerie, furent construits en travers du portique ouest. Le sol de la partie ouest du portique nord fut recouvert d'un plancher de bois, à l'extrémité est on construisit deux bâtiments. Le chantier de maçon s'étendit à la partie est de la basilique; on creusa une partie du plancher, on construisit des foyers, creusa un puits à chaux, et on érigea plusieurs bâtiments en clayonnage.

Le toit de la basilique fut alors démonté et les murs en partie démolis. Le sol fut nivelé avec des tas de terre. Des sentiers construits en ardoises provenant du toit montrent que la carcasse du bâtiment était ouverte au public, mais le seul signe d'occupation consistait en un petit appentis dans le coin sud-ouest.

Au nord de la basilique, seule l'extrémité est de l' *insula* 2 fut fouillée en profondeur. Un premier bâtiment aux murs d'argile et le four adjacent furent remplacés par un système de fosses et de rigoles pour l'eau, elles furent comblées au cinquième siècle et on construisit au-dessus un imposant édifice sur poteaux, eux-mêmes reposant sur une base d'argile et de cailloux. Cet espace fut nivelé par l'apport d'une couche d'argile et on fit passer un sentier en travers.

Le sol de la partie utilitaire des thermes fut recouvert d'une couche de galets, dans laquelle se trouvait la tuyauterie à eau, qui plus tard s'effondra et fut nivelée avec une couche de remblais humides.

Au-delà de la zone utilitaire, au bord de l' *insula* 5, un premier niveau, peut-être le sol de galets original, avait été nivelé avec une épaisse couche de terre dans laquelle on avait creusé un système de fosses et de rigoles, et deux édifices consécutifs aux côtés en saillie avec des foyers associés, ils étaient séparés de la rue par une palissade de pieux. Cette zone fut nivelée et on y construisit un autre bâtiment aux côtés en saillie. Ces bâtiments étaient encore en usage au quatrième siècle et il se peut qu'ils aient subsisté jusqu'au cinquième siècle.

L'ensemble du site fut alors remanié. Cette reconstruction fut hautement organisée et au départ les préparatifs comprirent la démolition du mur nord de la basilique, le dépôt des débris comme fondations pour les prochains édifices et l'excavation d'une partie de la rue est–ouest, qui fut alors comblée avec du gravier tamisé et de la terre.

Le site réorganisé était dominé par un énorme bâtiment à structure de bois, orienté au sud et construit en travers du centre du portique nord, du bas-côté nord et de la nef, avec un autre bâtiment à carcasse de bois, plus étroit accolé du côté ouest. Tout les édifices de cette phase utilisaient le pied romain comme unité de mesure. Au sud, il y avait sept appentis d'une taille standard, et à l'est il y en avait un en maçonnerie; ils étaient tous construits contre les murs qui restaient de la basilique. Des fondations semblables sur le portique ouest nous fournissent des témoignages de l'existence de trois sous-phases de bâtiments en bois, certains associés à un foyer. La reconstruction s'étendit à l' *insula* 2 où les traces de deux phases de bâtiments à structure de bois furent trouvées sur des parcelles de tailles uniformes. Les bâtiments de la seconde phase étaient plus largement espacés et plus importants, peut-être à deux étages, et certains avaient des façades à porches élaborées. On a découvert des témoignages provenant de bâtiments similaires du côté ouest de l' *insula* 6 et sur d'autres sites proches.

De petites baraques provisoires, peut-être un marché, furent installées du côté sud de la rue piétonne gravillonnée et un chemin couvert de planches fut tracé au nord. Un petit bâtiment de bois sur ce qui restait de la rue pavée servait peut-être à en contrôler l'accès. A l'est on combla la rue pavée sur laquelle vinrent empiéter les édifices de l' *insula* 2.

Plus à l'est, la zone utilitaire avait également fait partie de ce réaménagement et on y découvrit une série d'appentis conséquents ainsi qu'une énorme grange. Du côté est de l'*insula* 5, on construisit une grosse citerne, mais pas de bâtiments.

On n'a trouvé nulle part sur le site de témoignages artisanaux datables relatifs à cette phase, mais on pense qu'elle aurait commencé vers la seconde moitié du sixième siècle et le nombre de phases intermédiaires, ainsi que les signes d'usure sur les surfaces, donnent à penser qu'elle aurait duré au moins 75 ans.

Tous les bâtiments à structure de bois tardifs furent soigneusement démontés et une grande partie des matériaux fut sans doute récupérée. Un dernier bâtiment en bois fut construit sur les fondations du bâtiment principal. Au sud, mais pas forcément associée à ce bâtiment, se trouvait une tombe datée au radiocarbone entre 600–790 ap J-C en années calibrées (BIRM-1045 1340±60 BP). Un bout de courroie datant du neuvième siècle trouvé dans la tranchée creusée par des voleurs montre que la pierre du site était recherchée, peut-être pour l'église St. Andrew dans le village de Wroxeter. Après cette date le site fut abandonné.

Traduction: Annie Pritchard

Zusammenfassung

Bei den Ausgrabungen von 1966–90 an der nördlichen Seite der *insula* 5 in der römischen Stadt *Viroconium Cornoviorum* in Shropshire (im Nordwesten liegende englische Grafschaft) wurden der vollständige Boden der Basilika und die Vorderseiten anderer Gebäude auf den naheliegenden *insulae* 2 und 6 entdeckt. Die Basilika war nach einer herkömmlichen Konstruktion gebaut, mit zwei Seitenschiffen, die durch Säulengänge von dem zentralen Hauptschiff getrennt waren. Sie hatte einen östlich gelegenen Anbau und äußere Portiken im Westen und im Norden. Östlich gelegen befand sich ein Versorgungsbereich. Es gab keinen Portikus an der östlichen Seite der *insula*.

Der Bau der Basilika wurde in den 20er Jahren des 2. Jahrhunderts geplant und im Jahre 150 fertiggestellt *c.* In den Seitenschiffen war ein Boden aus sich abwechselnden großen blauen und schmalen weißen Platten in geometrischen Mosaiken gelegt. Jede schmale Platte war hinter einer der Säulen des Säulenganges angelegt. Es wird angenommen, daß das Hauptschiff mit einem *opus signinum* Boden versehen war. Es ist möglich, daß die Portiken mit einem Belag aus Kieselsteinen und Fliesen und um die Türen herum möglicherweise mit Steinplatten versehen waren. In Bezug auf verzierte Details gab es wenig Beweismaterial. Die Säulen des Hauptschiffes waren korinthischen Baustils und die Säulen der Portiken toskanisch, die Wände scheinen verputzt gewesen zu sein und der weiße Hintergrund am Rande mit roten Platten verputzt, um ihn bunter zu machen.

Die ursprünglichen Oberflächen waren weitgehend abgenützt, nur ungleichmäßig repariert und wurden schließlich zu einem Zeitpunkt nach 270 AD durch *opus spicatum* (fischgrätenartigen Fliesenboden) ersetzt. Diese Fliesen fand man fast überall im südlichen Nebenschiff, an den östlichen und westlichen Enden des Hauptschiffes und in der Mitte des nördlichen Seitenschiffes. Ein kleiner Raum wurde durch eine Abgrenzung am westlichen Ende des nördlichen Nebenschiffes geschaffen und in der ersten Hälfte des vierten Jahrhunderts wurden kleinere Reparaturen unternommen. Nach 367 AD wurde die Basilika vollkommen mit einem neuen Boden ausgestattet. Dies wurde später zweimal wiederholt und zwischendurch wurden die Böden weitgehend repariert. Die trennende Querwand des Anbaus wurde demoliert und wieder aufgebaut. Der südliche Raum der Querwand wurde dann als Geräteraum benützt. Danach wurde ein kleiner Raum in der südöstlichlichen Ecke eingebaut. Dieser wurde zur gleichen Zeit wie das Anbaudach abgerissen, demoliert und eine Tür in die Querwand eingebaut. Zwei nach vorne geöffnete Dachvorbauten wurden am nördlichen Raum dazugebaut und nachdem die Querwand demoliert worden war, wieder aufgebaut. Zu dieser Konstruktion gehörten Feuerstellen, Gießgruben, Stellen für das Vermischen von Mörtel und viele Schutthauen aus Baumaterial. Sie lassen uns vermuten, daß dieser Anbau als Bauabstellraum diente, wahrscheinlich als Basis für die Instandhaltung der Basilika.

Außerhalb der Basilika wurden die ursprünglichen Wasserabflußeinrichtungen, bestehend aus Steinrinnen und Wasserröhren und, mit dem dazugehörenden, an der Straßenseite befindliche Trinktrog oder Brunnen durch ein Kastengerinne und eine Reihe von Wasserröhren ersetzt.

Später, zwischen dem Ende des fünften und der Mitte des sechsten Jahrhunderts verfiel die Basikila und der Zugang für das Volk wurde eingeschränkt. Das Portikusdach und die Säulengänge wurden abgerissen, wahrscheinlich aus Sicherheitsgründen. Zwei Bauten wurden quer über den westlichen Portikus errichtet, einer davon war eine Bäckerei. Der westliche Teil des Nordportikus hatte einen hölzernen Bretterlaufgang, am östlichen hingegen wurden zwei Bauten errichtet. Der Bauabstellraum nahm den Raum am östlichen Ende der Basilika ein. Ein Teil des Bodens war herausge-brochen, Feuerstellen wurden gebaut, eine Kalkgrube gegraben und mehrere Häuser aus Geflecht errichtet.

Später wurde das Dach der Basilika abgetragen und die Wände teilweise demoliert. Der Boden wurde mit Erdhaufen eingeebnet. Daß das Volk Zugang zur Ruine hatte, beweisen die Wege aus Schieferplatten. Jedoch war ein kleiner angebauter Dachvorbau an der südwestlichen Ecke das einzige Zeichen, daß die Basilika bewohnt war.

Nördlich der Basilika wurde nur das östliche Ende der *insula* 2 gründlich ausgegraben. Ein früher Bau, dessen Wände aus Lehm waren, und ein angrenzender Ofen wurden durch ein wassergefülltes Gruben und Rinnen – System ersetzt. Dieses wurde im fünften Jahrhundert aufgefüllt und durch einen enormen, mit Pfosten gebauten, auf Lehm und Kopfsteinpfosten ruhenden Kissen errichteten Bau, ersetzt. Die Fläche wurde später mit einer Schicht Lehm dem Erdboden gleichgemacht und ein Weg darüber gelegt.

Der Versorgungsbereich der Bäder wurde wieder mit einem Kieselsteinboden, in dem Wasserröhre eingebaut waren, ausgestattet. Der Boden sank und wurde mit naßen Erdhaufen eingeebnet.

Jenseits dieses Versorgungsbereiches, am Rande der *insula* 5 befand sich ein früher, möglicherweise ursprünglicher, mit einem dicken Erdhaufen geebneter Kieselsteinboden. Beim Einschneiden fand man einem aus Gruben und Rinnen bestehendes System und zwei aufeinanderfolgende, an den Seiten gebogene Bauten und deren dazugehörende Feuerstellen, die durch einen Pfahlzaun von der Straße getrennt waren. Anschließend wurde die Fläche eingeebnet und ein anderer, an den Seiten gebogener Bau wurde errichtet. Diese Bauten wurden im vierten Jahrhundert benützt, und möglicherweise überlebten sie bis ins fünfte Jahrhundert hinein.

Das ganze Gelände wurde anschließend saniert. Die Planung war sehr gut organisiert. Zu den Vorbereitungen zählten die Demolierung der nördlichen Mauer der Basilika, dessen Bruchstein als Bauplattform verwendet wurde, sowie die Ausgrabung eines Teiles der ostwestlichen Straße, die dann mit gesiebten Kiesel und Erde aufgefüllt wurde.

Das neu erbaute Gelände wurde von einem großen, gegen den Süden blickenden Fachwerkbau dominiert, der quer über die Mitte des nördlich gelegenen Portikus, des nördlichen Seitenschiffes und Hauptschiffes stand. Daneben befand sich ein kleinerer Fachwerkbau, der an der Westseite des großen Fachwerkbaues angeschlossen war. Als Maßstab für all diese Bauten diente der römische Fuß. Südlich dieser Bauten befanden sich sieben Dachvorbauten durchschnittlicher Größe und östlich ein Dachvorbau aus Stein. Alle waren gegen die restlichen Mauern der Basilika gebaut. Am westlichen Portikus sind ähnliche Bauplattformen Beweismaterial für drei weitere Nebenbauphasen von Holzbauten, einige sogar mit dazugehörenden Feuerstellen. Der Wiederaufbau erstreckte sich bis zur *insula* 2, wo in zwei Phasen der Fachwerkbauten in gleichförmigen Grundrissen angelegt waren. Die in der zweiten Phase errichteten Bauten zeigen größere Abstände voneinander und waren solider. Möglicherweise waren sie zweistöckig, einige hatten sogar kunstvolle Fassaden mit Vorhallen. Beweise für das Bestehen ähnlicher Bauten wurden im Westen der *insula* 6 gefunden. Das war auch der Fall in anderen naheliegenden Geländen.

Kleine tragbare Stände, die möglicherweise einen Markt bildeten, waren auf der südlichen Seite der Kiessteinstraße für Fußgänger aufgestellt und ein Bretterweg nördlich davon angelegt. Im Westen, auf der restlichen Straße aus Kopfsteinpflaster befand sich ein kleiner Holzbau, der möglicherweise den Zutritt kontrollierte. Die östlich gelegene Straße aus Kopfsteinpflaster wurde eingeebnet und diese allmählich von den Bauten der *insula* 2 eingenommen.

Die Versorgungsstelle weiter östlich war auch Teil des Wiederaufbaus sowie eine Reihe von soliden Dachvorbauten und eine riesengroße Scheune. Im Osten der *insula* 5 war eine große Zisterne errichtet, aber keine Bauten.

Keine aus Artefakten bestehenden Beweismaterialien, anhand derer man diese Phase auf diesem Gelände datieren hätte können, existieren. Man nimmt jedoch an, daß sie zwischen der Mitte und dem späten sechsten Jahrhundert angefangen hatte. Die Anzahl der Nebenbauphasen und die Abnutzung der Flächen deuten darauf hin, daß sie mindestens 75 Jahre dauerte.

Alle späten Fachwerkbauten wurden vorsichtig demoliert und das Material wahrscheinlich gerettet. Ein letzter Holzbau wurde auf der Plattform des Hauptgebäudes errichtet. Südlich davon, aber nicht unbedingt mit dem Bau verbunden, wurde eine Grabstätte um 600–790 AD (BIRM-1045 1340±60 BP) radiokarbondatiert. Die überreste eines aus dem 9. Jahrhundert stammenden Riemens, das in der Räubergrube des südlichen Säulenganges gefunden wurde, zeigt, daß Steine aus diesem Gelände begehrt waren, vielleicht für den Bau der hl. Andreaskirche (St Andrew Church) im Dorf Wroxeter. Nach diesem Zeitpunkt wurde das Gelände nicht mehr benützt.

Übersetzung: Monika Schmid-Jenkinson

On Wenlock Edge the wood's in trouble;
His forest fleece the Wrekin heaves;
The gale, it plies the saplings double,
And thick on Severn snow the leaves.

'Twould blow like this through holt and hanger
When Uricon the city stood:
'Tis the old wind in the old anger,
But then it threshed another wood.

Then 'twas before my time, the Roman
At yonder heaving hill would stare:
The blood that warms an English yeoman,
The thoughts that hurt him, they were there.

There, like the wind through woods in riot,
Through him the gale of life blew high;
The tree of man was never quiet:
Then 'twas the Roman, now 'tis I.

The gale, it plies the saplings double,
It blows so hard, 'twill soon be gone:
To-day the Roman and his trouble
Are ashes under Uricon.

Reprinted, with permission, from A E Housman's *A Shropshire Lad*

1 Introduction

The city and the site

The Roman town of *Viroconium Cornoviorum*, which lies beneath the present day village of Wroxeter and its surroundings (NGR SJ5608), is situated in Shropshire midway between the modern towns of Shrewsbury and Telford (Figs 1 and 2). It owed its existence as a town in Roman Britain to several factors, paramount among which was the strategic importance of the site to the Roman army since it lay on a major crossing point of the River Severn, due west of which were the foothills of the Welsh massif (Webster 1988a). The road system established by the Romans put the legionary base at Wroxeter at an important nodal point: it formed the western terminus for Watling Street and also lay at the midpoint of the major north to south road running between the later legionary bases at Chester and Gloucester. From Wroxeter southwards this latter route ran parallel to a major navigable river, the River Severn.

The first element of the town's name, *Viroconium*, was probably derived from the Celtic name for the nearby hill, now known as the Wrekin, which dominates the skyline at Wroxeter and on which is a prominent hill fort (Rivet and Smith 1979, 505–6). Excavations have shown that the fort was burnt down in the mid first century AD (Stanford 1984) and the recent find of a *pilum* head in the gateway suggests that the army deliberately attacked and fired the fort (White and Webster, 1994). The proximity of the Wrekin hillfort (Fig 2) and the use of its Celtic name to identify the new Roman town, the *civitas* capital, strongly suggests that it was the principal settlement of the *Cornovii*, from which the second element of the town name derives.

It has been assumed, reasonably, that the stationing of a legionary base here between AD 59 and 90 would have led to the development of a considerable civilian settlement of veterans and local people who would have been attracted to the site because of the steady spending power of the legions. When *legio XX* was finally withdrawn in about AD 90 and the base demolished, these people would have formed the core of the new town, established from the first as the *civitas* capital for the *Cornovii*. The early civil period at Wroxeter, between about AD 90 and 120, is at present only partially understood but it seems clear that the initial layout of the town re-used the outline of the fortress and retained the *viae principalis* and *praetoria* (Figs 3 and 4, Webster 1991, 49–50) Additional roads, often coinciding with the lesser roads of the fortress, were also laid out to form the usual gridiron pattern. It has been suggested that the early forum lay in the centre of the town, roughly on the site of the legionary *principia* (Webster 1990, 2) but this theory remains untested. It is also suggested, however, that Watling Street did not run through the town at this time but instead passed to the north of it (Bassett 1990, 11, fig 19 c) perhaps indicating that the town was still of only minor importance.



Fig 1 Late Roman Britain showing sites mentioned in text

The limit of the town defences, as in the military period, is still likely to have been the ditch dug into the southern crest of the valley of the Bell Brook (Kenyon 1940, 177–8; Webster 1990, fig 6) Structural evidence for this period has been excavated within the town only in the area below the *macellum* and baths (Ellis forthcoming) and in the area to the south (Bushe-Fox 1913, 1914, 1916; Atkinson 1942; Kenyon 1980).

Viroconium's status as a small provincial town appears to have been substantially altered by the impact of the visit of Hadrian to Britain in AD 122 (*SHA Vit Had* 11, 2). Whether he visited the town itself is unknown, but a monumental forum and public baths were built, the former dated to AD 129–30 by an inscription of such high quality that it is thought that the craftsman must have been sent here for the purpose (Atkinson 1942, 179). As is discussed elsewhere (*see chapter 7*; Ellis, forthcoming), the public baths are clearly related in form and size to the earlier legionary baths at Chester, strongly suggesting

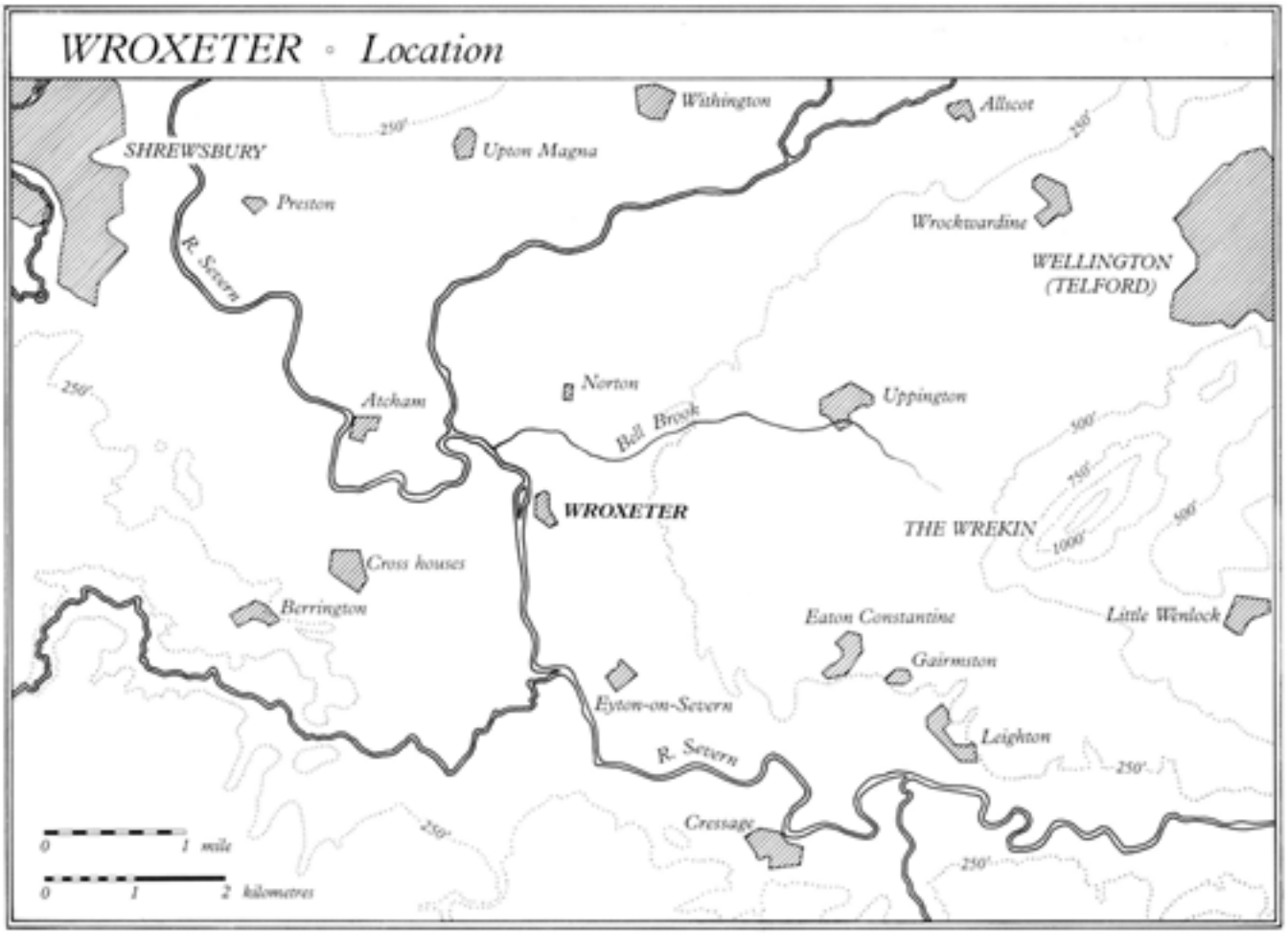


Fig 2 Wroxeter in relation to modern settlement

that the design at least of this element of the civic complex was provided by the army, although it may be considered unlikely that army influence or aid extended further than this (Blagg 1980, 29–31).

As part of the grand civic re-design, the main street running north to south through the town was moved one *insula* westwards and Watling Street was diverted to join up with it, so that the ford south of the small island in the River Severn came into more prominent use (Bassett 1990, 11, fig 19d). This would have forced traffic to pass between the forum and the baths, both of which had grand, colonnaded facades. The overall effect must have been very impressive, as its architect had intended (Mackreth 1987, fig 61). Naturally, the increase in traffic would also have improved the commercial prospects for the town and it certainly seems to have prospered as there was a major extension made to the defences to the north, perhaps during the early Hadrianic period (Kenyon 1940, 178–9), to enclose the valley of the Bell Brook within the town. Outside the area of our excavation, the later history of the town is unclear, but it has been suggested that the town contracted to its first-century defensive circuit in the fourth century (*ibid*, 178). This period is discussed more fully in chapter 7.

Circumstances and development of the excavation

In 1965 Philip Barker joined the Department of Extra-mural Studies at the University of Birmingham and began to assist in the archaeological summer schools held at Wroxeter under the direction of Dr Graham Webster. In 1966 it was proposed to construct a bungalow for the site custodian in the north-east corner of the field containing the remains of the baths, a small area adjoining the Shrewsbury to Ironbridge road (B4380). Philip Barker was asked to carry out an excavation on this area (which was given the Webster trench code WB68, later renamed Site A, Fig 5) to discover what archaeology would be destroyed by the building of the bungalow. In view of his inexperience at excavating Roman sites, but also in the light of his experience of excavating a number of medieval sites, particularly that of the timber castle at Hen Domen, Montgomery (Barker and Higham, 1982), where the structural evidence had been immediately under the turf, it was decided to adopt the same methods as those used at Hen Domen. The workforce consisted of students, and prisoners from Drake Hall Open Prison, Stafford.

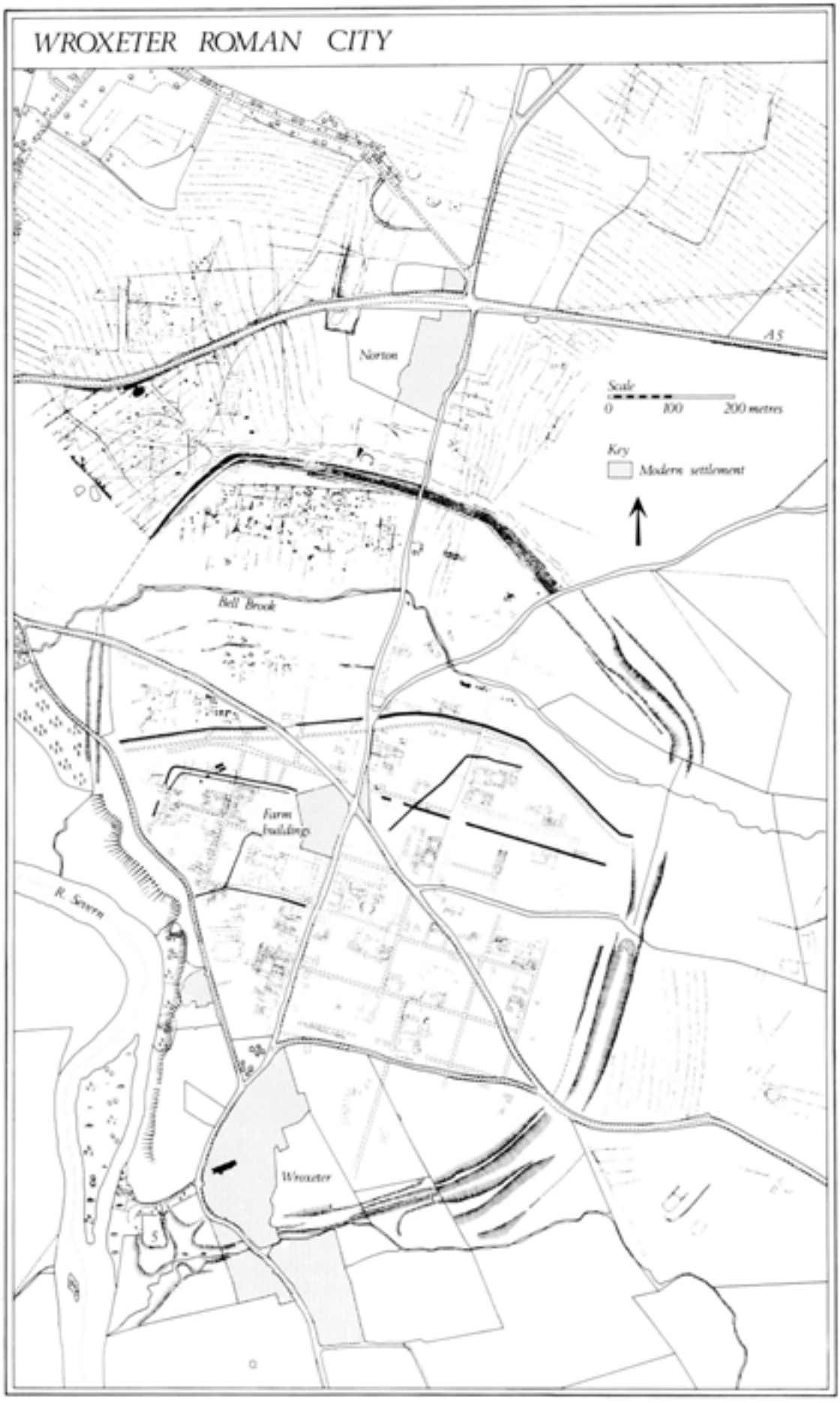


Fig 3 Wroxeter showing all known evidence from cropmarks and excavations

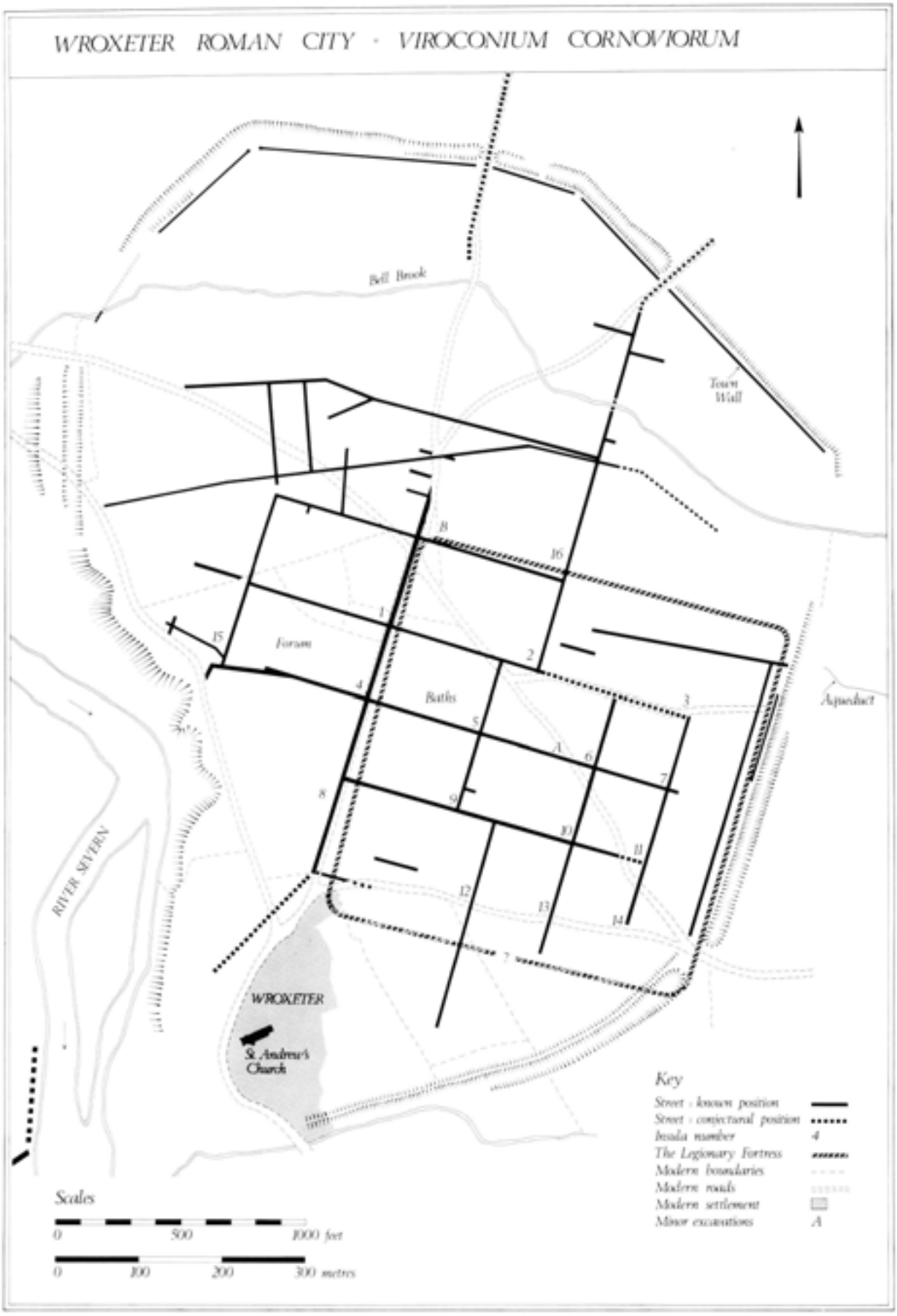


Fig 4 Wroxeter showing insulae, and positions of baths, forum, and underlying legionary fortress

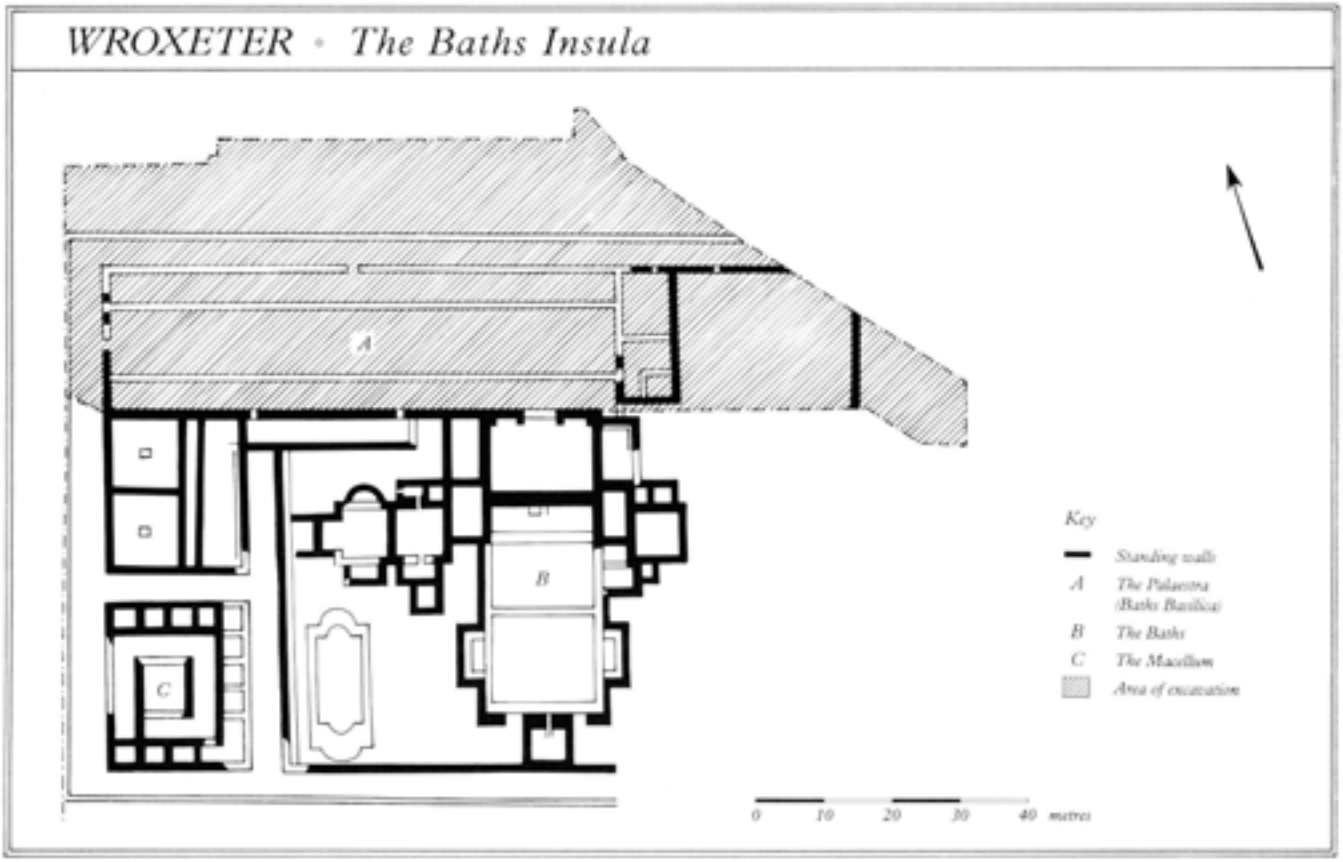


Fig 5 Excavated area in relation to the baths insula

The field had been ploughed for many years and it was expected that the upper occupation layers would have been lost. Nevertheless, it was considered unwise to make any assumptions and the topsoil was stripped off by hand and the area cleaned meticulously, removing only the dark earth and leaving all stones, tiles, mortar fragments, and pottery in place (Fig 6). There was very little debris indeed in the topsoil, except at the highest point of the north to south street: this had clearly been struck by the plough, which had overturned some of the stones of its surface, but it soon became apparent that elsewhere the latest archaeological layers were undisturbed. Further evidence for this vital conclusion is cited in chapter 4. Only those postholes and stake-holes which contained dark topsoil were emptied. Other features which had apparently been backfilled with stones, mortar, and other debris were left until the second phase of the excavation. The excavation was begun using imperial measurements but was shortly afterwards converted to metric. The plan of the resulting features, drawn as objectively as possible by a group of students each taking adjoining 1.22m (4ft) wide strips across the area, was interpreted as a structure (Building 1) and has already been published on several occasions (for example Barker 1975, fig 3; see Fig A112 and for an interpretation Fig A113). The elements of the building were found to be intact, with even the upstanding packing around the postholes undisturbed. This is a remarkable circumstance when it is remembered that the site lies in the highest corner of the field, but it gave every reason to hope that the latest levels might be preserved elsewhere, not only in this field but in a large area of the city.

At the same time as the excavation on the proposed site of the custodian's bungalow was taking place, the site of what was eventually to be identified as the basilica was being cleared down to its floors (by a gang of prisoners) preparatory to laying it out for public display. It soon became apparent that a large number of stakeholes and postholes had been cut into the floor in the south-western corner of what was later identified as



Fig 6 Site 68 under excavation in 1967



Fig 7 Part of Site 71, at west end of nave. Postholes by the (Imperial) ranging scale are of Building 30. Stylobate piers can be seen in right hand corner, part of the herringbone-tiled floor of the south aisle shows in the trench extension



Fig 8 Facade of Building 7 from north. The ranging pole lies in an archaeological trench on the centre line of the building. On either side are sandstone porch pad-stones and, north of these, the pits and stake-holes of the facade

the nave where the original floor had been replaced with pebbles and cobbles (*see Fig 100 and chapter 4*). The immediate interpretation of the evidence from the extensive trench which had been dug (Site WB71) proved eventually to have been exaggerated in importance (a large rectangular posthole building was postulated due to a misunderstanding of the lines of stones and rubble fragments which can be seen in Fig 7, taken at the time; see Barker 1971). There was, nevertheless, sufficient evidence here of completely unexpected timber structures which, together with the evidence for Building 1, 100m away on Site A, warranted a halt to the wholesale digging out of the upper layers.

A completely different strategy, the total and detailed excavation of the whole site before display, was urged on the Inspectorate of Ancient Monuments, who, happily, accepted the arguments and generously funded the subsequent long-term excavation reported here.

When it was realised that the plough-soil at the western end of the site was more than a metre thick it was decided to machine-off the turf and part of the plough soil westward from a north to south line level with the east end of the Old Work. For a short time this effectively created two excavations and it was at the north-eastern corner of the new area that a building crucial to the subsequent understanding of the

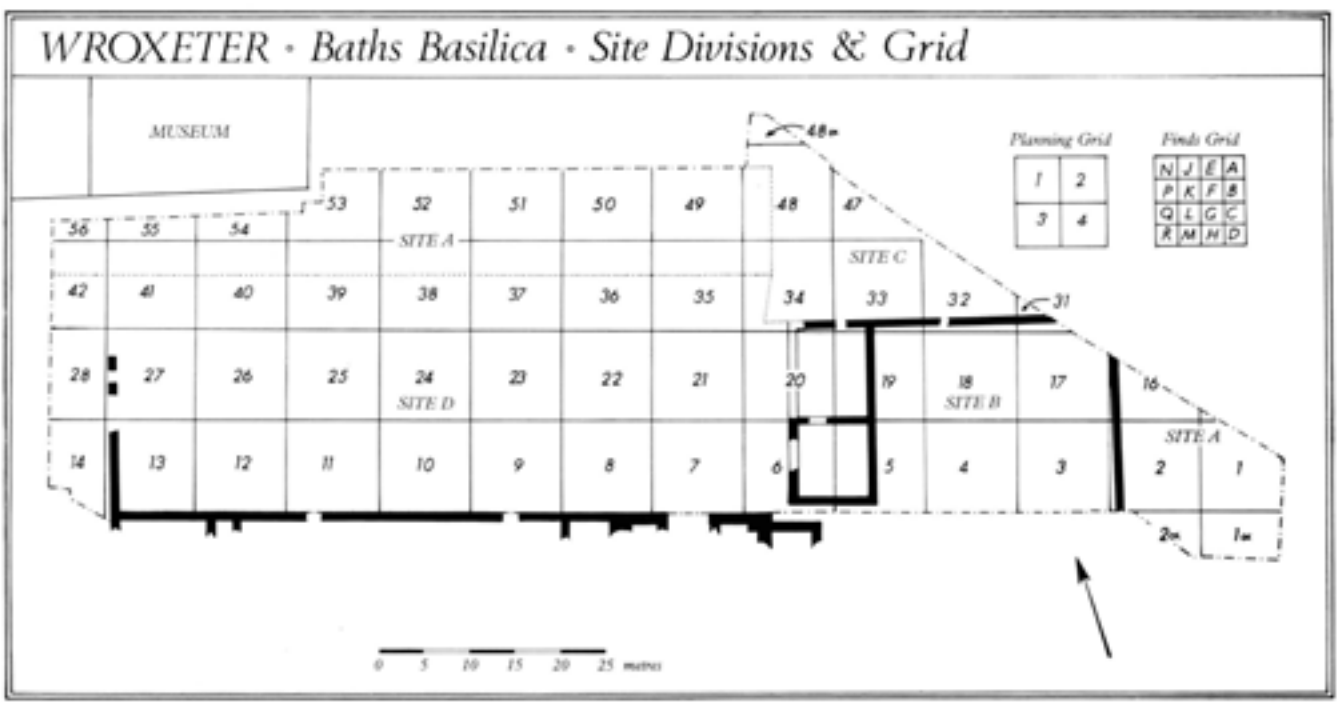


Fig 9 Site grid showing subsidiary planning and finds grids



Fig 10 Annexe from north-west after removal of all robbing and archaeological trenches, showing extent of destruction before the present excavations began. a) east wall of basilica; b) beaten earth floor of phase W; c) lime pit of phase X; d) secondary patch of herringbone-tiled floor at extreme east end of basilica

basilican area was excavated. This was Building 7 (Fig 8), described in chapter 4. It was not only the best preserved and most easily understood of the facades of *insula* 2, but led to the recognition of the large structure, Building 10, which occupied the centre of the site of the basilica in the latest occupation (Barker 1971, Barker 1972).

The excavation proceeded westwards on the two sites until the whole area had been stripped of its topsoil. As the excavation had begun at the east end of the site, it was proposed to work from east to west, a decision which had one somewhat awkward effect in that the 10m grid that was established over the whole site was retrograde, being numbered from right to left and from south (bottom) to north (top) (Fig 9).

Early in the excavation, it became apparent that the site was riddled with pits and trenches, the results of earlier excavations of all kinds. What slowed up the excavation considerably was that no-one who had dug here before, not even archaeologists of the last fifty years, had left any record of the positions of their trenches. As a result all had to be found by trowelling, and dated relatively, or if possible, absolutely. In the event, these earlier trenches and pits proved to range from robber trenches of the Roman and Anglo-Saxon periods, removing foundations for reuse, to rubbish pits dating from the Second World War (Barker 1976), and more recent archaeological excavations. The plan of these disturbances is reproduced in Figure A1 and it will be seen that almost 50 per cent of the site had been lost to some degree. It is important to stress this, since when the excavation began, the field had recently been down to corn, and it would have been easy to assume that it was a relatively untouched 'green-field' site. However, as can be appreciated from Figure 10, the problem faced by the excavation was similar to that encountered in a modern urban site, where foundations and rubbish pits have destroyed large areas of the stratification. As a result of the earlier digging some crucial relationships had been destroyed or mutilated, particularly at the east end of the basilica and at its south-western end.

The area which was finally excavated was defined in the east by the north to south boundary fence of the guardianship area, which, happily, ran down the eastern edge of the road bounding the *insula*. The southern edge

was eventually established on the line of the party wall between the baths and the basilica, and the western edge was formed by the eastern side of Watling Street. The northern limits of the excavation were determined by the presence of the site museum and car park and the need to leave space for the site huts. A long east to west exploratory trench had been dug here by prison labour under supervision in 1965 and, since this trench had destroyed the stratigraphic links between the frontages of the buildings of *insula* 2 and any archaeology surviving further north, it was taken as the northern limit of the excavation (*see Fig 230*). This line enabled us to examine the facades of the buildings fronting the street though, unfortunately, without understanding what lay behind these facades in the undug area to the north.

Organisation and methodology

The excavation, which became known as Wroxeter Palaestra, took place in the centre of the Roman town, in *insula* 5 and on the edges of *insulae* 2 and 6. The excavation used the open area method, and although principally taken up by the site of the baths basilica, also included some peripheral areas. Given the large size of the site (140 by 40m), it was divided into five separate areas, Sites A, B, C, D, and E (see Fig 9).

Site A lay immediately east of the bath's precinct wall and covered the eastern side of *insula* 5 up to and including the north to south street which bordered the *insula*, and also included a narrow strip of the neighbouring *insula* 6.

Site B was broken down into two discrete areas. The eastern area was the courtyard to the east of the baths basilica, which has been referred to in post-excavation analysis as the (baths) precinct. This was defined on the east and north sides by the precinct wall and on the west side by the outer wall of the second area, the annexe, which was a small rectangular two-roomed building attached to the baths basilica.

Site C consisted of three discrete but linked areas all of which lay north of the precinct wall of the baths. Nearest to the wall was the east end of the north portico of the baths basilica, the bulk of which lay within site D. North of this lay the remains of the east to west cobble street between *insulae* 5 and 2, which had been cut away on its western side by the gravel street (see Site E below). To the north of the cobble street lay the third area of Site C, the frontage of *insula* 2.

Site D, the baths basilica, was the largest of the sites and may be treated as one archaeological unit although in practice it has been easier to break it down into its constituent parts of south and north aisles, nave, and west and north porticos. In addition to these structural



Fig 11 Early stages of excavation showing Layer I/II, the topsoil/archaeological interface being trowelled away. The archaeological layers are being recorded by vertical photography and planning



Fig 12 Excavation of part of north aisle in 1982 by a line of trowellers

divisions, Site D was further sub-divided by the existence of four major robber trenches, along the north and south aisle colonnades, the north wall, and the north portico colonnade. The last of these lay partly within Sites C and E.

Site E consisted of three major areas. These were the westward continuation of the *insula* 2 frontage from Site C, the western end of the east to west cobble street, and the gravel street, which was cut into the east to west street and was of an entirely different composition to the areas of cobbling surviving at either end of it. The gravel street sealed the remains of water pipes and road wash which were also included within Site E.

The initial seasons of the excavation (roughly 1968–73) were mainly devoted to removing the topsoil from the site, partly by machine and then by hand (Barker 1973, 1974). The interface between the topsoil and the archaeology, which it was thought might contain finds of the very latest phase of occupation, was labelled layer I/II (*see chapter 6*) and was treated as the first archaeological layer (Fig 11). At the end of each season, much of the site was left open to the elements, only sensitive features being backfilled. Backfilling became more widespread after about 1976 when more sensitive layers became more generally exposed but some areas (Site A, Site B, precinct) were always left open, although treated with weedkiller. In general, it was found that this method saved considerable time in removing backfill at the beginning of the next season and, it was found that the rubble layers, and, more surprisingly, Sites A and B also, did not suffer much harm to the archaeology with only a 30mm crust of weathering building up. Indeed, in some cases it helped define the archaeology more clearly.

Sections, other than those of individual features, were rarely cut as there were so many archaeological trenches whose sides when exposed allowed the stratigraphy to be studied vertically. These sides, when put together, provided the running sections across the site (Figs A2 to A5). Excavation generally involved lines of trowellers cleaning the site to identify features cut into the surface (Fig 12). If no obvious features were found, a *planum* of up to 50mm would be removed, although obviously the depth depended on the context being excavated. Wherever possible, contexts were identified and excavated as discrete units, but if a *planum* extended over several contexts, the finds from each spit were collected separately. Experience of the site showed that it was very sensitive to variations in soil moisture; it dried quickly after rain and often showed features by differential drying. In the latter stages of the excavation, when small-scale floor patches were commonly being excavated, single context excavation became more widespread, backed up with quadrupod photographs (see below) as a further record.

It is important to note that the excavation, spanning the years 1966–90, covered a period of very rapid change and development in excavation techniques,



Fig 13 Planning a large area of the nave in 1984



Fig 14 On-site vertical photography using the quadrupod

and in methods of recording and analysis. At times the excavation initiated changes and at other times it adopted methods initiated elsewhere. These changes naturally caused some problems in the continuity of recording, but the increasingly refined techniques which resulted more than compensated for the disruptions.

Recording was at first carried out by identifying and numbering features and layers within each grid, which would then be recorded by the site supervisor in the individual site book for the grid. Where possible, features running from one grid to another were given the same number. From 1974, this system was discontinued in favour of a single running sequence of numbers for each site, starting with the distinguishing number 74, with the information being written on printed record cards 200mm by 125mm in size. In 1979, more complex A4 record cards were introduced and these were superseded in 1980 by a new design of the same size, which remained in use until the end of the excavation. From the beginning field matrices were drawn up for all areas of the site. The main excavation was brought to a close in 1985 but between 1986–90, excluding 1988, excavation was continued on Site A and Site B annexe as a training school run by Birmingham University's Extra-mural Department.

The recording was further rationalised during the post-excavation work when all feature and layer numbers from the pre-1974 seasons were reissued with numbers to fit in with the post-1974 system. Further additions were made to the sequence by describing features which had gone unrecognised or been inadequately recorded at the time of excavation, but which appeared on photographs or plans. A fully phased context list has been produced for the site and is stored with the site archive.

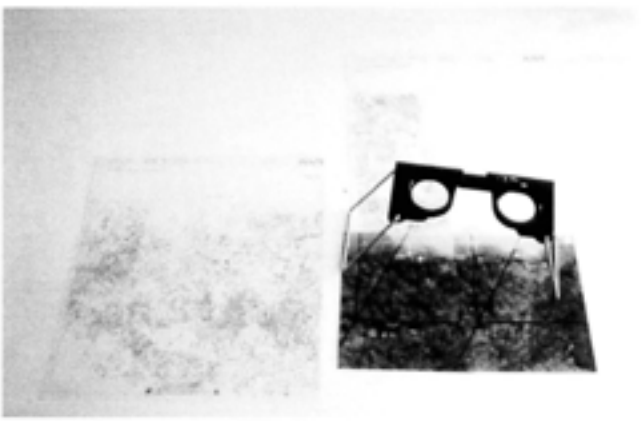


Fig 15 Drawing quadrupod photographs using a light-box, showing the stereoscopic viewer used to see the image three-dimensionally



Fig 16 Aerial view of baths and basilica as consolidated by English Heritage, looking south

Planning was carried out at 1:20 on pre-cut plastic drawing film squares 250mm in size, representing 5 by 5m on the ground, four of them making up a plan of a 10m grid (Fig 13). The only exceptions were the first sets of plans which were 500mm square and thus covered one entire grid. Up to 1980, most field drawings were made when it was considered that a new phase of occupation had been reached. After this date, context planning became more widespread but phase-planning never entirely disappeared. The time spent on site planning was enormously reduced on site by the use of the quadrupod (Fig 14), which is described in Barker 1977, 160–8, and Renow 1985. An extremely important aspect of its use was the production of an unparalleled stereoscopic colour photographic record of the excavation which has helped considerably in the post-excavation analysis (Fig 15). Sections of individual features, such as postholes, etc, were drawn separately at 1:10, or other appropriate scales, and filed in ring binders according to site. These are referred to in the site archive as feature detail files (FDF).

Finds were collected on site by hand and by dry sieving using a 3mm or 5mm mesh sieve. Finds were collected by context, but in addition each 10m grid square was broken up into 16 sub-squares lettered A-R (missing out I and O) and with A being in the north-east corner of each grid square (see Fig 9). This has allowed finds to be located to within a 2.5m square anywhere on the site, although in practice contexts located within these sub-grids were often smaller than 2.5m square, and so higher precision could be achieved. Occasionally contexts were wet sieved, usually for environmental evidence (for a full description of the process, see appendix 6, below), but any finds collected by this process were fed back into the system. Special finds were allocated a number from a separate running sequence for each grid and were plotted three-dimensionally. In general, finds preservation was excellent, in contrast to those found in the more peripheral areas of the town. This difference may be due to a more neutral (less acidic) ph produced by lime leaching into the site from the building mortar and plaster in the late rubble platforms.

At the end of the present series of excavations, the basilican area was covered with a plastic membrane and then backfilled under layers of red sand and then of sterile topsoil. On this, English Heritage have laid a surface of grey chippings as a foundation for yellow Breidden gravel for the interior of the building and red gravel for the porticos. The column positions have been marked in circular pink concrete slabs of the appropriate diameters. The positions of robbed-out walls have been restored with rectangular pink concrete slabs (Fig 16). It should be noted that the finished surface is at the same level as the surface of phase Z, that is, at the tops of the porch pad-stones of Building 10, which have been left *in situ*.

All the standing walls and wall foundations, the stone drain, the sub-floors of the basilica, and areas of the later pebble surface laid directly on them, together with the lower occupation layers of the precinct and the southern edge of *insula* 2, have been left intact, sealing the remains of the early civil town and the legionary fortress beneath. Future research on the earlier episodes of the site's occupation can thus begin where we stopped, and be added to the results which are published here.

Structure of the report

These excavations produced a vast quantity of information and material which needed to be condensed to produce this report. In doing so it was necessary to emphasise some aspects of the evidence recovered at the expense of others. The choices made have dictated the overall presentation and format of the report.

A discussion of previous work on the baths basilica (*chapter 2*) is followed by details of the structural evidence (*chapters 3 and 4*). There is first a brief summary of the various phases in chapter 3, highlighting the principal developments, which are also illustrated by the A3 loose-leaf phase plans supplied in a separate folder accompanying this volume. Chapter 4 then contains a detailed presentation of the structural evidence. In both chapters, the evidence is ordered in the same sequence as in the phasing summary set out below. Dating evidence is summarised at the end of each phase description in chapter 4. Most contexts appear in plan only on the A3 loose-leaf plans and not on the text figures, but context details generally appear in the text and can be referred to by using the index. The A3 loose-leaf plans are designed to be assembled into mosaics of the successive phases, and a key to the way the individual plans conjoin is to be found both on the appropriate text figure and with the related plan wallet.

The fully planned evidence and its interpretation are presented as separate drawings in order to make it easier to re-assess our interpretation. (A more detailed reassessment is possible from the Level III archive, where detailed field drawings can be seen in colour. These could not, for economic reasons, be reproduced here). Chapter 5 gives a catalogue of the structural evidence and includes axonometric reconstruction drawings of some of the individual buildings. These reconstructions are by no means definitive but given the sheer quantity of buildings, their variety of constructional methods, and the late date of many of them, an attempt to reconstruct them may serve as a model for similar buildings identified elsewhere.

The two final chapters cover the finds (*chapter 6*), conclusions and discussion of the evidence (*chapter 7*). Neither small finds nor bulk finds are presented in the traditional detailed catalogue form since most were residual. The site evidence makes it clear that the majority of these had been imported to the site with the hardcore and debris used in the building platforms and therefore pre-date the period of occupation. Thus, although there is a significant quantity of material, little of it can be related to the phases of occupation examined on site. An attempt was made during the post-excavation process to identify, on subjective grounds, those layers which related to activity on the site (designated Category A) and those which had accumulated rapidly through dumping or other activities (Categories B and C). Only finds from Category A contexts are fully discussed and listed (*see chapter 6*); all the available information collected on the remainder can be found in the site archive.

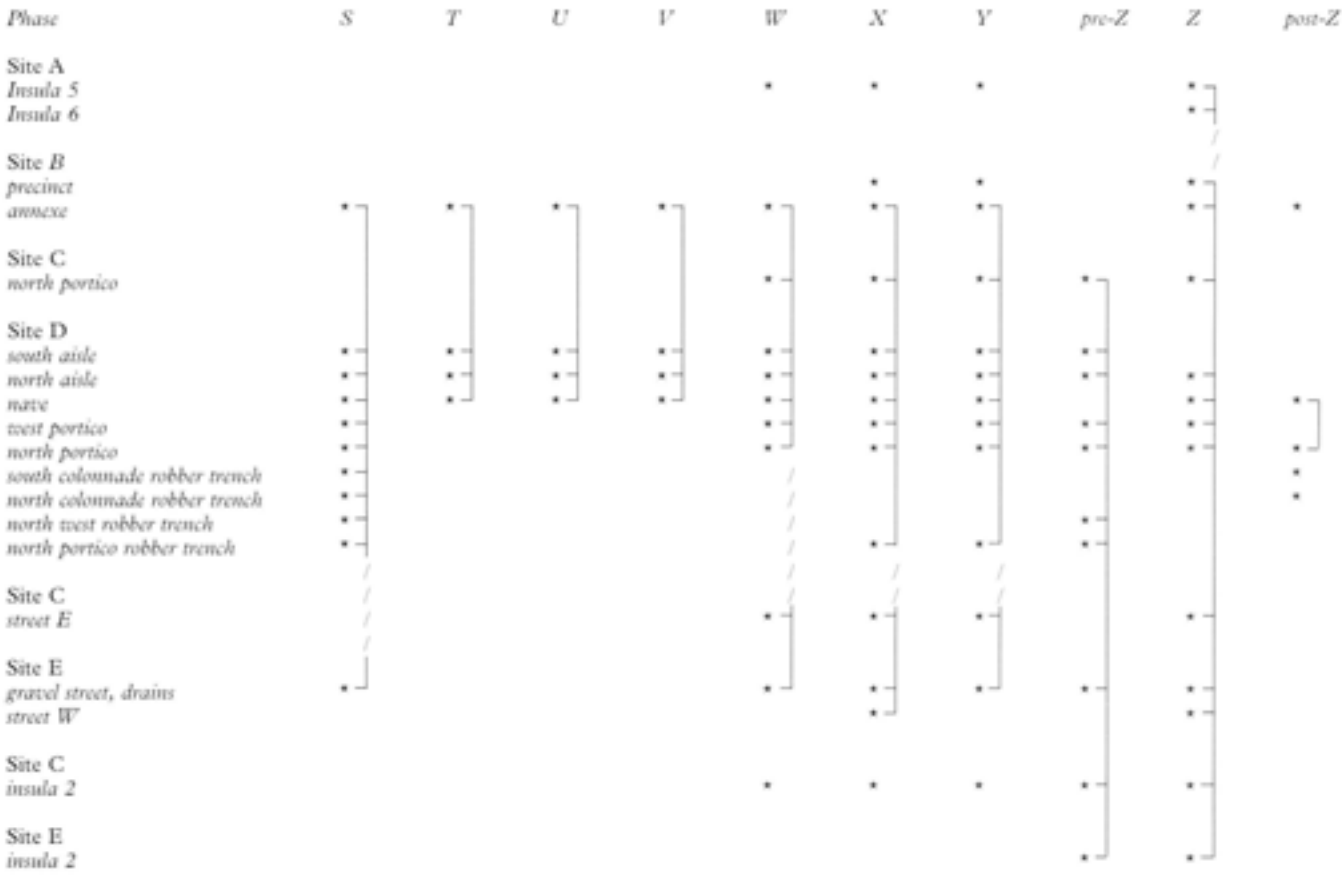
An exception was made of the bulk finds of pottery and glass, environmental material, and other finds which were unique to, or threw light on, activities or structures found on the site. Reports on these materials appear as appendices 1–10. A fuller discussion of the pottery and glass was needed because of the dating potential they offered as well as the possibility of identifying assemblages derived from occupation of the immediate post-Roman period. The environmental material is also given fuller consideration as there may be a demonstrable link between on-site activities and possible dietary or husbandry changes from the late-Roman to post-Roman periods.

The final chapter, chapter 7, draws together the various themes in the report into an integrated interpretation of the development of the site. Where appropriate this is linked to events and trends both within Britain and the Empire, and to the breakdown of Roman rule. A key part of this evidence discussed in this chapter is the dating of the phases, since it is the overall length of the sequence which allows us to take firm steps into the post-Roman period. Given the difficulties and uncertainties of this period in Britain, it is hoped that this interpretation will give rise to a great deal of debate. In order to facilitate this, we have tried to be scrupulous in separating the evidence presented from our interpretation of it throughout this volume, so that it should be possible to reinterpret the evidence as new information becomes available and new theories evolve in the future.

Archive

Documentation deriving from the post-excavation programme carried out from the early 1970's to publication of this report in 1996, includes the full Level III structural report which forms the basis of this report, photographs, record cards, matrices, field and publication drawings. This site archive together with the finds is curated by English Heritage (Historic Properties, Midland Region). The paper and photographic archive has been copied into the National Archaeological Record and can be accessed there. (Those who wish to consult the original archive material should contact the regional curator of Museums Division, English Heritage).

Table 1 Linkage of phases across site boundaries



phase present: • ; possible phase link between areas of the site: –|; no definite phase link between areas of the site: /

Phasing summary

The structural analysis of the site produced a complex phasing, which was lettered from the surface down using Z as the starting point (a method also used at Hen Domen, Montgomery, Barker and Higham 1982). Unfortunately, because the area of the excavation extended beyond the site of the baths basilica, only the last phase (Phase Z) can be shown to link up across all areas of the site (with the possible exception of Site A). In the preceding phases the site was composed of a number of differing areas of occupation, and it was not possible to be sure that the sequence of phases within each individual area were equivalent to general phases across the entire site. Thus, although the lettering system is used for all areas across the whole site, it is not possible to be certain that, for example, Phase X on site D is the same as Phase X on site C. Nonetheless, some basic linkages can be proved or reliably assumed and these are expressed in Table 1.

In the structural section of the report (*Chapter 4*), the main area of the site, the baths basilica, is discussed first, from Phases S to Y. A second section then discusses the east-west street Phases S to Y, *insula* 2 Phases V to Y, the precinct Phases X and Y, and Site A Phases W to Y2. The final section discusses the great rebuilding (Phases pre-Z, Z and post-Z) over the whole site. Within the basilica, the various parts of the building are discussed in the following order: south aisle, nave, north aisle, annexe, west portico, and north portico.

Insula 5 (sites B (annexe), C and E (porticos), D)

Phase S: original baths basilica

Phase T: repair to floor surfaces, usually involving laying areas of herringbone tiles

Phase U: general maintenance of the basilica

Phase V: similar to U

Note: Phases T–V found only inside the basilica and annexe

Phase W: the last reflooring involving up to three subphases of resurfacing both inside and outside the basilica. The annexe had its roof removed and was used as a builder's yard

Phase X: semi-dereliction of the basilica; small structures put up inside the basilica representing continuation of builder's yard

Phase Y: roof of the basilica taken down, robbing of structure but walls largely left standing, floor covered with roofing slates

Phase pre-Z: partial demolition of the basilica, construction of the gravel street, and robbing of some of the portico colonnades

Phase Z: major redevelopment of the site involving laying rubble platforms as foundations for buildings and paths

Phase post-Z: activity after abandonment of Phase Z, including buildings, a burial, and the robbing of the aisle colonnades

The areas below do not strictly relate to the main phasing sequence and may be operating on a different time scale

Precinct (Site B)
Phase X: pebble surface
Phase Y: dumping

***Insula* 5 (Site A)**
Phase W: pebble surface
Phase X: dumping
Phase Y: buildings, furnaces, and pits with gullies

***Insula* 2 (Sites C and E)**
Phase V: building? and furnace
Phase W: levelling and pit and gully system
Phase X: post-pad building
Phase Y: worn surface with pits

2 Previous archaeological work

Thomas Wright, 1859

Due to the presence of the Old Work on the site, antiquarian interest in the centre of the town of Wroxeter was inevitable from an early date. Fortunately this tended to manifest itself in the production of antiquarian engravings of the wall itself rather than any archaeological explorations of its surroundings. The first recorded excavations on the site were by Thomas Wright, principally known for his work on the Anglo-Saxon language, but also a notable antiquarian (Levine 1986, 14). His first visit to the town was in October 1854 and, writing to Joseph Mayer of Liverpool, he expresses his wish to excavate saying that there had been 'far more Roman gold coins picked up there than on any Roman site in England.' (BM Add Mss 33.346, fol 31). Beriah Botfield MP, who was Chairman of the Shropshire and North Wales Natural History and Antiquarian Society, initiated archaeological work at Wroxeter in 1858 when he and Thomas Wright launched a subscription for the excavations. By the end of that year, the subscription had raised £120. The day-to-day running of the excavation was to be carried out by Dr Henry Johnson, the extremely capable secretary of the society, who was to provide most of the on-site guidance for the labourers and later was curator of the museum set up to hold all the finds from the excavations (*ibid*, fol 284, 289; Wright 1872, i–iii).

Excavations started on 3 February 1859 with the sinking of a *sondage* on the north side of the Old Work, in the doorway. Wright himself records that this pit was 14 feet deep (4.25m; *ibid*, iv). Our excavations revealed that, from this *sondage*, Wright had dug trenches from the Old Work doorway radiating diagonally across the field to the north. Clearly their purpose was to locate the walls of the building and so determine its plan. As Wright relates, they were obliged to fill in the excavations on the north side of the Old Work by the end of March so that the tenant farmer could plant the field with turnips. Fortunately, by this time they had uncovered the outline of the building and had located a series of fragments of mosaic flooring in the north aisle which George Maw, the tile manufacturer from Broseley, in Ironbridge, recorded in a watercolour preserved in Rowley's House Museum, Shrewsbury (Fig 17). By this time Wright's relations with the farmer had become very strained. On April 29th, he wrote to Mayer that:

> 'we have had a tremendous row with that abominable tenant and his horrible field. I wish he were crammed with turnips till he burst! – but the Duke [of Cleveland] has behaved most liberally, and I hope we are triumphant'
>
> (BM Add Mss 33.347, fol 7).

It became clear from our excavations, as well as from comments by contemporaries, that the tenant farmer, before backfilling the site, had taken the opportunity to remove as much building stone as possible (Scarth 1859, 268). He seems to have robbed out the threshold stones from the east side of the Old Work doorway and from doorways in the annexe and south walls as well as facing stone from the south wall and the southern face of the precinct wall. Stone robbing remained a problem in these early years, until the baths were preserved for the public (below). Wright continued to work on the baths throughout 1859 and part of 1860, although he was never allowed to work again on the basilica. He followed his researches on the baths with excavations elsewhere in the city between 1860–3 and his final campaign season, in 1867, concentrated on the public latrines and shops between the basilica and the *macellum*. The date was chosen to coincide with the congress of the British Archaeological Association at Shrewsbury that year, the excavation being funded by Joseph Mayer, the Liverpool businessman and antiquarian collector (White 1988a, 132). Subsequently Wright's ill health prevented further work on his part, apart from the writing up and publication of the site in 1872.



Fig 17 Mosaic fragments from north aisle, watercolour: George Maw, 1859 (Photo: Rowley's House Museum, Shrewsbury)

Given the brief time that Wright was allowed to excavate on the basilica site, it is remarkable how much he was able to deduce from his excavations. His trenches uncovered walls parallel with the Old Work which were then traced for their full extent, although it was clear from our own excavations that the robber trenches were not completely excavated along their whole length. The hurried nature of the excavation led to the impression that the building was asymmetrical and that the west wall did not link with the rooms and *macellum* to the south. Wright's fundamental misinterpretation was that the south aisle was an open corridor between the nave and the south wall. His reasons for believing this were two-fold. First, he believed that there was 'no doubt' that the north face of the Old Work was the outside of a building. Presumably, this judgement was based on comparison with the architecturally complex south face of the same wall.

Second, the herringbone-tile floor that he found in the aisle was, he believed, 'generally found in courts and places open to the sky' (Wright 1872, 111–12). He failed to apply this judgement to the large areas of herringbone-tile flooring found at the west and east ends of the nave and had he found the smaller area of herringbone-tile floor in the centre of the north aisle, perhaps he might have changed his mind about it being for external use. However he failed to find it.

Apart from the herringbone-tile floor Wright noted that some traces of flagstones were found in the south aisle, around the doorway to the *frigidarium* (*ibid*, 198). These might also have suggested an external surface to him. In the north aisle, six fragments of mosaic panels were found which were later published by Maw (1861). From these Wright correctly concluded that a floor of mosaic panels must have extended along the whole length of the aisle (Wright 1872, 198).

From the evidence of the floors, Wright concluded that the nave had been separated from the aisles by columns, and another source records that a labourer had told him of 'rows of columns' being taken from the site to be used as coping stones for farmyard walls nearby (Scarth 1859, 266).

Wright also observed several doorways: three in the south wall, one in the west wall, one in the east wall, and a large robbing pit in the centre of the north wall which he interpreted, correctly, as the site of another door. He also noted in the western doorway 'plinths of stone and other indications of a grand entrance which had been remarkable for architectural display' (1872, 208). Presumably, this is evidence for a later blocking wall using *spolia*, a conclusion reinforced by evidence from our excavation in the west portico in Phase Z (*see chapter 4*).

To the east of the basilica, Wright identified the annexe, a small room which he described as a quadrangular yard or court, as he was unable to find any floor level within it. East of this he found a large enclosed space bounded to the north and east by walls which he thought might be a garden (*ibid*, 113) but which we think was probably the service area for the baths.

George Fox, 1894 and 1896

In 1894, a meeting of the Archaeological Institute at Shrewsbury prompted the funding of some small-scale excavations on the baths to 'clear up one or two doubtful points on [their] construction' (Fox 1897, 138 n). Another small excavation was carried out, funded by the same source, in 1896. However, none of this work was on the site of the basilica which, it is clear, was retained for the tenant farmer's use from 1859, while the ruins of the baths suite had been rented to the Shropshire Natural History and Antiquarian Society by the Duke of Cleveland. Fox published these excavations in the Archaeological Journal and discussed the evidence for the basilica in the same paper (*ibid*, 139–46).

This naturally repeats much of the evidence that Wright gives for the building but puts it in a more coherent form. Fox concluded that the basilica had been carelessly laid out, in particular noting that the east end had been built more than 6ft (2m) out of square and suggesting that the reason for this was a rebuilding of that end (*ibid*, 141). He, like Wright, concluded that there must have been internal colonnades between the aisles and the nave and calculated that the diameter of the columns would have been roughly 1m and that the total height of the columns, applying the Vitruvian laws, would have been about 8.25m (27ft). He also speculated on the possibility that the colonnade might have returned along the east and west ends of the nave to provide a continuous internal portico as was found in Italian *fora basilicae* (*ibid*, 141; Boëthius 1978, 149–56, figs 140 and 142). Corinthian capitals were assumed for the internal columns as a result of the architectural fragments found in the excavations by Wright. Fox then proceeded to use the spacing of the mosaic panels to define the position of the columns, spacing them at intervals of 2.6m (8ft 6in) which, as he noted, would give a narrow intercolumnation of less than two column diameters (*ibid*, 145). In conclusion, he then gives a reconstruction of the basilica which, given allowance for the incorrect measurements, is correct in most details.

Dame Kathleen Kenyon, 1936 and 1937

The impetus for the excavations carried out by Kathleen Kenyon just before the second world war came principally from the desire of the Shropshire Archaeological Society to understand more about the baths, which they were still renting. The President of the Society provided the bulk of the funds, with a public appeal making up the remainder. The principal virtues of Kathleen Kenyon's excavations are two-fold. First, she carried out her excavations before the (unrecorded) consolidation of the baths and thus her photographs provide a prime visual record of them. Second, she was able to excavate parts of the basilica for the first time in nearly 80 years. A further incentive to reassessment came from the fact that in the period between Fox's excavations and Kenyon's, the forum and an earlier baths building in the *insula* to the west had been excavated by Donald Atkinson (Atkinson 1942).

Sadly, Kenyon's report on the excavations of the basilica is rather confusing to read, principally because she allows her belief that there was an earlier forum on the site and that the baths had been built within the shell of this forum to obscure the otherwise sound basic evidence she had uncovered. In part this idea follows on from Wright's conclusion that the south aisle was a corridor independent of the nave and north aisle and in part it may arise from an assumption of Bushe-Fox, which he communicated to her, that, if the forum had been built over an earlier baths, then logically the later baths on the other side of the road must have been built on top of an earlier forum. This earlier forum is Kenyon's phase I. A detailed refutation of this idea is reserved for elsewhere in the report (*see chapter 4*).

Her description of the basilica states from the first that it was 'divided longitudinally into two unequal parts by a division wall' [the south aisle colonnade wall] and that 'neither the east nor west wall...coincided exactly in line with that of the southern [baths] building' (1940, 182). The evidence for the misalignment of the east wall is discussed in detail in Phase S (*chapter 4*) where perfectly good structural reasons are given for it. As for the west wall, Kenyon herself tells us that 'confirmation of [the misalignment] from the west end could not be obtained, as it lay beneath a dump' (*ibid*). When this junction was examined during our excavations it was absolutely clear that there was no discontinuity between the west wall of the basilica and that of the shops and *macellum* to the south (Fig 18). She then concludes that the building was not a basilica as the south aisle 'which always looked improbable from the irregular plan...at the east end, did not exist, and there was merely a passage, with open ends separating the two buildings' (*ibid*, 182–3).



Fig 18 Junction of south and west walls of the basilica showing their contemporary build and alignment

There then follows an extremely confusing passage intended to prove that the south aisle colonnade, the north wall, and the east wall were all the same thickness and that the north aisle colonnade was thinner, showing that it was an internal wall. But, as Kenyon herself says, 'as the latter [north aisle colonnade wall] was robbed very low, and the others varied in thickness where they survived, this is not quite certain.'(*ibid*, 183). Nonetheless, she felt able to conclude that the north, east, and south walls were built as one unit. Her account then goes on to describe accurately the north and west portico colonnades as well as the stone gutter to the north of the north portico colonnade.

The report then returns to the interior of the building, noting that the nave was paved with herringbone floor tiles and the north aisle with mosaic, which, she correctly demonstrated, had been destroyed in Roman times as a later mortar floor directly overlay its *opus signinum* base in places. She also noted that some areas of the floor had subsided, preserving the mosaic. The portico floor was described as being of hard mortar and that to the east of the building [in the annexe?] was of the same substance. The south aisle, or passage as she calls it, was paved with herringbone floor tiles but she noted that this was not the original floor as the rendering of the south wall of the basilica went down 0.4m below this floor level. She did not find any trace of the earlier floor, however.

She goes on to discuss the date of the basilica and baths buildings, noting that there was no direct evidence of their contemporaneity, but concluding that they were built at approximately the same time in the Hadrianic to Antonine period. The dating evidence for the basilica is derived from two pits in the north portico which cut through a 'rough brick [level] which can hardly have been a floor, and which moreover was considerably lower than the drain outside the portico' (1940, 184). The floor sealing this contained pottery of about AD 140–50. There is some reason to believe that the 'rough brick level' was the original floor of the portico (*see chapter 4*, and Kenyon 1940, pl lxix).

Her conclusion from the 'difficult problems' in the lay-out and function of the baths is that there 'was a strong suggestion of a change in plan, for the northern building is so nearly a Basilica, and yet not quite.' (*ibid*, 184). She then follows a suggestion made to her by J P Bushe-Fox that, since there was an earlier and uncompleted baths beneath the forum, which appeared to date to the initial laying out of the city in the Flavian period, then the 'very reasonable suggestion [was] that [the forum] lay on the site just excavated and that the hall was begun as the Basilica attached to this *Forum*' (*ibid*). This would also have dated to the Flavian period, although no dating evidence is cited. Both the unfinished baths and forum would then have been abandoned until the Hadrianic period when the forum was begun anew on the west side of Watling Street:

> 'while on the east side, the partially built Basilica was converted into a two-aisled hall, and on the area originally allocated to the *forum* was placed a large public building of unusual type...no parallels can be found in the normal public buildings of a Roman town. It is just possible that the southern building [the baths] formed the headquarters of the principal civil officer of the district, with his dwelling rooms in the western range [the shops] and official rooms in the eastern one' [main baths suite].
>
> (*ibid*, 185)

This erroneous but understandable conclusion, given the available evidence, can now be replaced by the less radical and more likely scenario that the indications of a change of plan reflect last-minute modifications to an existing layout for the baths and basilica.

The second phase of activity suggested by Kenyon is the conversion of the ?unfinished forum into a public baths by the addition of suites to the west and east of the main block and the excavation of basements in the main suite to allow the insertion of hypocausts. The construction of the eastern suite connected the baths to the baths

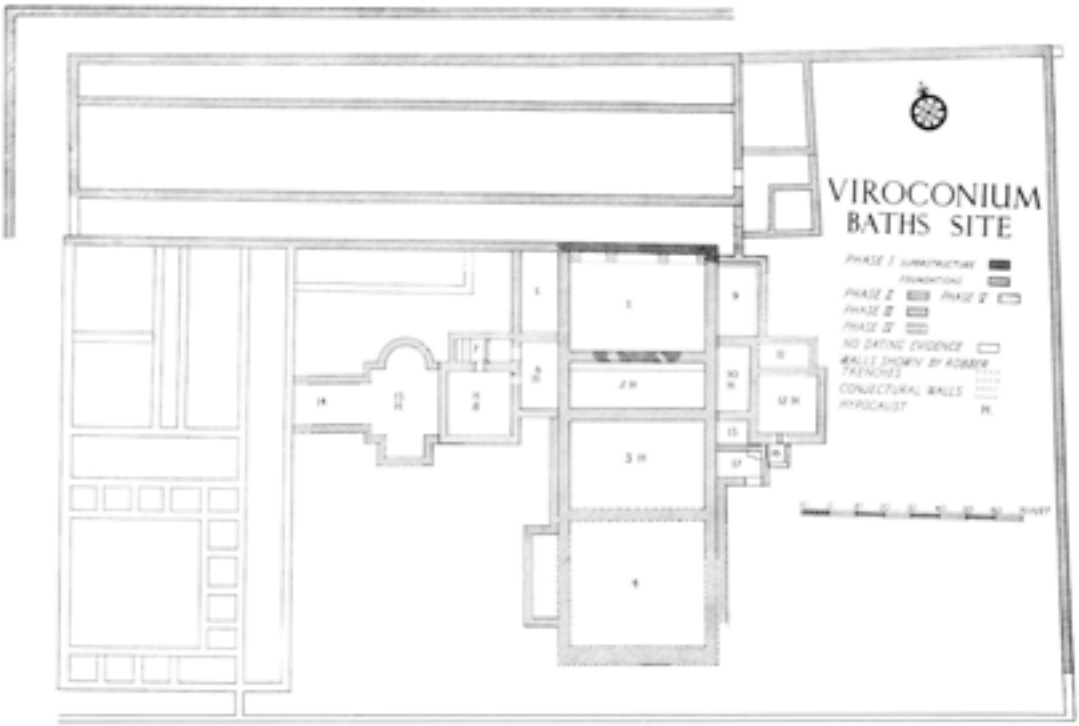


Fig 19 Phased plan of baths basilica, Kenyon 1940, pl lxxi (reproduced by permission of the Society of Antiquaries, London)

basilica 'for the first time'. (Kenyon subsequently invalidates her own argument by stating that the south room of the annexe was not built until phase III; Fig 19.) The junction between the north wall of the east suite and the east wall of the baths basilica comes 2m east of a dog-leg in the Old Work where the line of the wall is displaced southwards and then continued east to form the north wall of the plunge pool, part of Kenyon's eastern suite. In fact, the purpose of this dog-leg in the Old Work was to make room for a door in the south-east corner of the baths basilica which could give access into the service area beyond, the awkward junction being roofed with a transverse tile arch. To Kenyon, who failed to notice the still-extant evidence for this arch, this 'odd external angle...was one of the strongest arguments in favour of the fact that the area to the north [the south aisle] was not roofed.' She also noted that 'The existing wall [the main section of the Old Work] was cut back to bond with the new one [the plunge pool], but the bond is not a good one, and clearly not original, and the brick courses do not correspond' (*ibid*, 186).

In fact, detailed examination shows that, although some of the tile courses do not correspond, most do and there is no reason to doubt that the two elements of the wall were contemporary (*see chapter 4* and Fig 20). Kenyon also described the junction between the east wall of the basilica, which joins the baths basilica to the east plunge pool of the baths and incorporates the service door mentioned above, and the east end of the south aisle colonnade. The junction had been heavily robbed but she noticed that the northern half of the east wall here had a different mortar to the southern half, the southern cutting the northern. She correctly states that 'it would, of course, be possible that the two portions of the wall should be structurally independent, but nevertheless belong to the same building.' (*ibid*, 187) This was indeed the case but Kenyon uses the evidence to dismiss the idea that the whole eastern wall was part of the original basilica, backing up her view of the structural evidence with the problems of roofing the awkward angle created and concluding that this line for the east wall was illogical compared to one that ran to the change in angle of the Old Work or, alternatively, to join the east wall of the plunge pool. As already stated, our excavation has shown that there was a functional reason for the line chosen.

Kenyon further deduced that the north room of the annexe was added to the main block in this phase, her phase II. The southern room, she argues, was added in phase III. The north wall of the annexe was continued to form the north wall of the precinct, delimiting the service area for the baths. It was not possible for us to determine whether there was a buttress at the north-east corner of the baths precinct as she suggests (*ibid*, 188). She notes in passing an infant burial found in the annexe and the fact that there were no [masonry] buildings in the courtyard.

Her concluding paragraph on dating is of interest in that having described the levelling operation before the baths were built she discusses the laying out and construction as providing evidence for two separate buildings. She concludes that the two building phases are very close in date, with nothing later than the mid-second century, and very similar in style. As will be argued in chapter 4, it seems clear than Kenyon has misunderstood an initial laying out phase followed by a brief hiatus and then the completion of the baths by the mid-second century.

Her subsequent phases of the history of the basilica are relatively straightforward. In her third phase,

she suggests that the south room of the annexe was added to the north room, this presumably being a misinterpretation of a rebuilding of the cross wall (*see chapter 4*, Phase U), and that a small room was then built in the following phase in the south-east corner of this south room. Both additions are dated by her to the early third century. In the main hall [nave], the evidence noted is mainly to do with floor repairs rather than structures and she dates these to the same period as the alterations in the annexe. Almost certainly, this is equivalent to our Phase W.

Kenyon's fourth phase in the basilica is represented by the laying down of hard white mortar floors in the annexe and at the east end of the nave, and also the cutting of a lime pit in the nave. These events are also said to be third century in date and are equivalent to our Phases W3 and X.

The fifth and final phase, sealing the white mortar floors, was 'a continuous layer of burning and debris', with third and fourth century material in it, over which was constructed a rough masonry wall, D75 (*see Building 31, chapter 4*) whose associated floor level 'had been destroyed by ploughing' (*ibid*, 192; a curious interpretation as the floor was lower than the wall). The evidence seemed to suggest to her that the basilica had been partially reused at, or after, the end of the third century. It was also suggested that, as with the forum, both the baths and the basilica had been destroyed by fire in about AD 300 and that the shell had been reused in a 'slipshod manner'.



Fig 20 Detail of east end of the Old Work, north side. A transverse tile arch sprang from the point marked m) to cover a dog-leg in the masonry which was put in to allow a service door to be added to the basilica

Her final conclusion was to have important consequences some thirty years later 'For the last century of Roman rule, no direct evidence was forthcoming, as all the levels had been destroyed by ploughing...'(*ibid*, 193).

Dr Graham Webster, 1955–66

By the time the excavations directed by Graham Webster got under way, in 1955, the ruins on the baths site had deteriorated badly and ownership had been transferred to the Ministry of Works. Partial consolidation by Ministry workmen had already begun and Graham Webster was asked to carry on clearance work in advance of further repairs so that the site could be reopened to the public. Attention was mostly directed to the baths buildings south of the Old Work, but some small excavations were carried out to the north, their scale being limited by the continued agricultural use of the land. These interventions included a small trench opened in the south-east corner of the basilica where Graham Webster and Charles Daniels re-examined one of Kenyon's excavations, a long north to south trench dug at the western end of the site, north-west of the baths basilica, which sectioned the road between *insulae* 2 and 5 (Webster and Daniels 1973), a similar large east to west trench which cut through the frontage of *insula* 2, and some smaller cuttings made on the junction between *insula* 2 and the street to the south. From 1966, Philip Barker became Graham Webster's assistant director and began work at the east end of the site (Site 68). At the same time another large-scale trench dug by prison labour was opened at the west end of the site (Site 71). As related in chapter 1 above, the discoveries made in these two excavations led to the full scale excavation of the basilica reported on here.

It must be remembered that at that time it was believed that the upper levels had been destroyed by the plough and therefore it was felt to be unnecessary to examine the rubble-strewn destruction levels of the basilica. Philip Barker's more cautious approach soon revealed that this was not so, leading to the discovery of timber buildings within the basilica which led to the acceptance of the fact:

> 'that such ephemeral features must have existed in Roman cities and, of course, elsewhere. Furthermore, they had, to date, all been removed in site clearance down to recognisable solid structures. This was a devastating new concept...work on the interior of the basilica [Site 71]...must stop forthwith.'
>
> (Webster 1988b, 74–5)

It is relevant to note that previous excavators had assumed or concluded that there was only one building on the site, the baths basilica. The adoption of detailed area excavation has shown that there were, in fact, over 70 structures contemporary with or later than the basilica, either on its site or close by. With one or two exceptions they were of timber, and extended the known history of the site by some three centuries.

3 Summary of the structural development of the baths basilica and it surroundings

Due to the lack of stratigraphic ties across the site (*see chapter 1*), it is not possible to summarise all the areas together. This chapter therefore begins by surveying the principal events in the life of the baths basilica, as reflected in the archaeology. The peripheral areas will then be examined, in an order determined by their distance from the basilica. Finally, the whole site will be discussed for the final phase, which was recovered throughout. The critical problem of dating the phases and the difficulties posed by residual finds will be discussed in chapters 6 and 7.

The baths basilica, phases S–Y

The original building (Fig A6)

The ground plan of the original basilica, which functioned as the exercise hall or covered palaestra of the baths, was very plain. It was a rectangular building 73.8 by 19.2m, aligned east to west with external porticos on the west and north sides. Both porticos fronted onto streets, the western one being the main road through the town centre (Watling Street). On the other side of Watling Street, opposite the baths, was the forum of the town, which also had an external portico.

The south wall of the basilica butted onto several buildings comprising possible shops and a latrine at the west end, the main baths block at the east end, and, between these elements, a portico which was part of the colonnade around the courtyard of the baths (Fig 21). The east wall had another building attached to it, an annexe, divided into two equally sized rooms by a cross wall, which may have been the changing rooms for the baths. Internally, the basilica was divided into a nave with aisles to the north and south; the nave was twice the width of each aisle. Separating the three elements were the north and south colonnades which each contained 13 columns with engaged columns at both ends. There were large doorways centrally placed in the west and north walls, and one to the *frigidarium* at the south-east end of the south wall, the opening for which survives within the Old Work. Two further smaller doorways were found in the east and south walls, one more in the north wall, and a final service door in the south-east corner of the basilica. This latter door led out into a large courtyard enclosed by walls on the east, north, and, probably, the south sides, and by the baths on the west side. This area, called here the precinct, which had limited access and no known masonry structures, may have been the service area of the baths.

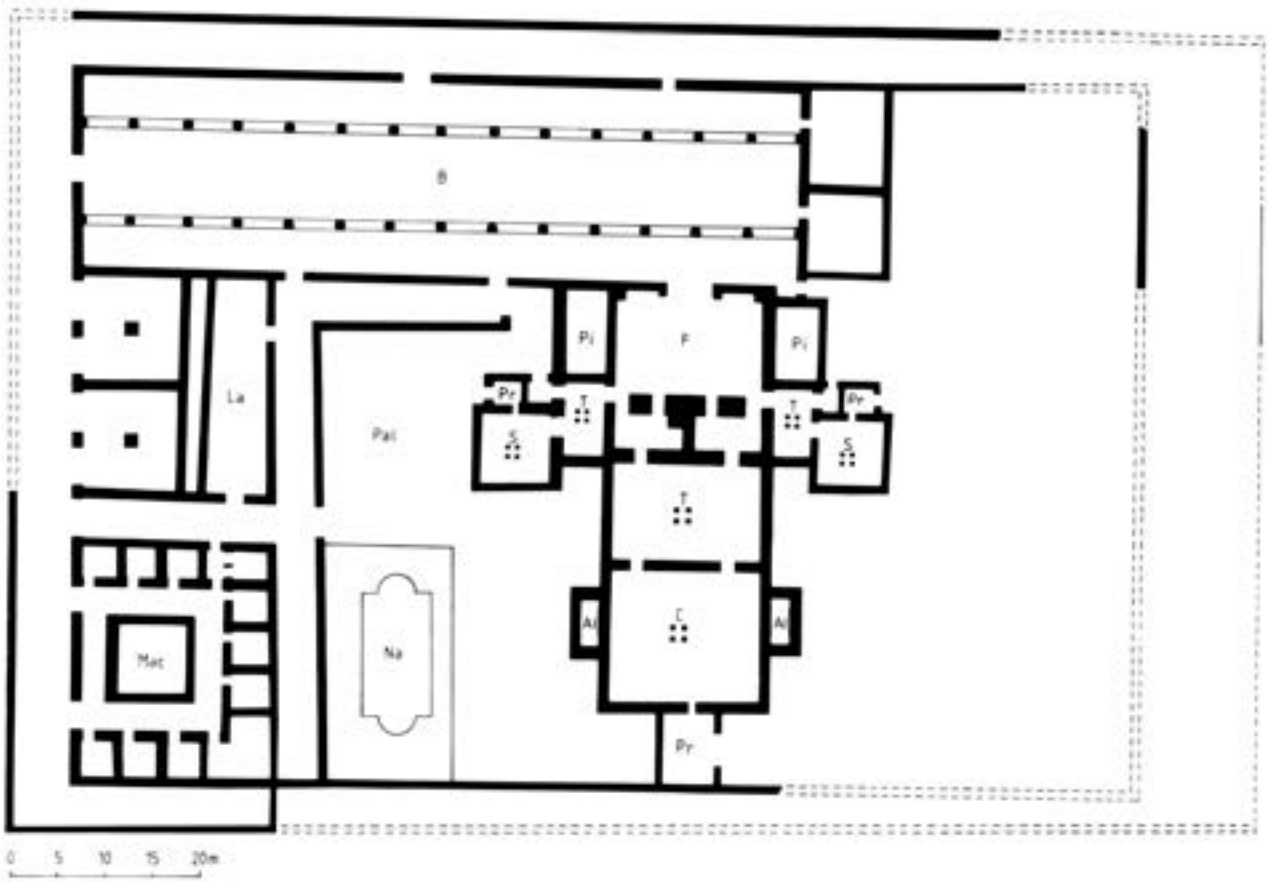


Fig 21 Baths complex as completed c AD 150

Decoration within the building was poorly preserved. Externally, the walls were plastered and painted white, the expanse being broken up on surviving fragments of plaster by paired red lines which might represent simple panels. Internally, there was evidence for white plastered walls with simple stripes of colour and, at window height, a red ?frieze. The engaged columns of the aisle colonnades and the cornice between the architrave and clerestory were probably executed in stucco, although none survived. The floors of the aisles were decorated in mosaic panels of simple geometric design laid in *tesserae* of dark blue and white limestone with a tessellated border of blue-green micaceous flagstone. In the nave, the floor was of *opus signinum*, although there is a possibility that this had formed the foundation for a lost mosaic pavement. There was no evidence for the floor surface or wall decoration in the annexe. Some of the doorways, especially those in the south aisle and the main west and north doorways, and possibly those into the annexe, were fronted by stone steps. The floors of the portico were probably of pebble and tile set in mortar but there is a possibility that there might have been flagstones outside the main doorways, as in the west portico outside the *macellum* (Graham Webster, personal comment).

Repairs and modifications: phases T–V

(Fig A7)

Phase T

The first major repairs to the basilica floors involved laying large areas of herringbone floor tiles (*opus spicatum*). This flooring covered most of the south aisle, the east and west ends of the nave, and the central part of the north aisle. In the south aisle, the herringbone tiles were cut into the sub-floor at the east end but lay on the former floor surface at the west end. The eastern end of the aisle still retained its mosaic panels but there was evidence for some repair where an area of tiles was cut into the floor and an extra paving slab was added west of the paved area outside the *frigidarium* doorway. In the nave, the tiles were cut into the former floor at the west end and laid on a dump of mortar at the east end. The edge of this eastern area of the floor was perhaps protected by a timber step keyed into the columns of the colonnade. Between the two areas of herringbone tile, the floor was pebbled. In the north aisle, the herringbone tile was cut into the floor. The rest of the floor had probably still retained its original mosaic panels but there was some evidence in the best preserved section at the east end of the north aisle that some of the mosaic panels had been relaid in a slightly altered style on at least one occasion. In the annexe, there was evidence that the floor had been repaired with mortar patches and that the cross wall between the two rooms had been taken down to its lowest course.

Phase U

This was a minor phase in which attempts to repair the mosaic floor in the north aisle were finally abandoned. This decision must have been taken principally because much of the mosaic had broken up but, in addition and more seriously, some areas of the floor had collapsed into underlying subsidences. Exposure of the underlying *opus signinum* foundation led to the formation of wear patterns in the floor during this and the next phase. At the extreme west end of the aisle, a partition supported by posts was constructed between the first column and the north wall to create a small square room (Building 61).

In the nave, small areas of herringbone tiling at the east end were removed and the resulting holes patched with various materials. Some of the tile removal was related to break-up of the tiles through extreme wear. At the western edge of this floor, the putative timber step of the previous phase appears to have been removed, resulting in the rapid loss of tiles in this area and wear leading to the creation of two large circular depressions in the floor. These were not filled until Phase W. West of the herringbone floor patch, in the central area of the nave, a long linear cut was made in the southern edge of the floor. This was filled with earth and rubble which presumably acted as a patch for what must have been a badly decaying edge. The northern edge was similarly patched, but only in localised areas. Finally, in the north-west corner of the nave, another area of herringbone floor tile was removed along with the underlying sub-floor, the whole area being patched with rubble in dark earth. Also belonging to this phase, and possibly spreading into the next, were many postholes, some of them very large and deep, which were cut into the floor of the nave in an apparently random fashion. Their function is uncertain as it is unlikely that they were for scaffolding.

In the south aisle, very little evidence for this phase was recovered. A large pebble patch was laid near the *frigidarium* doorway in an area which showed persistent wear. Finally, in the annexe the cross wall was rebuilt on a slightly different alignment thus dividing the building in half again. In the southern room, a thick dump of sand was laid down into which were cut the pits and gullies of an industrial system, possibly associated with iron working. A small wattle structure may have been associated (Building 74).

Phase V

A further series of patchings and repairs characterised this phase. In the nave, nearly all activity was of this kind with most of the patchings being found in the west and central areas. In the south aisle, a complex series of patches was located in the region of the main doorway into the baths and just to the west of it. Between the two minor doorways in the south wall, to the west of the baths block, there were numerous postholes and stakeholes, one group with worn edges (72) and the

others unworn (73). It is not clear what purpose these holes had. Neither scaffolding nor buildings seemed likely as they did not form sufficiently coherent patterns. Nonetheless, it seems likely that they represent some form of structure.

In the north aisle, activity was limited to replacing the partition wall (Building 61) at the west end with a more permanent masonry wall. This was built partly in a depression in the floor and had a facing of daub on the west side with a possible central door. Internally, several postholes were cut but their function was unclear. In the area of the central doorway in the north aisle, the badly worn floor was repeatedly patched. A progressively deep subsidence to the east of the door continued to be filled.

The annexe saw another change of use in the south room. Here, a small additional room of mortared stone was built in the south-east corner. No facing survived on this wall and it was unclear whether it had ever been decorated. The new room (Building 69) and the rest of the south room were given beaten earth floors.

The last reflooring: Phase W (Fig A8)

In terms of the number of contexts found, this was the most important phase, but despite this it was relatively uncomplicated and may be summarised succinctly as three concerted attempts to repair the floors of the baths basilica throughout and then keep them well maintained.

A characteristic of the phase was that although there were three major sub-phases which could be identified, and the flooring materials used were similar from sub-phase to sub-phase, they varied quite considerably across the floor within each sub-phase. This is thought to be a reflection of the amount of wear to which the area would be exposed. So, for example, the west portico and west end of the nave, in the region of the main doorway, had pebble floors pounded into a bedding of fine silt. The main path to the doorway across the west portico was further strengthened by the inclusion of large sandstone blocks within the make-up which would be much more hard wearing. The same pebble floor also continued along the full length of the north portico, and a similar, but less dense, sandstone path was found in the region of the central north doorway. At the east end of the nave, where the wear was especially heavy due to the traffic into the baths, the flooring materials were of pebbles in mortar followed by beaten earth floors with a mortar skin and, finally a thick mortar dump with a crude *opus signinum* surface. All of these floors were heavily patched. In the central area of the nave, where traffic was light by comparison, the floors were of crude and patchy *opus signinum*. Two ephemeral buildings (Buildings 65 and 66) were detected at the west end of the nave during this phase.

The aisles showed the same mixed approach to the problem of reflooring. In the north aisle, a continuous make-up of freshly broken sandstone was surfaced by a mortar floor at the east end, which graded into a beaten earth floor and then a pebble floor with sandstone rubble, the latter being particularly concentrated around the central doorway in the north wall. These floors all showed signs of extensive repair, as with the nave. In the south aisle, the reflooring was less complex. The main sequence was located around the doorway into the baths and was mainly of pebble floors based in mortar. A sequence of pipe trenches was found within the foundation of these floors. The rest of the aisle was floored with beaten earth dumps with the addition at the west end of a mortar floor on a dump of fresh red sandstone rubble. At the end of this phase there was a dramatic subsidence in the north portico.

Activity in the annexe in this phase was quite different from that in the rest of the building. The roof was taken down and the earlier floors sealed with a thick sandy dump. A door was knocked through the partition wall between the rooms for the first time and a hearth with associated working surfaces established in the now demolished corner room in the southern half of the annexe. In the north room, two lean-to structures were built (Buildings 59 and 60). A second sub-phase involved the demolition of the cross wall, the reconstruction of Buildings 59 and 60, and the construction of a small shed to cover a wooden barrel (Building 67). Activities in the annexe in this phase seem to have been linked to the patching and repair work found in the basilica and it is suggested that the annexe had now become a builder's workshop.

The building yard: Phase X (Fig A9)

This phase marks the start of the demise of the basilica as a building. Structurally this shows most clearly on the porticos where a large subsidence in the north portico and sinkage elsewhere forced the construction of a timber boardwalk over the floor. To the east of this was a small oven and then two structures (Buildings 57 and 58). One of these buildings stood on four stylobates, which demonstrated that the colonnade and the portico roof had been dismantled. On the west portico, the removal of the roof was followed by the construction of two large post-built structures flanking the main doorway (Buildings 63 and 64), in one of which was a large bread oven.

Inside the basilica, the roof may have started to disintegrate and it is possible that the roof, clerestory, and colonnades were removed in this phase, although evidence for this is stronger in the next. Several small wattle buildings were found at the east end of the building, near the annexe. These included Building 56 in the north aisle, Building 55 in the nave, and Buildings 53 and 54 in the south aisle. The last of these was built within an area where all the floors had been quarried away to provide raw materials for use elsewhere. Evidence for a lime pit, hearths, and associated activities was found with these buildings. In the annexe, the buildings of the previous phase had been demolished and the only identifiable activity was the building of a hearth, and an area of slaked lime.

Partial dismantling: Phase Y (Fig A10)

The full decline of the basilica as a public building was marked by the removal of the roof and upper levels of the walls, and the dumping of earth within the walled area and on the portico. The demolition was controlled and there was very little evidence for the collapse of the superstructure of the basilica. Some rubble areas were laid on the floor to form paths, but most of the floor was covered with a spread of micaceous flagstone roofing slates on dark earth, these presumably being derived from the basilica's roof. The density of the slates was not random but reflected known patterns of use established while the building still functioned. Examination of charcoal within the debris also showed that worm-riddled oak timbers had been burnt. It is thought that much of the plaster would have been weathered off the walls in this phase and the policy thus seems to have been to render the building useable as an enclosed courtyard. A small building (Building 52) was established in the south-west corner of the basilica, in the former south aisle, and seemed to be associated with heavy duty rubble paths nearby.

The east to west street and drains, Phases S, W, and X

The earlier phases of the east to west street between *insulae* 2 and 5 had been heavily disturbed by the activities of Phase Z, particularly the creation of the gravel street (see below). Most of the evidence for earlier phases was found in the central area where a narrow spine of archaeology had survived between the robber trench of the north portico colonnade and the cut for the gravel street. This spine was largely made up of the edge of the road surfaces and a considerable amount of road wash within which were water pipes. At the west end of the street, part of the cobble street survived to its full width but this was not investigated below Phase X. Because of the close physical relationship between the water pipes and the north portico colonnade, phase links are stronger here than in other peripheral areas of the site and the dates suggested for the baths basilica phasing may be assumed here.

Pipe trenches: Phase S (Fig A6)

The earliest complete pipe trench found was traced for the whole length of the later gravel street, except where a short length had been robbed out, and consisted of a linear slot with iron pipe collars within it. North of the eastern end of this pipe and supplied by it was a rectangular timber-lined water trough or fountain. Below the west end of this pipe trench were two earlier examples of water pipes which were noted but not excavated. These may have belonged to the early civil period. Between the water pipe and the colonnade sleeper wall was a sandstone gutter which survived only at the western end but had orginally run the whole length of the site. This feature had drained rainwater from the roof of the basilica, but it had also brought water from further east, perhaps the overflow from the aqueduct, and drainage from buildings to the east.

Pipe trenches: Phase W (Fig A8)

The next sequence of events has been placed in this phase because it matches the radical change in maintenance methods in the basilica in Phase W. The first activity involved the robbing of much of the stone gutter along the north side of the basilica. The missing conduit stones were replaced by wooden water pipes. The gap left by the missing stones then began to silt up with road wash, within which pipe trenches were renewed at successively higher levels. Initially, these fed into the remaining section of the stone gutter but as this too began to silt up, the water broke out and began to cut itself a channel to the north of the conduit. The silts continued to build up, however, and the stone gutter was eventually completely buried. This silt was found along the full length of the street and some loose pipe collars were found within it suggesting that there were more pipes associated with this sub-phase as well.

The cobble street: Phase X (Fig A9)

This phase was primarily located at the western end of the surviving area of cobble street. It is likely, however, that the road wash discussed in Phase W continued to accumulate in this phase as well. The cobble street had a fairly coarse and loose surface by this time and evidence was found for a buildup of wash on either side of the road which gradually levelled the camber. The butt end of a deep rectangular slot, possibly an unfinished central road drain, was cut into the surface of the street and this may be a continuation of a feature found in the eastern end of the street, beyond the cut for the gravel street. Apart from the excavation of this central feature, the eastern end of the street was not examined.

The *insula* 2 frontage, Phases V–Y

The *insula* 2 frontage which lay to the north of the east to west street, was only examined in these phases at the eastern end. Even here, the picture was very incomplete and poorly understood because of the restrictions of space and the decision to leave as much archaeology as possible undisturbed for future excavators.

Miscellaneous features: Phases pre-V and V (Fig A7)

The earliest features found were a clay and cobble wall which survived from an earlier phase but was associated in this with a possible clay floor (Building 62), and an industrial furnace, the latter with a coin of the House of Constantine in its construction and mid-fourth century pottery in its fill.

Industrial activity: Phase W (Fig A8)

After the site had been levelled with thick dumps of earth and rubble, a large pit was dug, partially backfilled, and then lined with roofing slates. A series of gullies led from the pit and drained into smaller pits or soakaways. Nearby, two square-cut pits were dug and lined with clay; these may have been settling tanks. Some slag was found in the fill of some of these features but it was not clear whether it was associated with the industrial process carried out in the pits and gullies.

Building 36: Phase X (Fig A9)

Most of the east end of *insula* 2 in this phase was taken up by a very large post-built structure, Building 36, of which only parts of the west and south walls were recovered. The posts had stood on pads formed by digging square pits and filling them with alternate layers of large cobbles and clay. Two of the posts on the west side were earth-fast and it is thought that these marked a doorway. No floor level was identified. A rubbish pit with organic material in it was found nearby.

Pathway: Phase Y (Fig A10)

The remains of Building 36 were levelled with a spread of yellow clay in which a tile and shattered *amphora* path had been set. To the west, a section of a pipe trench bordering the east to west street, and a cobbled surface may have belonged to this phase.

The precinct, Phases X and Y

The precinct was an enclosed area bordered by the annexe on its western side and by a high wall to the east and north, the southern edge of excavation being artificial. Only one original doorway into this area is known, the small door found between the annexe and the east cold plunge pool. Presumably, this area was the service compound of the baths. Its early history was not investigated and only two phases could be defined before the final phase.

Pebble floors: Phase X (Fig A9)

The earliest activity identified in the precinct was the construction of a pebble surface, which survived primarily in the centre of the area. Buried within the make-up of this floor, and therefore contemporary with it, was a water pipe which ran north-west to south-east across the site. Other surfaces found, principally of sandstone and mortar, might have been later repairs. Presumably, this floor represented the working surface of the precinct and was in use at the same time as the baths.

Dumping: Phase Y (Fig A10)

The pebble floor showed considerable signs of subsidence at its margins and was levelled before the final phase by dumping earth and rubble in these areas, leaving the pebble floor exposed in the centre. Coins of the House of Valentinian and the appearance of calcite-gritted ware within the dumps showed that this period of levelling was probably contemporary with, or later than, Phase W in the basilica, that is, from the last quarter of the fourth century.

The eastern side of *insula* 5 and the north to south street

Between the baths precinct and the north to south street on the eastern side of *insula* 5 was a broad strip of archaeology which was isolated from the rest of the site. A simple stratigraphic sequence of stratigraphy was excavated but it is not possible to tie this in securely with the rest of the site.

Pebble floor: Phase W (Fig A8)

A fine pebble floor was partially exposed in the north-west corner of the site. It was thought that this had once covered the whole area and that it might have been the original surface for this side of the *insula* as it was level with the offset of the precinct wall.

Dumping and levelling: Phase X (Fig A9)

The level of the whole area was raised by extensive dumping to match the rising level of the north to south street as it was resurfaced. The levelling showed as linear dumps which were parallel with the street edge and lay on a surface of clean crushed red sandstone which had also supplied a foundation for the associated street surface.

Industrial phase and buildings: Phase Y (Fig A10)

The site was divided into two distinct areas in this phase. On the western side was a series of large pits linked by a continuous gully. This was refurbished at least once and the gullies appear to have been timber-lined in both phases. Parts of two similar systems were found to the north-west of the main one. To the east of the main gully system was a large, probably industrial, furnace which may have been associated with a bow-sided wattle building (Building 3). The building was divided into three sections by partitions and there was a hard-standing at its southern end. The furnace was later rebuilt at right angles to its earlier phase and this refurbishing may be associated with a possible structure (Building 2) the evidence for which was much more ephemeral than Building 3.

Throughout the life of these buildings and furnaces there was a great deal of evidence for dumping and pit cutting which was presumably associated with the activities in the buildings, furnaces and pit systems. A fence line separated the buildings, etc from the north to south street, which continued to be resurfaced.

The final sub-phase was marked by the filling in of the pits and gullies and by the disuse of the furnace in its second form. Over the levelled remains of the furnace, another bow-sided structure was built (Building 1) which also had internal divisions and a hard-standing area. Possible platforms for small square structures were noted west of the building and some pits were dug nearby.

The great rebuilding, Phases pre-Z, and Z

This was the most extensive and important phase identified and involved the complete redevelopment of the excavated area.

Preparation: Phase pre-Z

Preparatory work was identified in two main areas. First, a large part of the east to west street was robbed out to a depth of 0.5m, resulting in a broad trench which was filled with sifted gravel and earth to form a gravel street. Second, the north wall of the basilica was almost completely demolished. It is likely that the spoil from both operations was reused in the platforms for the buildings of the next phase. A temporary cooking area on the north portico was in operation during this phase, the evidence consisting of numerous hearths and ashy spreads.

The great rebuilding: Phase Z (Fig A11)

This phase centred on a very large mortar-packed rubble platform (the foundation for Building 10) laid down across the former nave, north aisle, and north portico of the baths basilica. The packing of parts of the rubble raft was of painted plaster which, when reassembled, formed part of the vault of a building. There was a good correlation between the measurements of this and other platforms with the Roman measuring system (*pes Monetalis*). The platform is assumed to be the base for a rectangular timber-framed building with projecting wings on the southern side between which was a verandah with a central porch whose position was marked by large padstones. This porch lay directly to the north of the central doorway in the south wall of the basilica. Attached to the west side of the platform was a long extension marking another building (Building 11). This structure was a two-celled building founded on dwarf walls in the western half and postholes in the east. Two broad entrances were identified on the north and south sides. To the east of Building 10 was a masonry structure (Building 31) built against the east wall of the basilica. This was the only masonry building in this phase. South of these buildings, the whole of the south aisle, with the exception of the east end, was divided into regular rectangular platforms on which stood lean-to buildings (Buildings 16–21, 27, and 28). The central doorway in the south basilica wall was kept free of buildings and it seems likely that the doorway into the *frigidarium* was also clear, the *frigidarium* itself probably remaining roofed and in use.

On the west portico at least three phases of timber buildings were identified. The first phase consisted of Buildings 38 and 39. Building 38 partly blocked the main west door and there was evidence that the door jamb had been robbed at this time. The next phase consisted of Buildings 33, 34, and 37. External hearths were associated with the last two buildings and Building 33 was built over the robber trench for the north colonnade. Burnt grain found within the hearths indicated that they had been used for domestic purposes. The third and last full phase consisted of Buildings 25, 29, and 32. A possible fourth phase was represented by Building 14 which projected from the southern edge of the excavation. North of these buildings, on the remains of the cobble street, a fence line was erected which was later replaced by an open-fronted structure (Building 26). To the east of Building 26 was the gravel street. This unique feature was a pedestrian area with access from three main points: a ramp of earth at the west end, steps at the east end, and a crossing point over the north wall robber trench near Building 11. The street had originally been left clear of buildings but several small structures or booths were later put up on the southern edge of the street (Buildings 40–44 and 12). Building 12 was post-built, but Buildings 40–43 showed only as slightly raised platforms on the street surface. Evidence was also found for a timber boardwalk on part of the northern side of the street.

To the north of the gravel street, two phases of buildings were found on the frontage of *insula* 2. Unfortunately, none of these buildings (with the possible exception of Building 8) could be completely uncovered. Most showed as slight differences in stone densities or as soil colour changes but others had more substantial features. The first phase consisted of Buildings 35 and 45–51 (from east to west) some of which had well defined wall lines, and porches with pad-stones and timber steps. The form of the buildings of the second phase was more difficult to define and several ground plans have alternative reconstructions; generally the size of the buildings appeared to have increased and they were apparently detached. Many had substantial porches and it can be suggested that they were two-storeyed. The buildings involved were, from east to west, Buildings 22, (8), 7, 9, 13 and 15. A final, third phase depends upon an alternative

reconstruction of Building 8. South of the eastern end of the *insula* 2 frontage, the eastern end of the cobble street was largely abandoned with some of the *insula* 2 frontages encroaching onto it. The hearths of the pre-Z phase on the north portico were also abandoned, and this area, and the annexe to the south, developed into a waste ground with its characteristic fauna (*see Armour-Chelu, Appendix 8*). Nonetheless, it is clear that there were paths across these abandoned areas, access often being through new openings knocked through the still-standing walls of the annexe or precinct.

The precinct also showed a complex series of developments with four phases of buildings, all of which appeared to have stood in isolation. The first two, Buildings 68 and 23, were both lean-tos against the north wall of the precinct. Building 23 was better defined than Building 68. The former was replaced by Building 24, a post-built and framed building whose appearance was more like a barn than a house. It stood parallel with the east wall but slightly detached from it and had a substantial porch in the south-west corner and possible attached outhouses on other walls. A minor structure, Building 70, may have stood in the north-west corner of the precinct and might be restored as a small granary standing on pad-stones, but this building was very poorly defined and its interpretation is uncertain. Finally, Building 6 was put up in the north-west corner of the precinct. This was a substantial timber-framed building on a rubble platform. Some evidence was found for an internal partition and a cross passage which took traffic through the building from the portico to the precinct. All of these buildings were associated with external pebble surfaces, the edges of which were sometimes defined by fence lines.

To the east of the precinct, on the eastern side of *insula* 5 a large wattle-lined cistern was cut into the site of Building 1, the site otherwise being abandoned. There was considerable, but ill-defined, evidence on the *insula* 6 frontage further east, suggesting more timber buildings very like those found on the *insula* 2 frontage. Clearly, the great rebuilding extended into at least three *insulae* (*see chapter 7*).

The last building, a burial, and abandonment: Phase post-Z (Fig A12)

Eventual abandonment of the site appears to have been controlled. The buildings did not fall down but were dismantled, the only exception being Building 31 which, being of mortared stone, could not be easily reused elsewhere and was left to collapse. Part of the sites of Buildings 10 and 11 were reused as the platform for two much smaller structures (Buildings 4 and 5) which, nonetheless, were quite substantial. These must have been built soon after the site was abandoned as they were cut into the still visible platforms for Buildings 10 and 11. South of Building 4, the platform for Building 11 was also cut by a grave. The body was male, orientated north to south but without grave goods, and the skeleton was dated by radiocarbon assay to Cal AD 600–790 (Birm-1045; 1340 ± 60 BP). This burial provides a *terminus ante quem* for Phase Z as, clearly, the Phase Z buildings must have been abandoned for the burial to take place.

There was little evidence for later activity on the site. A late ninth century Anglo-Saxon strap-end found in one of the robber trenches showed that quarrying of the site probably occurred sporadically throughout the post-Roman period, but since much of the baths basilica had been dismantled in Roman times, there cannot have been a great deal of stone left. It is assumed that the site was left waste for some considerable time as there was very little plough damage and almost no medieval pottery. Nonetheless, it seems likely that the field was in cultivation by the early modern period as a significant amount of mid eighteenth century and later pottery was found in the plough soil. A final phase of stone robbing was carried out in 1859 by the tenant farmer after Thomas Wright's excavations had exposed many of the walls of the basilica. The survival of the Old Work, as it has been known since at least Camden's day, is difficult to account for, but may be explained by the fact that the *frigidarium* with its solid floor, vaulted roof and wide doorway would have made an ideal barn. Considerable amounts of grain found on the floor in the nineteenth-century excavations might be evidence of just such use (*see chapter 7*).

4 A structural history of the baths basilica site

This chapter details the evidence recovered during the excavation on the baths basilica site. It divides into three sections, dealing with the baths basilica, peripheral buildings, and the great rebuilding. The baths basilica is examined for its appearance, use, and evidence of its repair and abandonment, with seven phases of development. The four peripheral areas of the site are dealt with in a section which covers the same chronological ground as with the baths basilica but in less detail as these peripheral areas were not examined in great detail below the last phase. The last section describes in detail the last phase across the whole site, the great rebuilding, when the shell of the basilica was swept away and the site redeveloped, the preparatory work, the main building phase, and activity after the last rebuilding.

The text of this chapter is based on a much larger archive report (White, 1991) which is available for consultation, along with the plans, drawings, photographs, and other records in the site archive.

Phase S: the original basilica (Fig 22)

The walls and colonnades of the basilica

The west portico colonnade (Figs A13 and A14) was only partially recovered as the line of the modern-day Watling Street runs on a slightly different alignment to the Roman one. Consequently, only a tapering trench could be opened, 0.6m wide at its southern end (grid 14) and 0.3m at the northern end (grid 42). After the robber trench fill had been removed, the excavators encountered areas of silty sand with inclusions of mortar, pebble, ceramic tile fragments, and some sandstone rubble which were found along the whole length of the exposed portion of the trench. The layers were moderately compacted but appeared disturbed and were consequently thought to be a primary backfill of the colonnade. As will be more fully discussed below, these layers almost certainly represent a disturbed bedding layer for the stylobates themselves. A similar sandy, mortary level was found in the base of all the colonnade trenches within the building and was observed *in situ* under stylobates which were still in position in both the north colonnade and the north aisle. There is no doubt, however, that in this case the bedding layer had been heavily disturbed when the stylobates were robbed and that later dating material will have been mixed up with it. The full width of the underlying colonnade wall, D2471, was not recoverable but on the *macellum* site, where it is fully exposed, it is 1.1m wide. This is in distinct contrast to the sleeper wall of the north colonnade which is only 0.7m wide. It seems likely, therefore, that the west colonnade was much more substantial than the north, presumably so that it matched the facade of the forum colonnade on the other side of the street. The reconstruction of the column positions therefore follows that of the existing forum colonnade to the west. Such colonnaded streets are a common feature of Roman town planning (MacDonald 1986, 33–51). The colonnade wall D2471 was not excavated and was only seen in plan but it appeared to be the normal sandstone-faced rubble and mortar construction seen in the other colonnades.

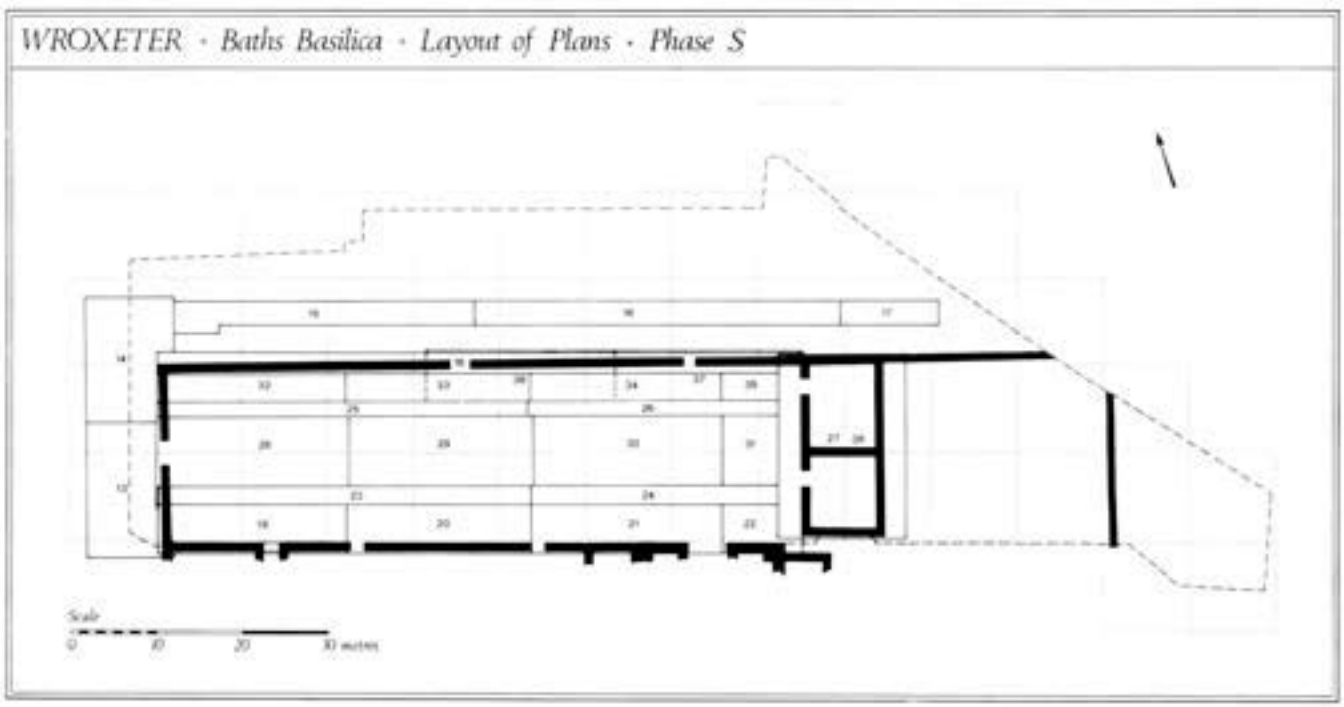


Fig 22 Layout of loose-leaf plans, Phase S

The north portico colonnade (Figs A15–A17) was recovered in almost its entire length between grids 32–42, its sleeper wall being numbered D2470 between grids 34–42 and C462 in grids 32–4. The construction of D2470 varied along its length. At the west end, it was similar to that seen in the west colonnade with the wall being built in sandstone rubble facing a rubble and mortar core, finished with a level surface (Fig 23). In grid 39, part of the wall had a facing of ceramic tile fragments, possibly a repair. In grid 38, the appearance of the wall changed, with very little facing stone visible. Instead, a relatively smooth mortar surface was found which had occasional pieces of sandstone embedded in it. The width of the wall where facing stone was visible was generally 0.7m but in the unfaced, mortar areas it varied between 1m and 0.5m. Another anomaly noted in the wall occurred in grid 42 where an apparent corner, marked as letter A in Fig A15, was discerned during the post-excavation work near the junction between grids 41 and 42, roughly 8m east of the west portico colonnade. The corner showed as an area of mortar, continuous with that of the wall itself, but extending south and with a sandstone slab tying the walls in to each other. This corner, if projected, matches up with the line of the west wall of the basilica and may indicate that the west portico was an addition to an original plan for the building. This hypothesis appears to be confirmed by the slightly different alignment of the colonnade sleeper wall west of the presumed corner which has a slightly divergent line from that of the rest of the colonnade (Fig A15). The implications of this observation could not be investigated as any potential wall running southwards from this corner lay beneath the Phase W portico floor which was left in place. It is perhaps worth noting, however, that no continuation of the west wall of the basilica northwards was noted at its north-west corner (Fig 24).

At the east end of the north colonnade, it was fortunate that four of the original stylobates remained *in situ* (see below). This allowed a detailed examination to be made of the way in which the colonnade was constructed. The sleeper wall, C462, the continuation of D2470, was here capped with yellow mortar with pebble and angular sandstone fragments. At the junction of the wall and the west end of the stylobates, a deep archaeological trench had exposed the wall's foundations. These were of river cobbles and red sandstone rubble set in clay (Fig 25, section c). To the east of the stylobates, the sleeper wall was less evenly constructed with the mortar being sometimes absent and red clay substituted. It is possible that this change of construction means that the portico colonnade was built somewhat later and was less substantial. A similar change was observable in the north wall of the basilica in this area (see below). Overlying the sleeper wall was C461, a layer of hard-packed sandy clay with tile and sandstone rubble which was level on the surface and showed signs of the position of removed stylobates (Fig 26).



Fig 23 Stone gutter (later a drain) of the basilica, looking east. To right, wall of north portico colonnade, marked a) showing several builds. One of the drain stones has subsided



Fig 24 Junction of west and north walls of basilica

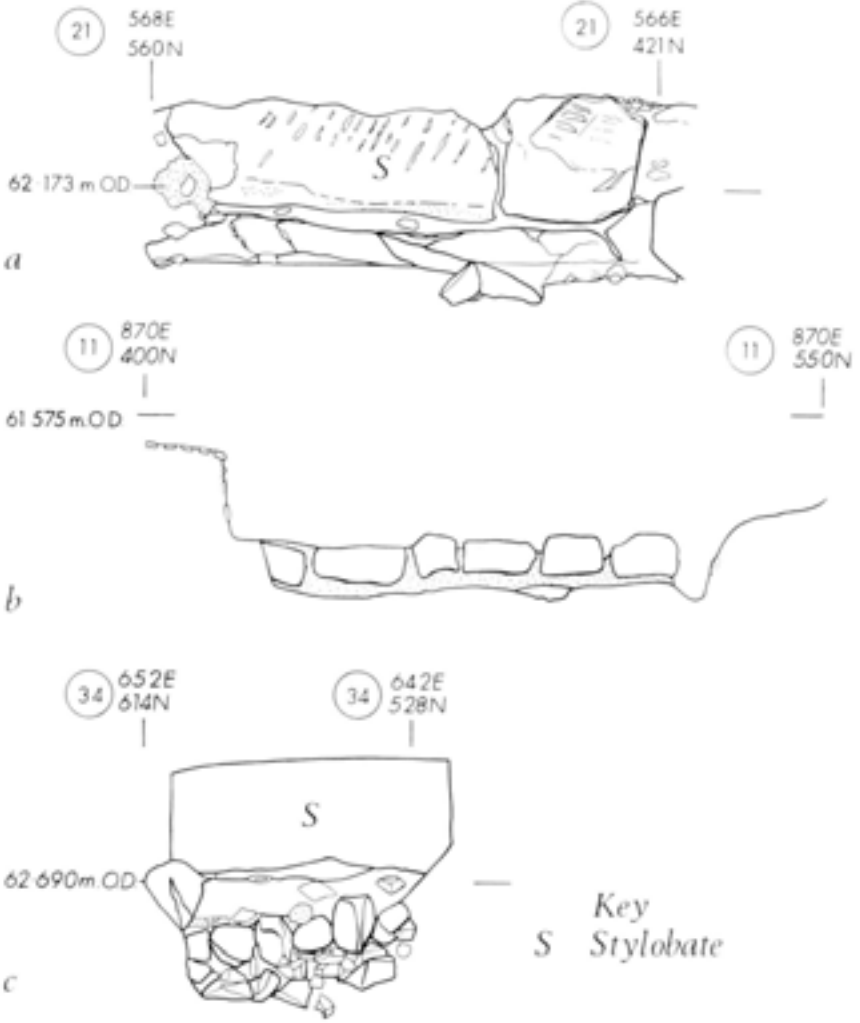


Fig 25 Sections a: west-facing section of stylobate D2468 (S), north aisle colonnade; b: east-facing section of pier base D1245, south aisle colonnade; c: west-facing section of north portico colonnade showing underlying wall, thin bedding layer, and stylobate C454 (S)

It was noted that this layer capping the wall footing appeared to extend southwards to form a foundation continuous with that of the floor of the portico, but as the relevant level of floor was not excavated this observation remains untested. The bedding layer C461 varied in thickness from 100mm to 200mm at the northern edge to 300mm to 400mm at the southern edge. Overlying this, but only seen in section under stylobate C454, was C460, a layer of crushed sandstone rubble set in black loam which was 30mm to 40mm thick. This layer appeared to act as the bedding for the stylobates, perhaps allowing some degree of initial settlement before the columns were put up. The four stylobates C451–C454 (Fig 27) survived in varying degrees of completeness. C451 and C452 at the east end showed signs of disintegration from later wear trending north-west to south-east but the other two stones were relatively unworn, although C454 was cracked. The stones varied in size slightly with C451 measuring approximately 1.4m by 0.76m, C452 1.8m by 0.76m, C453 1.2m by 0.76m, and C454 1.6m by 0.76m. The only recorded depth, that of C454, was 0.3m. The differences in length of the stones may be attributed to the fact that C452 and C454 were used to support columns, this being demonstrated by the rough pecking on the surface of the stones which presumably acted as a key for the overlying column bases. It was clear also from stylobate C454 that the stones had been given their final dressing when in place (Fig 28). This was shown by the fact that a level platform had been cut into the stone by the masons so that the column base would lie flat. This was necessary as the stones were on a slight slope and such dressing could only have been carried out once the stone was in place and its precise angle could be determined. The other stylobate with a column position, C452, had also been dressed in this fashion but not so obviously. Wear is evident on the parts of these stylobate blocks not covered by the column base and has largely obliterated the diagonal tooling on stylobate C451. The tooling on C453 is better preserved. One of the torus mouldings of a column base was found on top of C452 but slightly to one side; however, this appears to be the upper and not the lower part of the moulding (*see appendix 2*).

This fragment gives the width of the column as 0.48m and the positions of the lewis-holes on the stylobates give the overall diameter of the base of the torus moulding as 0.64m. The spacing of the column's centres was 3.24m, equal to 11*pM* (*pes Monetalis*, taking a *pes* as 295mm, Zienkiewicz 1986, 96). Only one other stylobate fragment was found, D728 in grid 42. This was broken into two pieces which together measured 0.8m by 0.5m. One lewis-hole was preserved and the smaller fragment showed much wear (*see appendix 2*). No tooling was visible and, to judge from relative heights, the stone cannot have been far from its original position.



Fig 26 North portico colonnade showing c) colonnade wall; d) overlying foundation layer; and e) surviving stylobate

The west wall (Figs A13 and A14) survived only patchily above ground, with one fragment standing up to 1m high in grid 13, but with most of the rest of the wall only surviving to offset level. Robbing had been especially severe where the north and south aisle colonnade walls had been bonded to the external wall. This may indicate that the stylobate blocks themselves had been bonded into the walls. The width of the surviving west wall, D170/D832, was 0.9m, excluding the offset and 1m at offset level. There was clear evidence at the junctions with both the north and south walls of the basilica that the west wall was contemporary with them and had been fully bonded to them. The north-west corner, although heavily robbed to below offset level, showed this bonding very clearly (see Fig 24) and clearance of the south-west corner showed that the wall continued without a break southwards to form the west wall of the neighbouring rooms (shops?) situated between the baths basilica and the *macellum* (see Fig 18). This negates previous published plans, eg those of Wright, Fox, and Kenyon which appear to show that the west wall of the basilica was not continuous with the west wall of the offices or *macellum* (Wright 1872; Fox 1897 plan 4; Kenyon 1940, pl LXXI; *see chapter 2*). This mistake was corrected in 1966 when Webster and Woodfield published a new plan of the site (1966, fig 1).

Situated halfway along the wall was part of the threshold stone for the west door, D348/D1291, the largest surviving piece of which consisted of a fragment of extremely worn sandstone 1.2m east to west by 1.53m north to south. The stone had shattered into three large pieces (Fig 29) and its southern end had been robbed, probably in the nineteenth century, although two small fragments surviving *in situ* at the south-east and south-west corners allowed the full size of the stone to be calculated as 1.2m east to west by 2.7m north to south, indicating a double leaf door. Cleaning of the area beneath the lost portion of the sandstone threshold stone showed an underlying layer of crushed sandstone, D1292, which must have represented its bedding layer, such as had been found in the colonnade trenches. It is clear from the level of the fragment of portico floor D181/D1334 (see below), and of the *macellum* portico floor, that there must originally have been a step between the west portico floor and the doorway in the west wall such as survives in front of the *macellum*. Presumably, this step still exists beneath the Phase W' pebble floor in the portico.

The north wall of the basilica (Fig A18) was composed of two distinct builds. The longest section, D2472, between grids 20–27/34–41 was a sandstone-faced wall with a mortared rubble core. This section had been so heavily robbed in Roman times (see below, Phase pre-Z), that few facing stones were found *in situ* and only two areas rose above the level of the floor. The first of these was in grid 23/24 where a wall fragment survived one course high and measured 0.8m east to west by 1m north to south, giving the full width of the wall (Fig 30). The second section of the north wall, C140, is discussed below. Wall D2472 had been completely robbed between grid 23 880E and grid 21 290E, a gap of 14.1m. It is not surprising, therefore, that the two doorways, whose locations were given by wear patterns in the north aisle floor, did not survive. A wide robbing hole in grid 38 demonstrated where the threshold of the central doorway had been located. The size of this hole may be accounted for by the probability that the associated stone step on the portico had been removed at the same time (Fig 31). The second doorway was at the eastern end of the completely robbed section of the wall. Given this extensive robbing, it is impossible to give an account of the wall's construction but one small fragment, probably fallen from the north wall, was found in Phase Y (D234; see Fig 154). This showed regular coursing of masonry facing a rubble core and had been part of a window embrasure, shown by the fact that it had been plastered on two adjoining faces. This plaster had been painted red, white, and orange but not enough of it survived to reconstruct the design. Further decoration for the north wall was indicated by a dump level (D746), also from Phase Y in the north aisle, which included a large piece of plaster possibly collapsed from the wall. The decoration in this instance was of stripes of dark red/maroon and green fading to cream on a white background (Fig 32). Again, it is impossible to reconstruct the design further.

From grid 21/35, the wall reappeared, but still only at the level of the floor, and was only substantially preserved once it became the north wall of the annexe. This section of the wall, C140, covered the area between grids 31–4 and was apparently butted onto the north-east corner of the basilica. This is made particularly obvious by the change from the 1m thickness of the basilica wall to the 0.8m thickness of the annexe wall. The north wall of the annexe continued eastwards without any further change in construction or width to become the north wall of the precinct. Wall C140 survived to a maximum height of 1m, of which 0.15m



Fig 27 Four stylobates of north portico colonnade, two with column positions W1) and W2). A path, X) has been worn between two of the stones



Fig 28 Stylobate C454 showing roughened surface marking column position, two lewis-holes, and the cutting-in of the column base on left hand side to compensate for slope of site

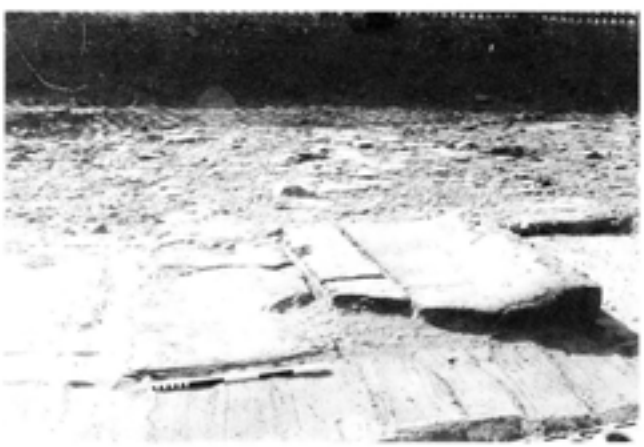


Fig 29 Threshold of stone in west doorway of basilica, looking out onto west portico floor, Phase W. The southern stone has been removed and the centre has been almost entirely worn away



Fig 30 Robber trench of north wall looking west after excavation, showing varying depth of robbing along its length

was offset with a further eight courses above. The construction was of conventional type with small, squared blocks of sandstone facing a mortared rubble core (*petit appareil*). No bonding tile courses survived *in situ*, these being expected at about course 14 if comparable to the Old Work, but some were found in a collapsed fragment of the wall found on the north portico in Phase pre-Z4 (C109; Fig 200). The south face of the wall had been robbed in the nineteenth century but the north face was well preserved, even to the extent of having some wall plaster *in situ* (C126; Fig 33). This consisted of a strip of painted plaster 4.35m long (east to west), some of which later weathered away. Fortunately, part of the simple scheme was preserved and showed that the wall had been painted with parallel red lines on a white ground. The surviving elements were double pairs of red lines 70mm wide. Each pair of stripes was 0.4m apart, with a gap of 1.48m between the first pair of stripes and the second. After an interval of 1.7m, the design was repeated. Possibly, there were horizontal linking lines painted at the base and top to form simple, outline panels. The whole of the surviving north face of the wall, including the plaster, was recorded on a set of colour obliques for reference. Only one anomaly was found within the structure of the wall. This was C129, a rebuilt portion about 0.5m wide which was filled with irregularly coursed masonry and some tile, the only tile found *in*



Fig 31 Large robbing hole in centre of north wall showing remains of north wall c), north portico in foreground, in background the north aisle showing the heavy rubble and cobble foundation of the mortar raft

situ in the wall (Fig 34). One of the tiles formed the lintel for an opening filled with sandy silt with inclusions of plaster, stones and tile fragments. This opening was clearly not an original feature since the wall above it had been rebuilt but may be related to the passage of a water pipe through the wall and onto the north portico to link up with the pipe trenches found along the south side of the east to west street (see Peripheral areas below). The hole appeared at the level of the offset which might suggest that this hole was created in Phase W, when the floor levels were raised, although it must be admitted that no evidence for pipe trenches was found within the make-up of the portico floors in that phase.

The south wall (Figs A19–A22) of the basilica was the best preserved of all the walls on the site. It includes within it the stretch known, at least from Camden's day, as the Old Work (D1360) which is one



Fig 32 Area of wall plaster probably from internal face of the north wall of the basilica. Found in a Phase Y dump

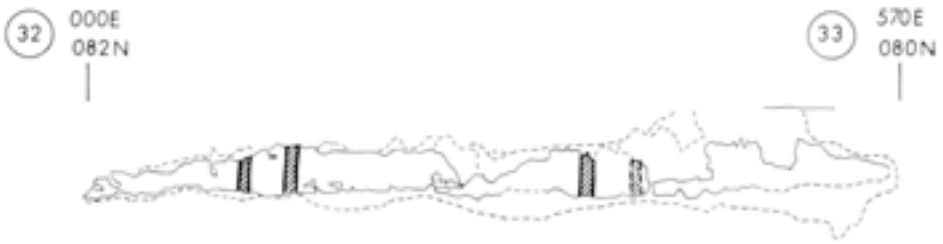


Fig 33 Elevation of C126, surviving painted plaster on north face of precinct wall



Fig 34 Hole C129 through north precinct wall just above offset level. The wall has been rebuilt above. This may be an inlet for a late water pipe



Fig 35 West end of Old Work showing underpinning and reconstruction carried out in the 1950s

of the highest free-standing walls from any civilian building surviving from Roman Britain. This will be discussed in detail below. The bulk of the wall, between grids 9–13, survives only to six course height (0.7m) and in some places is robbed to first course height. Most of the facing stone has also been removed from the both sides of the remains of the wall, probably in the nineteenth century. The wall is 0.9m wide throughout, but increases to 1m if the offset is included, as in the west wall. Set within the wall are places for three doorways. The westernmost, in grid 11, survives as a gap 1.9m wide, about 0.5–0.8m of which would have been taken up by the stone door jambs giving a width for the doorway of about 1.1–1.4m. A second, central doorway, of identical form, was in grid 9. This lay 3.5m west of an apparent third opening, a break in the wall. This latter opening, on the junction between grids 8 and 9, is a physical gap in the wall 1.8m long which breaks the south wall into two unequal halves. When investigated in 1985, it was found that the gap had already been excavated in 1956 by Graham Webster as his Site 19, but it was clear that even before his excavation the area had been destroyed by extensive underpinning operations at the western end of the Old Work carried out by the Ministry of Works (Fig 35). On re-examining the gap in 1985 it was clear that, while the eastern half of the gap had been restructured in modern concrete, the western half seemed to be original and appeared to preserve a fragment of a large sandstone slab. If this slab was still in its correct position, it is possible to argue that originally it carried the wall across the gap perhaps to act as the lintel for a drain or water pipe which may have crossed the line of the wall at this point. Such stones were always attractive to robbers which would account for the gap here. It should be stressed, however, that no solid evidence was found for a pipe in this area (see Phase W, below). If the pipe had crossed the wall here, it would then have proceeded along the southern face of the wall to the latrine at the west end of the bath's north portico. As noted above, the western end of the south wall was bonded to the west wall of the basilica.

The Old Work (Fig 36) is a wall of surprising complexity, particularly on the southern side, which has already been discussed in detail by Woodfield (Webster and Woodfield 1966, 233–9). The north side is, at first glance, relatively straightforward in interpretation with

the method of construction being of two courses of tile bonding separated by courses of small squared blocks of sandstone (*petit-appareil*) facing a rubble core. At the centre of the wall is another doorway, the entrance to the *frigidarium*, an opening 4.6m wide and about 3.5m high, which originally had stone jambs and a lintel as well a threshold, evidence for which was found by Fox (1897, 147). This gives space for two doorways, which must have had a central pillar and double leaves, as shown on Woodfield's reconstruction (Webster and Woodfield 1966, fig 4) and demonstrated on site by the traces of relieving arches over the lintels. There was considerable variation in the spacing of the courses of small squared blocks of sandstone and the tile bonding courses. The first tile course occurs at 14 courses (1.5m), the second 10 courses higher, the third at seven, the fourth, fifth, and sixth at six courses, and the final full tile course at four courses higher again. This gives a total height of approximately 6.5m (21ft 4in). The most obvious features within the wall are the numerous square or rectangular openings through the wall which are best interpreted as putlog holes (*ibid*, 238–9). These are mostly formed by leaving out one block of stone within a course at a 1m interval and thus each hole is about 0.2m long and 0.15m high. All penetrate the full thickness of the wall and are often carefully roofed by the next course above, especially in the core which was only of mortared rubble.



Fig 36 North side of the Old Work



Fig 37 Detail of east end of the Old Work showing butted ashlar masonry at offset level and bonded wall above

The rows of putlog holes are spaced at different heights within the wall, with the lowest row centrally within the base lift of the wall, at roughly 0.7m from the floor. The next two rows are within the second lift, the first row with its base formed by the tile bonding course and the second placed centrally within the lift. The fourth row is in the third lift, at the base of the third tile course and is thus level with the door lintel. The fifth row is placed centrally in the fifth lift and the sixth and final row is at the base of the seventh tile course. It should be noted that the second row of putlog holes, at a height of roughly 1.5m from the floor, is larger than the other rows at 0.3m square and one still retains a tile lining throughout. The reason for this more substantial construction is not clear.

At the east end of the Old Work, there are some anomalies in the construction which induced Kenyon to conclude that the wall had been altered (1940, 187). The principal anomaly is that the line of the Old Work has been displaced 1m southwards and then continued eastwards for 5.2m to form the north wall of the east plunge pool. The extension to the east wall of the annexe (B612) joins the north side of this eastern wall after 2m. Her argument was that the east wall of the basilica, south of the line of the south aisle colonnade, was not part of the original construction but had been added later, being bonded in with the east end of the Old Work, which was itself an addition. This, she argued, was proved both by differences in alignment and in the differing width of the foundation trenches and their associated mortars (1940, pl lxiv, a) and certainly there does seem to be a slight change of alignment in the east wall of the basilica on either side of the south doorway into the annexe. Nonetheless, the problem is whether the Old Work itself had been extended eastwards or not. The argument for an extension, as stated by Kenyon, rests on the inherent structural difficulty in roofing an area of such unusual shape, but this neglects the fact that the traces of a robbed out transverse tile arch may still be seen just below the level of the fifth tile course (1940, pl lxiii, a; see Fig 20). It is also obvious that some of the tile courses in the eastern part of the Old Work do not correspond with those already described in the main section of the Old Work. Thus there is an additional, short course in the lowest lift which is seen in the eastern extension of the wall and which then runs on only partially into the main section of the wall. Presumably, this tile course reinforced the corner while it dried out. The next two tile courses correspond, and then the fourth course has been set at a slightly different level with an additional tile layer one course above the fourth main tile course. Finally, the fifth tile course corresponds with that in the main fabric of the Old Work. Also, it was noted that at ground level the awkward corner had been strengthened by the addition of a course of solid ashlar masonry to support it (Fig 37). Clearly, there were structural difficulties with this area but, as the tile courses in the wall were bonded completely in three cases,

there seems little doubt that they were built at the same time. It should be noted that all the lower courses of the wall were recorded photographically before the site was consolidated.

The east wall (Fig A23) of the basilica, D82/B265, which was also the west wall of the annexe, was 0.9m wide and strongly constructed with ashlar facings and mortared core. It was observed that below the offset the foundations used larger squared blocks and wider mortar joints with obvious trowelling marks. A flat mortar threshold setting, B679, lay within this wall 5m from the south-west corner of the room. The adjacent wall face was vertical, showing that the wall had been built up against the threshold stone and jambs. The stone itself was found and robbed out by Wright or by the farmer on whose land he worked, in 1859 (Wright 1872, 113). A second doorway, into the north room, could not be located since the wall had been robbed out here, but for symmetrical and practical reasons it probably existed just to the north of the north aisle colonnade. Evidence for a doorway in this position is given by wear patterns in the north room of the annexe in later phases. It has been suggested that the east wall may originally have been laid out further west, in line with the change in angle of the Old Work where it turns to the south. Evidence for this was seen in the section cut by Kathleen Kenyon at the east end of the nave (Fig 44a). This shows a change in the amount of rubble in the underlying raft and, beneath it, a cut into the sandy make-up.



Fig 38 South aisle colonnade looking east, positions of some of the columns by piers of masonry, shown marked c)

This change in the rubble raft may be accounted for by the suggestion that after the foundation trenches were excavated, there was a pause before building began; during this pause the line of the east end of the basilica was altered and the foundation trench relocated further east. So although the east wall of the basilica may originally have been intended to run on this line, the wall line eventually adopted lay further east. The change in plan may have been to allow the addition of the annexe which clearly butts onto the existing east wall (see below) and to permit the insertion of a service door into the south-east corner of the basilica. Further corroboration of the altered wall line appeared to be given by a discontinuity in the eastern 1.6m of the herringbone-tile floor at the east end of the nave, but this is thought to be a secondary repair after the possible robbing of stone slabs which may have flagged the east end of the basilica, and anyway belongs in Phase T.

The south aisle colonnade (Figs A24–A25) provided a great deal of information about the internal arrangement of the basilica despite having been cleared completely at the west end at least once before it was completely excavated in 1982 (see Fig 7). The main element of the colonnade was the sleeper wall, D1240, which was 73.5m long and 1m wide (Fig 38). The length corresponds almost exactly with a measurement of 250*pM* (73.75m). The bulk of the wall consisted of a spread of mortar over a mortared rubble core with few sandstone facing stones visible. There was evidence of shuttering marks in the top of the mortar surface overlying the wall, which showed as grooves D1276 and D1311. D1276 was 3.50m long and 70mm wide with a depth of 30mm and D1311 was a groove 0.95m long and up to 160mm wide with a depth of 30mm. These grooves appeared to go under the column foundation piers indicating that they did not have a structural purpose. Another feature associated with the sleeper wall was a discontinuous gap, D1312, between the north side of the wall and the nave floor which was seen principally in grids 9–11. This gap, which varied in width between 100–200mm and was up to 250mm deep, was probably the result of the nave floor pulling away as it gradually subsided in the centre (see D1400, Phase V, below). Overlying the sleeper wall was evidence for the position and spacing of the columns: at the points where the stylobates would have carried columns the sleeper wall was reinforced by shallow piers (Fig 25b). These masonry bases, which were constructed of squared facing stones with a rubble core and a mortar surface, stood one course high (roughly 0.15m) above the surface of the sleeper wall and were generally between 1.3–1.5m long (east to west) and 1m wide (north to south). The centres of these bases were spaced at 5.31m (18*pM*) and five survived within the trench, all at the western end of the colonnade (D1241 to D1245; Figs 38 and 39). A sixth possible pier was found at the extreme west end of the trench, where the sleeper wall D1240 was bonded into D170, the west wall of the basilica.

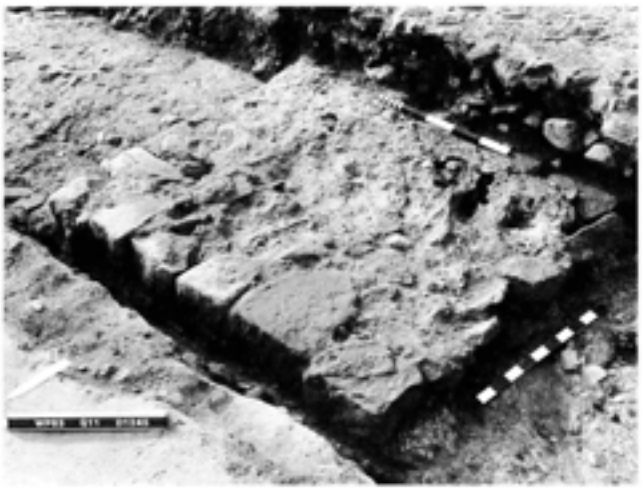


Fig 39 Pier base D1245, south aisle colonnade trench



Fig 40 South aisle colonnade looking south-east showing a bedding layer of sandy silt with sandstone rubble in foreground, overlying one of the bases for the columns. A second pier base lies further east, near the ranging pole

Here, D1277, a raised platform 0.73m by 1.17m in size, was found which may indicate that there were engaged columns at either end of the colonnade. This hypothesis is strengthened by dividing the length of the wall (73.75m) by the proposed number of columns (13 + two half-columns = 14) giving an intercolumnation of 5.27m, only 40mm less than the proposed intercolumnation of 5.31m based on the spacing of the piers.

Given the existence of the bases, it was clear that there must have been some form of levelling material between them so that the overlying stylobates were all at the same level. In some places, this bedding layer had been removed under the impression that it was trample from later disturbance; for example D1252, a layer of compact reddish silty loam with mortar flecks, ceramic tile fragments, and sandstone rubble was removed in grid 7, where the trench had been particularly severely robbed. Elsewhere, however, the layer did survive *in situ*. Its nature varied along the length of the wall. At the west end, between D1277 and D1241, was D1296, a layer of sandy silt with inclusions of pebbles, stones, ceramic tile fragments, and sandstone blocks, which survived to a depth of up to 0.25m. Some surface disturbance was noted. On the eastern side of D1241 was D1297, another area of foundation consisting of a step of mortar 0.5m wide which contained sandstone rubble and stones mixed in with decayed mortar. This continued on the east side of an archaeological trench as D1298, an area of roughly-laid sandstone rubble which was 2.85m in length and 1.1m wide. This layer partially covered the pier D1242 and showed a relatively flat and even surface. Clearly, this foundation layer for the stylobates was also laid over the bases to provide a continuous surface in the trench. Between bases D1242 and D1243 was a more complex arrangement of bedding layers. The initial deposit was D1301 and D1304, a layer of sandy material with fine and small pebbles which was 0.15m thick and levelled the area between the bases. This was then sealed by D1302 and D1299, a thin layer of mortar with inclusions of sandstone, which also partially covered base D1243. Finally, this was sealed by D1300 and D1303, a layer of silty sand with inclusions of decayed, crushed sandstone, pebbles, and blocks of sandstone as well as ceramic tile fragments, which was 0.2m thick and formed a level platform for the stylobates. D1303 measured 2.4m in length and overlay base D1243. Between the next two bases eastwards, D1243 and D1244, there was a similarly complex situation observed. Here, there was an initial layer of sand with stone and pebble inclusions, numbered D1310, capped by a layer of mortar, D1309, which was broken and cracked and had inclusions of pebbles and stones. This was then sealed by a foundation layer which survived only on the sides of the trench. The layer on the south side, which was the better preserved, consisted of a deposit of silty sand, D1306, with inclusions of stones and pebbles with decayed pieces of red sandstone which acted as the bedding for a line of squared sandstone blocks packed with smaller stones (D1305). The surface was level, giving the appearance of a wall (Fig 40) and it survived for 4.6m, overlying D1243 and D1244. On the north side, the surviving area of foundation was only 1.4m long and consisted of a make-up level, D1308, with a line of five sandstone blocks and a piece of ceramic tile (D1307) set in its surface which represented the supporting stones for the stylobates. Throughout the rest of the trench, between grids 10–6, there was little evidence other than isolated stones for the foundation layers, but one surviving fragment of a stylobate was identified. This was D2413, a triangular piece of worn sandstone which sat on the southern edge of the nave floor in grid 7 (Fig 41). From sections, it is clear that the stylobate fragment rested on a mortary base identical to that found elsewhere in the trench. This stylobate fragment also demonstrated that the surface of the herringbone-tile floor at the east end of the nave lay just below the top of the stone and that, therefore, the



Fig 41 Worn fragment of a stylobate in situ *on southern edge of nave. More fragments lie to right of labels*



Fig 42 Robber trench of north colonnade looking east showing only surviving stylobate at e) and floors overlying it between the nave and north aisle

original floor level of the nave was considerably lower than the top of the stylobates. The surviving thickness of the stylobate was 0.15m, which, compared with the 0.3m thickness of D2468 in the north aisle colonnade, shows how much wear this stone had been exposed to.

The north aisle colonnade (Fig A26 and A27) was marginally longer than that of the south aisle, measuring 73.8m long (50mm more than 250*pM*), and 1.1m wide. The sleeper wall, D2469, was well preserved but again all that could be seen of the construction of the wall was the mortar capping layer and occasional glimpses of the underlying squared sandstone facing blocks (Fig 42). The depth of the wall was unknown. Unlike the south aisle colonnade, there were no bases to mark the position of the columns within the colonnade. Nevertheless some possible positions for the columns were implied, particularly at the western end. The first of these, D1001, was a raised area which had been cut in two by an archaeological trench. The second and third positions, D951 and D952, survived as ridges of mortar and lay 5.31m apart, centre to centre, as with the south aisle bases (Fig 43). The fourth possible base, D1002, had been partially destroyed, and the fifth, D1003, which lay a further 5.3m east, was even less well-defined. The next potential base, D953, was only 3.4m east of the centre of D1003 and lay in the path of an archaeological trench suggesting that the marks interpreted as a stylobate base had in fact been created when the trench was cut over the wall. There was no sign of the next two bases but then in grid 23 two more were observed. These were D1071 and D1004, both of which survived as mortar ridges. There was very little trace of the foundation layers overlying the sleeper wall other than what was later identified as the disturbed bedding layer usually numbered D111–3 and removed as part of the robber trench fill. One small area of bedding remained, however, under D2468, a sandstone stylobate block measuring 1.5m by 1.2m and 0.3m deep which lay undisturbed within the trench in grid 21 (Fig 25, section a). Two floor surfaces survived over it and there is no doubt that it was *in situ*. The stone sat on 0.25m of make-up dump giving an overall depth from the top of the colonnade sleeper wall to the surface of the stylobate of about 0.6m, that is, roughly equivalent to 2*pM*.



Fig 43 Pier base D952 at west end of north aisle

The east, north, and south walls of the annexe, B298 (Fig A23), were of identical construction to B265 but were slightly thinner at 0.8m above offset level. In the south-west corner of the annexe, there was some evidence that the foundation of B298 had been butted against that of the west wall B265 (Fig 45) but presumably the two walls were keyed together at higher levels. Kenyon also observed this (1940, 187). The north wall, C140, was also 0.8m wide and its north-east junction

with B298 was fully bonded indicating contemporary construction. The internal cross wall, B609, was bonded in with B265 and B298 and divided the annexe into two equal halves. There is no evidence that there was a doorway between the north and south rooms, but it is possible. There must have been windows in these walls and evidence for this was found in the large quantities of glass found in the Phase W dumps, mixed in with the rubble of the demolished cross wall. A short linking wall, B612, which only survived to offset level, extended the west wall of the annexe southwards for a distance of 1.6m linking it to the eastern extension of the Old Work. This had within it a gap, B285, which may have been for a water pipe (see Phase W, below). Wall B612 would have provided a foundation for a doorway giving service access from the precinct area east of the baths.

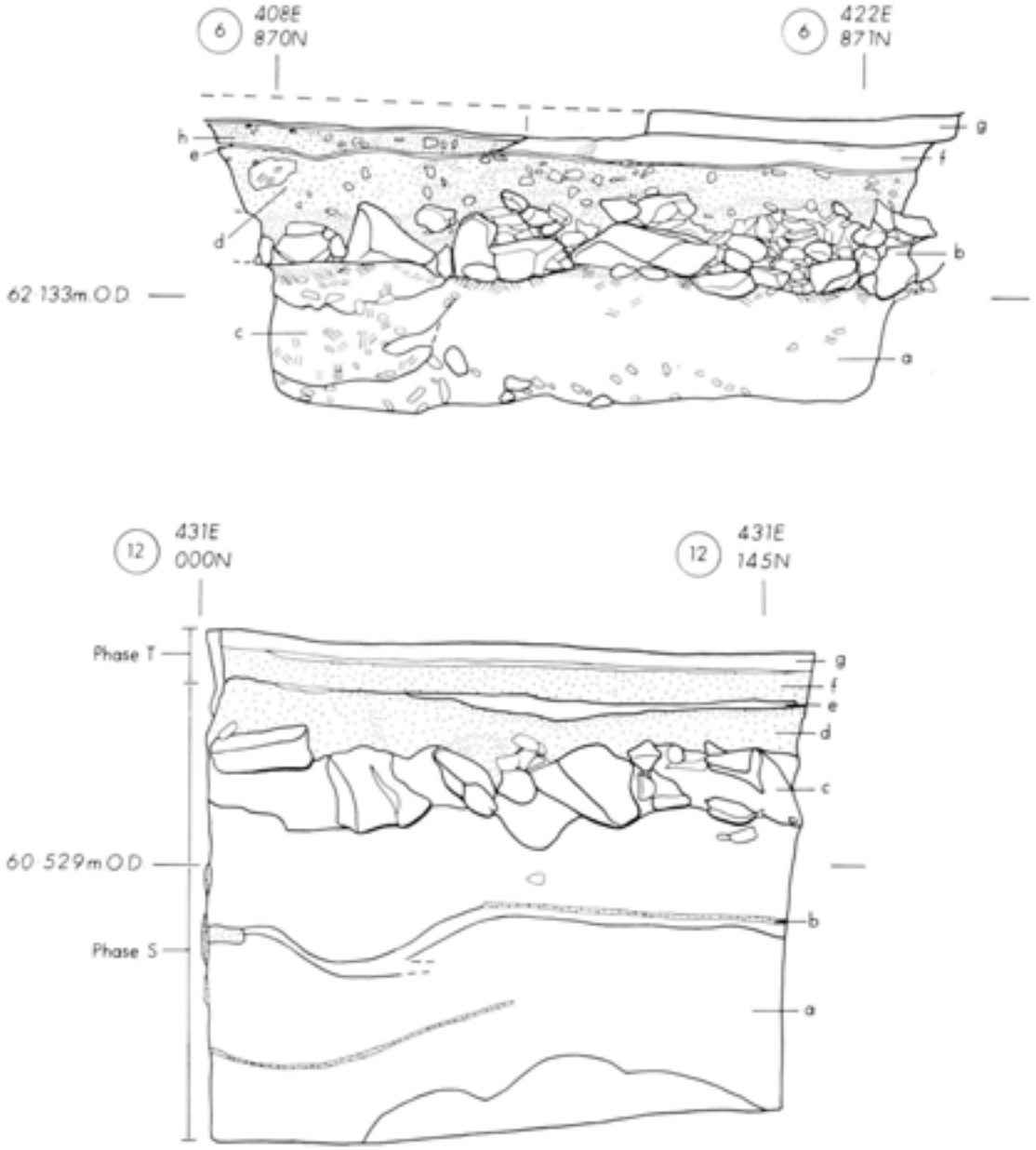


Fig 44 Sections; top: north-facing section of an archaeological trench cut through floor of nave at east end. Key: a) make-up dump; b) rubble raft; c) discontinuity in the overlying rubble raft; d) mortar raft; e) opus signinum *floor; f) a new layer of* opus signinum*; g) herringbone-tiled floor; h) patched repair to herringbone-tile floor since removed. c) appears to mark the original line of the east wall. Apparently only a marking-out trench was dug which was then backfilled*

bottom: east-facing section of a trench cut through south aisle floor. Key: a) an early make-up level; b) sealing layer of mortar c) rubble raft; d) mortar raft; e) fragment of opus signinum *floor; f) another* opus signinum *layer; g) a herringbone-tiled floor. b) may represent the laying-out phase of the basilica, buried beneath c) and d). c) presumably quite eroded, represents the original floor level, although there is no sign of any mosaic*

The floors

The south aisle (Figs A20–A22) had been surfaced with a mosaic pavement set on a carefully prepared base. In common with all the other internal areas of the baths basilica, the section of the floor showed four distinct levels. Construction began with a dump of make-up up to 0.5m deep which was sandy in nature and had few inclusions, then came a layer of clean, broken sandstone rubble which was roughly 0.3m deep and contained many voids, then a layer of mortar with pebbles, friable beneath its hard crust, which formed the sub-floor, and was up to 0.1m deep, and finally this was covered with a layer of good quality *opus signinum*. These layers were seen in section in archaeological trenches in grids 7 and 12 (see Figs 44b and 46). The trench in grid 7 is of particular interest as it is the 14ft hole excavated by Thomas Wright immediately against the Old Work (Wright 1872, 110). Its section, Figure 46, shows the construction trench for the south wall of the basilica, which was nearly 2m deep, and cut a destruction level (J) which might date either from the abandonment of the legionary fortress or, perhaps, represents the destruction of any early town buildings in this area. A second cut, which was 1m deep, also cuts this level. This recut of the foundation trench for the south wall may mark resumption of construction after the initial laying out of the foundations for the baths. A similar sequence has, apparently, been found in the baths complex (Peter Ellis, personal comment). Alternatively, the re-cut may have been an inspection pit to check that the foundations were still good before the building proper began. The make-up levels for the south aisle floor lay immediately over the destruction layer J. The total depth of the make-up and floor levels was about 1m, half of which was made up of levelling dumps. The overlying *opus signinum* was only seen in plan in the area immediately to the west of the *frigidarium* doorway, where it was numbered D2400. The surface was generally fine except where it had been eroded and pitted after the destruction of the overlying mosaic and it is likely that this fine, upper layer was put down just prior to the laying of the mosaic floor, as laying-out lines relevant to the mosaic design still survived in it (Fig 47).

The surviving mosaic, D2399, was found in a narrow strip 11.2m long and up to 1m wide along the foot of the Old Work (Fig 48). In addition to this main area two other, smaller patches survived. The first was on the northern edge of the aisle in grid 8 and was a narrow strip of tessellated border, D118, surrounded by jumbled *tesserae*. The second area, in the same grid, lay 1m to the north of the main strip and measured 0.5m by 0.3m. Three varieties of *tesserae* were used: micaceous flagstone for the border, which was 0.5m wide, and blue or white limestone for the patterned areas. All the *tesserae* were between 15mm to 20mm in size but those in the border tended to be more coarsely cut. Unfortunately, not



Fig 45 South wall of annexe (with scale) and east wall of the basilica showing butt-joint. A channel, B285, was left in the east wall possibly to allow a water pipe through

enough of the design survived to allow the floor to be reconstructed but at least two panels were seen. They were separated by a dark blue dividing line 0.12m wide at about the mid-point of grid 8. The panel to the east of this line had a white border 100mm wide with a blue line of the same thickness above it, against which three other blue lines were placed at right angles. It is possible that this design was a simple blue grid on a white background, in which case the pattern squares would have been 0.2m in size internally. Two white border *tesserae* were noted at the junction between the vertical blue lines of the pattern and the horizontal blue border. This feature was characteristic of the mosaic school which decorated the basilica and was also present in the north aisle (below). More of the western panel survived showing that it was bordered by a Greek key or meander pattern, six repeats of which were found *in situ*. It was possible to reconstruct the position of the western side of this panel as it can be assumed that the later herringbone-tile floor would have been laid up to an existing panel edge (see Phase T, below). If this is so, then the total panel size would have been 4.9m by 3.4m, with nine repeats to the Greek key design on the long sides of the panel and six on the short sides. This is larger than the panels on the north aisle and does not reflect the column positions of the colonnade. Presumably, the altered spacing related to the paved threshold area to the east (below). The isolated fragment of mosaic to the north of the border clearly does not fit with the reconstruction of a Greek key design, and must have been part of a central panel. Too little of the panel survives to reconstruct it reliably but it is possible that it also had a Greek key pattern or, possibly, a motif based on a cross repeat. The blue border of a ?third panel survived to the west of the threshold stones D2408, but unfortunately the full panel size could not be determined, so it is impossible to say whether it reflected the position of a column, as in the north aisle (see below).

It seems likely that, as with the north aisle, the mosaic pavement extended the full length of the south aisle, with the exception of areas where threshold stones had been set. George Maw, the tile manufacturer who worked on the mosaics when they were first exposed by Wright, correctly assumed that as the aisles were symmetrical, they were probably both tessellated (Maw 1861, 100–1). He recorded on his 1859 watercolour, now in Rowley's House Museum, Shrewsbury, the position of a panel fragment which had been found near the doorway in grid 9 but which had not survived to be drawn (*ibid*). This fragment is also mentioned by Wright who records (1872, 198–9) 'fragments of tessellated pavement found by the men employed in excavating [the south aisle]', all of which he dismissed as being derived from the north aisle. However, no signs of mosaic were seen in the section of the archaeological trench in grid 12, towards the west end of the aisle.

Set within the original mosaic floor of the south aisle were three areas of paving. Immediately outside the *frigidarium* doorway was an area, originally 3.8m east to west by 4m north to south, paved with large rectangular blocks of yellow sandstone of which four survived on the western side (D2408; Fig 49). These were numbered 1–4 from south to north. Only the first three stones are original; the fourth belongs to Phase T. Stones 1 to 3 were aligned so that their western edges ran in a straight line north to south. The first stone, immediately adjacent to the entrance to the Old Work, was 1.7m east to west by 1.2m north to south and had a rough, tooled surface with a slight notch cut into its north-east corner so that it aligned with stone 2 lying to the north of it. Presumably, this notch took the corner of a stone abutting stone 2 on its eastern side. As the other three stones showed signs of heavy wear, it is likely that stone 1 was covered by another stone which acted either as a step up to the door or

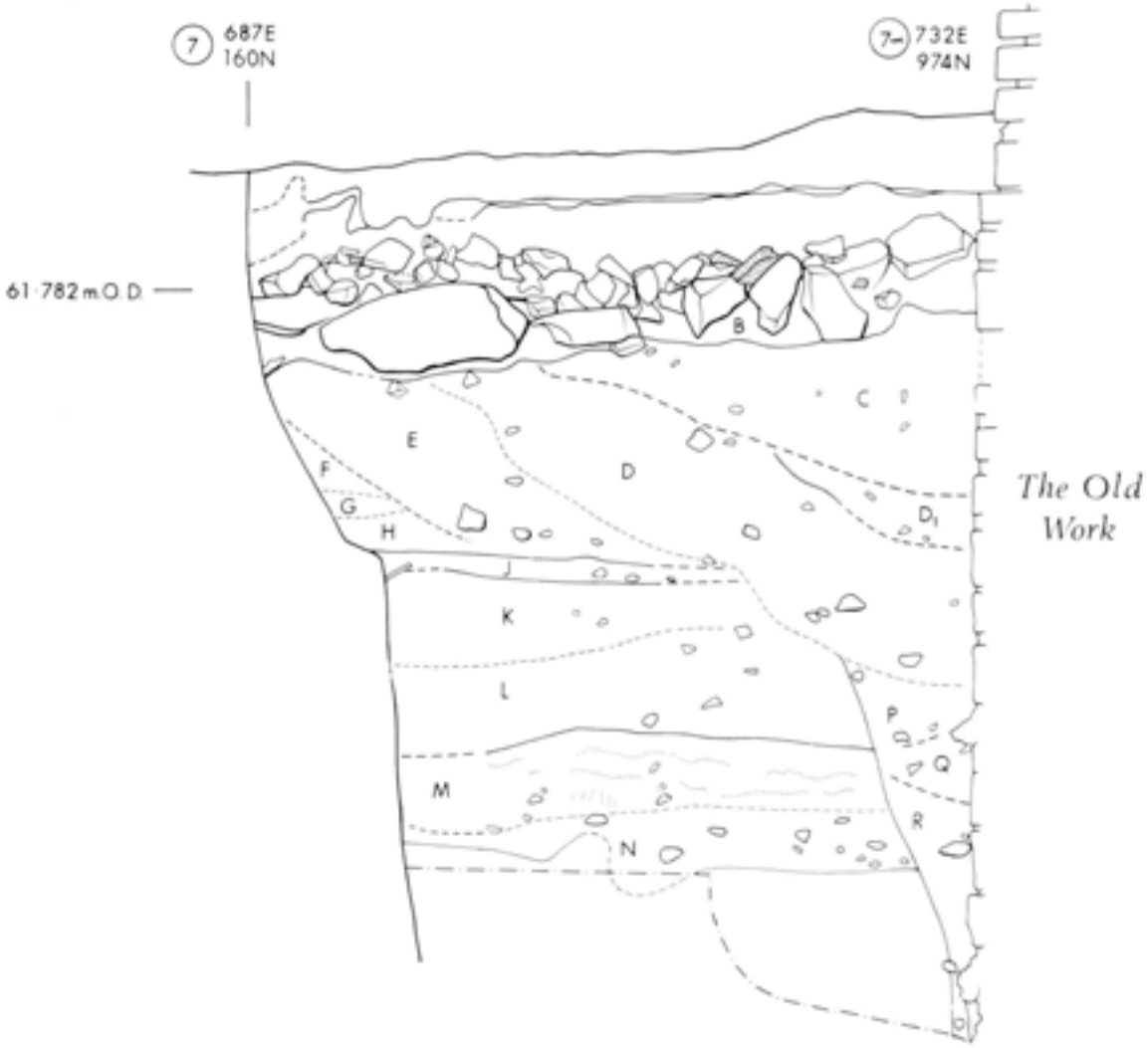


Fig 46 West-facing section of trench dug for Thomas Wright in 1859. Key: N)–K) may be derived from the legionary fortress or the early civil town; J) destruction level; F)–H) cut by layer E); E)–H) possibly make-up dumps for the basilica; P) and R) base of construction trench for the Old Work; D) and D1) possible inspection pit; C) a make-up tip; B) rubble raft; A) mortar raft. The floor levels were all quarried away here in Phase X

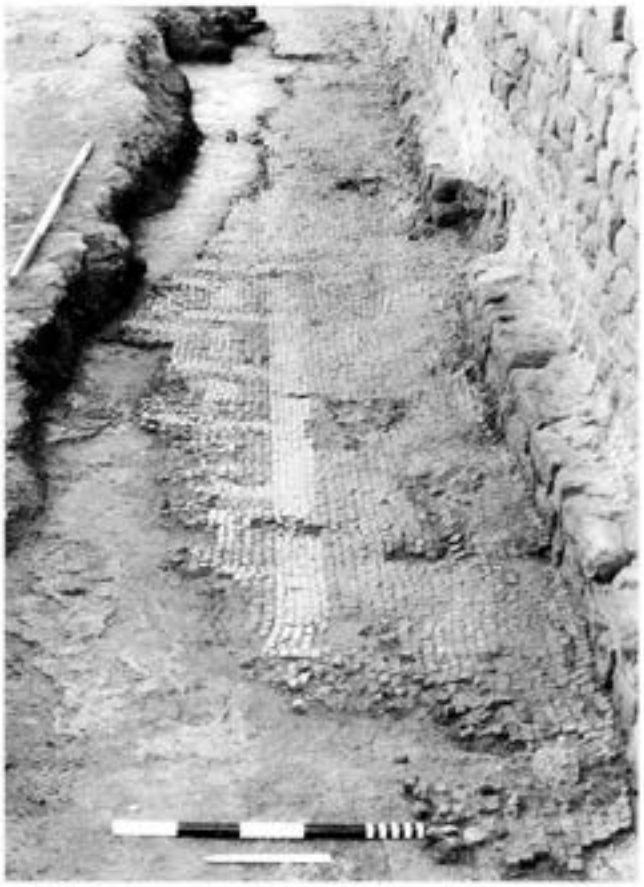


Fig 47 Surviving area of mosaic in south aisle against the Old Work (right). A mosaic laying out line shows at a)

possibly was the threshold for the *frigidarium* doorway itself. Stone 2 was 1.2m east to west by 1.1m north to south but had apparently been damaged on its northern edge where an east to west channel 0.5m wide (north to south) by 1.3m long had been cut into it. This was probably done by stone robbers in the nineteenth century. Stone 3, which abutted the colonnade, was 1.4m east to west by 1.2m north to south and was badly worn and fractured. The fourth stone lay on the western side of stone 3 and must have been a later repair as it was cut into the western panel of mosaic floor. This mosaic shows that the other three stones were original as the surviving tessellated border runs parallel to the western side of stone 1 and probably continued along all three stones. It is thus apparent that originally there was a broad paved area in front of the *frigidarium* designed to cope with the heavy wear anticipated around the doorway.



Fig 48 South aisle mosaic showing fragmented areas in centre and well-preserved section at right. In left foreground is the junction with the herringbone-tiled floor



Fig 49 Sandstone flags outside frigidarium doorway. The least worn stone, on the left, is immediately outside the door. A fourth stone has been added beyond the third stone and a tile patch can be seen protruding from a Phase U patch in centre of the photograph. These are repairing a hollow-way forming in the aisle floor

Two stone steps were located immediately in front of the central and west doorways west of the Old Work. D160, which lay in front of the central doorway, gave access to the north portico of the baths. As found, the stone projected above the later herringbone-tile floor by up to 100mm, and thus probably survives to close to its original height. The corners had been heavily worn and the stone showed signs of repair (Fig 50). It was broken into three pieces, the largest of which was 1.2m by 0.6m in size while the other two measured 0.5m by 0.5m and 0.2m by 0.2m. Originally, the stone would have been 1.9m by 0.9m in size. The other stone, D2506, lay outside the western doorway leading to the north-western corner of the baths portico and the latrine. Only a small fragment of this stone was found, measuring 0.6m by 0.4m, and this had been sealed under the make-up of the later herringbone-tile floor (Fig 51). The rest of this stone was found by Thomas Wright in 1859, but was presumably robbed by the tenant farmer after Wright was forced to leave the site (Wright 1872, 113–14). The stone had a pecked surface, which might be taken as evidence that it was originally the lower of two steps. When complete it had been about 1.8m by 0.9m, as shown by the scar left in the mortar sub-floor when it was robbed out. It is not clear how the mosaic panels were arranged around these steps.

As in the aisles, the nave floor (Figs A28–A31) consisted of four layers of foundation including the

sandy make-up dumps which presumably marked the levelling of the legionary fortress and early civil town. These were seen only in those trenches penetrating the nave floor. In archaeological trench D159, an earlier concrete surface was found beneath the make-up dump (Fig 52). Similar deposits have been noted in the baths and it has been suggested by Peter Ellis (personal comment) that such layers represent the initial work on the foundations of the complex. A layer 0.25–0.3m deep of freshly quarried sandstone rubble with some river cobbles was laid over the make-up dumps. A layer of mortar 0.2m thick sealed this, penetrating some of the gaps in the rubble raft, to form a mortar raft for the floor. Inclusions within the mortar were principally of small to medium cobbles, stones, and ceramic tile fragments, but where the surface of the raft was preserved it was smooth. In the central area of the nave, this mortar raft subsequently became exposed and worn. Overlying the mortar raft, but only surviving in small areas, was the *opus signinum* layer which represented the original floor. The best preserved section of this floor, D2421, in grids 8 and 9, and 22 and 3, had a very fine matrix of crushed tile in mortar with a smooth surface. This layer was exposed mainly at the edge of the later *opus signinum* make-up for the herringbone-tile floor, and also where the Phase T make-up had been worn away, as in the base of the worn areas D2459 and D2460. The early *opus signinum* floor was also visible in section in two archaeological trenches, one in the centre of the nave, and the other at the east end (see Figs 44a and 53). Two further small surviving patches of this *opus signinum* floor were noted on the southern side of the nave in grid 11. These were D1998, which was a patch roughly 1m square, and D2011, 4m west of D1998, which was a patch 1.8m by 1.8m. Both showed signs of having been disturbed by later activity. The extreme east end of the nave may have been paved with stone slabs which, in Phase T, were robbed and replaced with herringbone tile. If so, these slabs would have functioned as a step into the neighbouring annexe.

Unlike the aisles, no evidence was found in the nave for any flooring over the *opus signinum*. Either the *opus signinum* floor D2421 itself formed the final floor surface or any overlying floor did not survive. The former alternative is preferred since there was no sign of a mortar bedding on the *opus signinum* floor, even in areas that were well protected, and none was seen in section. This would appear to rule out a mosaic pavement as a floor surface. The only other likely flooring is a good quality pebble floor. Traces of pebble surface, D1999 and D2012, were found in the centre and west end of the nave but, significantly, none were found where the floor was preserved best, at the east end, either in plan or in section, which would also appear to rule out a pebble surface. It seems likely, therefore, that the original surface of the nave was a plain polished *opus signinum* floor.



Fig 50 Sandstone threshold stone of central doorway of south wall with, in foreground, a later herringbone-tiled floor which has become smooth from wear



Fig 51 Fragment of sandstone threshold stone outside western doorway in south wall, later buried beneath the herringbone-tiled floor

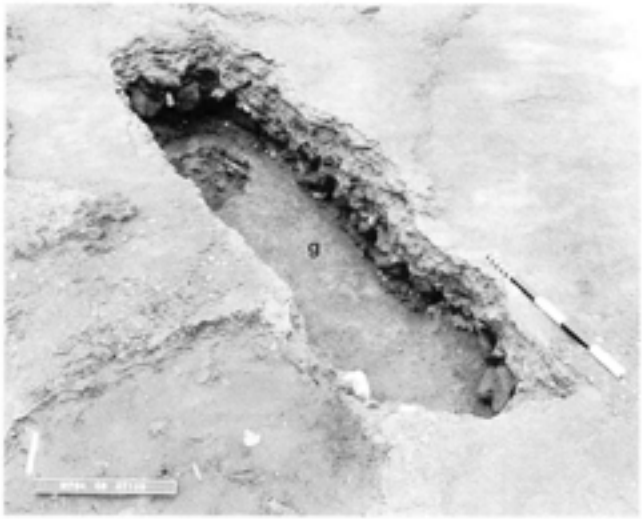


Fig 52 Archaeological trench cut through nave floor exposing an underlying mortar surface g) which may relate to the laying out phase of the basilica or another, earlier, building

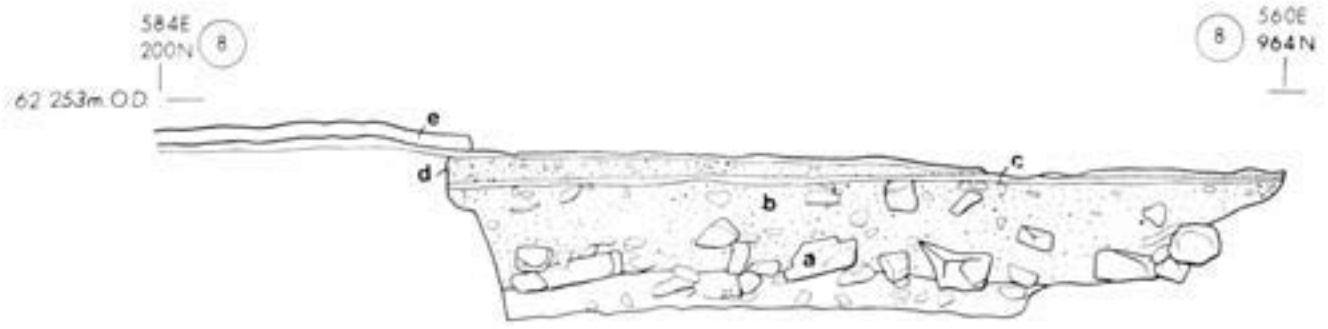


Fig 53 North-east-facing section of an archaeological trench cut through nave. Key: a) rubble raft; b) mortar raft; c) original opus signinum*; d) later* opus signinum*; e) herringbone-tiled floor. Note the rather abrupt junction between the two layers of* opus signinum

The north aisle (Fig A32–A37) produced the best evidence for Phase S. As was usual, the floor was laid on a foundation of four layers: a mixed make-up dump probably up to 0.5m thick; a layer of loose, freshly quarried red sandstone rubble, which was sealed by a layer of mortar (D1176), forming a raft onto which the *opus signinum* floor (D341, D666) was laid (see Fig A3). These layers were in most respects identical to those seen in the south aisle. A mosaic floor was laid over the *opus signinum*, bedded into a skim of hard, white mortar (D1098) which generally only survived where the mosaic remained or had only recently been removed. Nearly all the evidence for the mosaic floor was found in the eastern half of the aisle, where parts of several adjacent mosaic panels survive. Many of these had been uncovered by Wright during his excavations of 1859, when they had been studied by George Maw, who published his paper on *The pavements of Uriconium* in 1861. This paper is the only full published record of the mosaics Wright found in the north aisle, and Maw's reconstruction of it is based on an original watercolour preserved in Rowley's House Museum, Shrewsbury (see Fig 17). This shows a plan of the site giving the location of six areas of tessellation and one area of herringbone-tile floor from the baths site. These areas are lettered A–F with A in the left hand corner of the folio and the lettering proceeding clockwise around the page, disregarding both position on site and whether there was more than one panel in the area painted. Thus, when Maw came to use the watercolour to make his reconstruction, laying out the areas in their correct site order and lettering the individual panels from east to west, the sequence became A, B, H, C, F, E, G, and D, with G and H being joined to areas D and C respectively (Maw 1861, pl 9). This meant that the letter G had been used twice: once on the watercolour to mark the position of the lost south aisle fragment, and again on the 1861 reconstruction. Maw's reconstruction of the north aisle mosaics, as published in 1861, cannot now be considered to be accurate. Although he estimated the number of panels correctly (A– L; 12 panels), he guessed that the panels were all the same width as panel A which was square, although he noted that panel B was anomalous and must have been narrower. Panel B was distinctive in that it had a strip of Greek key pattern on its western side which appeared, uniquely, to cross the whole width of the aisle rather than turning to form a border round the panel. Maw thought this would have been balanced by a similar strip on the eastern side and that that panel was given unique treatment because it framed a door in the north wall (1861, 103). However, with the exception of this panel, he believed that the mosaics were square, and had been planned with 'considerable accuracy and uniformity' (*ibid*).

In 1981–2, the mosaics found by Wright were rediscovered along with areas he had missed, and it became clear that Maw's reconstruction was incorrect, since our panel H, which was found in its full east to west width, was only 1.6m wide and thus cannot have been square. Instead, when the panels were reconstructed afresh incorporating all available information, it became clear that they were alternately square and rectangular, the exact dimensions and proportions varying considerably but always keeping this distinction. The reason for this, as Maw guessed, is that the panels were laid out 'in relation to some other members of the building...possibly...piers which corresponded with the partitional bands of the design' (1861, 104). In fact, the panels were laid out so that the narrower, rectangular panels stood behind the columns of the colonnade, with the broad, square panels framed by the columns.

The designs of the panels may all be described as geometric, with all but one of them being composed of blue and white limestone *tesserae*, with a continuous border of micaceous flagstone *tesserae* running along the wall and the edge of the stylobates. Panel E has some *tesserae* of terracotta tile. This panel also differs from the others in using a curvilinear motif (guilloche). All the other panels show gridded patterns, although it is possible to argue that the more complete panels A and B do not fit in with the system of simple geometric design. Panels A and B are also off-centre within the aisle. Thus there is internal evidence for at least two periods of repair.

The surviving panels are described in turn, giving all the available evidence and then a description of the reconstructed design (Figs A36 and A37).

Panel A: Maw cleared a fragment of this panel measuring 4m north to south by 3–0.8m east to west. Part of this panel, 0.8m², was lifted, and is in store at Rowley's House Museum, Shrewsbury. Wright's method of lifting mosaic was to excavate the surrounding floor area to below the depth of the rubble raft, leaving a plinth on which the required mosaic fragment stood (see Fig 56) This was then removed by sliding a sharpened edge beneath it, cutting it from its bedding. This was an enormously destructive process and meant that when re-excavated all that survived of the mosaic were pieces at the edges of the removal pit (D435, Fig 54). Two main fragments survived, one on the northern side, measuring 3.7 by 0.1–1.4m and one to the south measuring 1.8m by 0.3–0.8m. Nevertheless, it was possible to reconstruct the panel, which must have been 3.3m by 3.3m square with a northern border of micaceous flagstone *tesserae* 0.72m wide, an eastern one 0.66m across, and a southern border 0.14m wide. The design consisted of two concentric squares which formed a frame with a Greek key pattern in the outer square and curved-sided triangles arranged point-to-base on each side of the inner square. Internally, a white saltire framed by blue borders also contained curved-sided triangles arranged point-to-base with the bases towards the centre of the panel in each arm of the saltire. The centre contained three squares of diminishing size arranged one inside another at 45° to each other and in alternate colours. The triangular areas of the field defined by the saltire and the frame were laid out in two different patterns. On the north and south sides, the pattern was of rows of triangles, alternately blue and white and on the east and west sides the pattern was of rows of squares, alternately white and blue, in which the blue squares were a third larger than the white ones. In addition, the blue squares overlapped each other and had a further row of small white squares arranged to run down the centre. This panel was separated from panel B by a blue band 140mm wide.

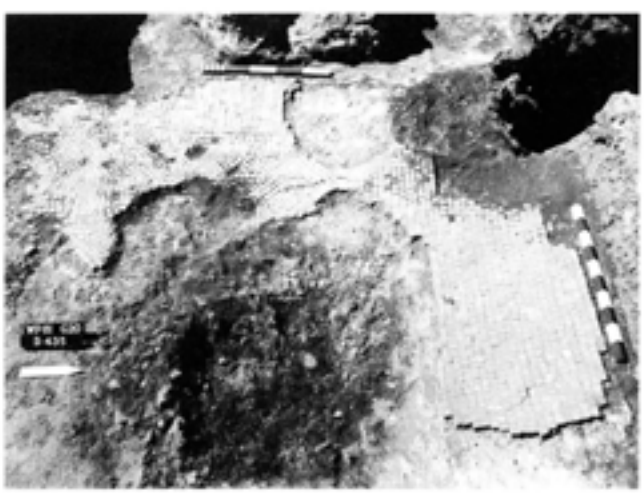


Fig 54 Fragment of mosaic panel A in the north aisle

Panel B: Maw recorded a piece of this panel measuring 1.8m east to west by 1.9m north to south and he lifted a fragment 0.4m² which is stored in Rowley's House. Surviving on-site evidence consisted of an area of mosaic 1.3m east to west by 1.6m north to south which had been badly damaged by nineteenth-century activities. Maw noted that this panel was unusual in having a Greek key border to the west which he states extended into the micaceous flagstone border at both ends. Although no on-site evidence was found to confirm this, it seems reasonable to accept that Maw's watercolour is accurate, especially in the light of the interpretation of panel I (below). As already noted, Maw believed that this panel B fronted a doorway and that the Greek key band would have been repeated on its east side. However, there is not enough space between panels A and B to allow this. The micaceous flagstone border for panel B was 0.78m on the north side and 0.1m on the south side. This unevenness, not seen in the borders of the panels further west, which are generally 0.3–0.5m wide, may account for the use of the dividing Greek key strip which would have softened the visual anomaly of the step in the thickness of the border. This discrepancy may indicate that panels A and B did not belong to the original layout (see below). Panel B was rectangular and measured 2.1m east to west by 3.3m north to south (*c* 7 by *c* 11.5*pM*). The frame of the panel was of four concentric rectangles, the outer one being white, the second being decorated with two rows of alternate triangles of blue and white, and the inner two being plain rectangles of blue and then white. The central design consisted of a simple chequerboard, turned at 45 degrees to the rest of the panel and edged with a narrow blue border.

Panels C and D: There was no evidence for these.

Panel E: This panel coincided with the eastern doorway in the north wall. It does not survive on site, but was recorded by Maw on his 1859 watercolour as part of area C, and re-lettered H in his 1861 publication. Fortunately, a small panel 0.8m by 0.5m in size in Rowley's House preserves a part of the design and confirms the *guilloche* border illustrated by Maw, who recorded the area of the panel, which covered his panels H and C, as 2.4m square. His watercolour shows the design to have been a simple *guilloche* frame formed of paired red and white reversed S curves enclosing a single white *tessera*, the whole within a blue band 0.18m thick. This was framed by a thin white band on either side and, internally, a tripartite panel formed by blue lines creating three rectangular panels aligned east to west and about 2.4m by 0.84m each. The design within these smaller central panels is not known, except for the central one where a single blue corner survived. From the use of a curvilinear motif and red ceramic *tesserae*, both unique to this panel, it seems likely that it was a repair. Although the full panel width did not survive, it is possible to suggest that this would have been a square panel roughly 3.2m east to west by 3.5m north to south.

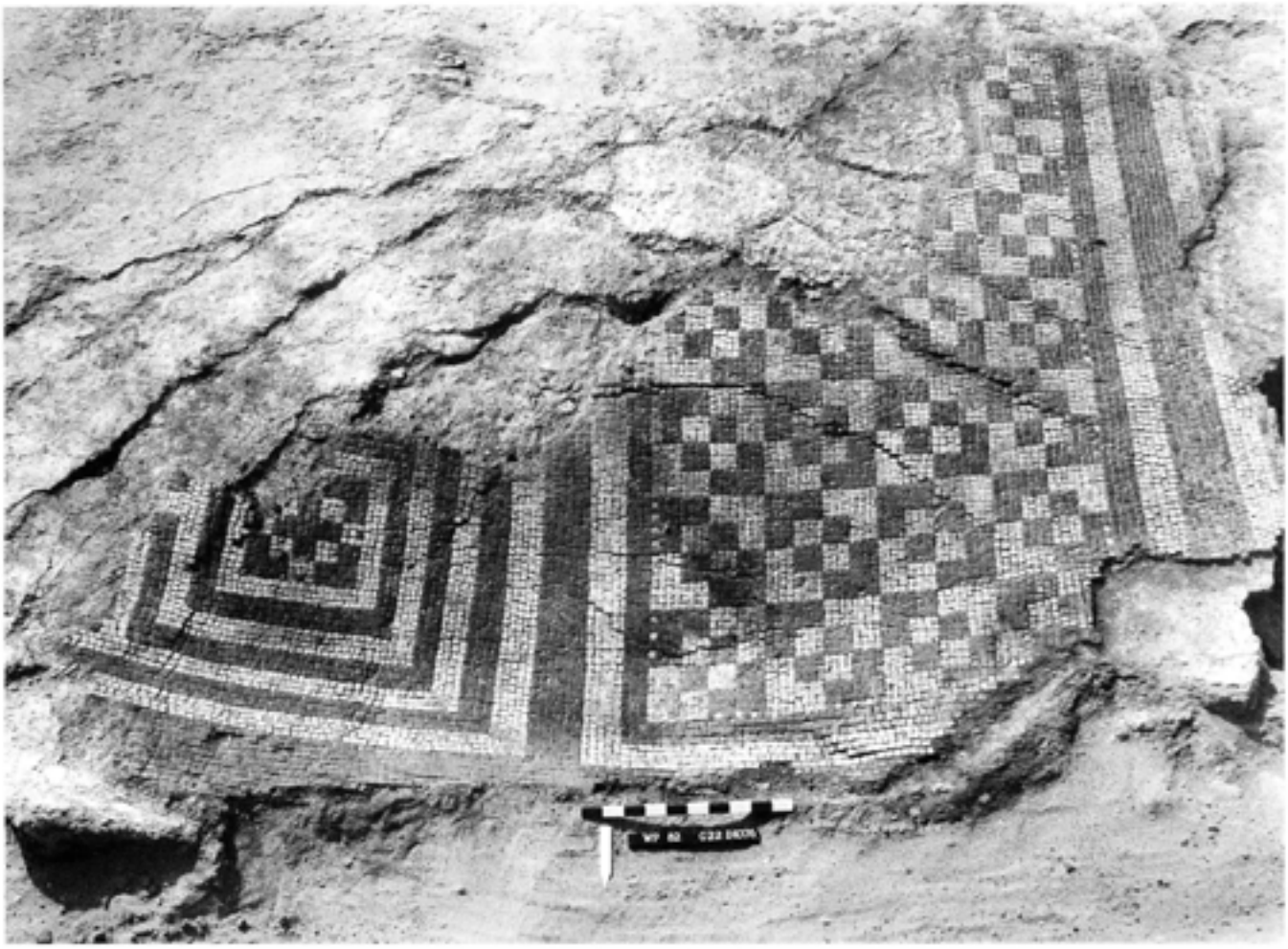


Fig 55 Largest surviving area of mosaic representing panels G and H. White signature tesserae can be seen in panel H at internal edge of frame. Cracks in the mosaic and the floor beneath are due to their collapse into underlying subsidence which was then backfilled, preserving (by chance) the mosaic

Panel F: This was equivalent to Maw's panel C and was a rectangular panel about 1.9m east to west by 3.5m north to south. Maw's 1861 reconstruction of the panel does not match the evidence recorded on site, which he presumably disregarded because it did not fit with his theory that all the panels were square (see panel I). The main surviving areas of this panel were numbered D143 while three lesser fragments were numbered D558. These included a fragment 1.2m by 0.6m in the centre of the panel, a smaller piece 0.6m by 0.4m just to the east, and a 0.6m by 0.2m fragment on the southern border. The pattern repeat, which was framed by a white and blue border, consisted of blue equal-armed crosses arranged in diagonal rows on a white field. Each cross was separated from its neighbours by a single small white square giving a subsidiary pattern of diagonally aligned rows of white squares. This panel also shows a characteristic border of the baths basilica mosaics in that a single white *tessera* has been incorporated within the square arms of the outermost blue crosses where they make contact with the inner frame. This border was found also on panels G, H, and J and in the south aisle (see above).

Panel G: All the evidence for this panel came from the 1982 excavation when a substantial area of mosaic was found in the base of a large subsidence (D1076; Fig 55). It comprised part of both panels G and panel H. Only 1m by 0.8m of the design of panel G survived but it proved possible to reconstruct it, giving a total size of 3.25m east to west by 3.5m north to south. The design was quite complex, and differed somewhat from those to either side, although it was based on a grid. The basic pattern repeat was a blue square on a white field. The design within this centred on an equal-armed blue cross framed by four L-shaped corner pieces, between each of which, and level with their outer edges, lay a single blue *tessera*, the characteristic signature. There were sixteen of these squares, arranged four by four. The sixteen pattern repeats with their central designs lay on a white field, and were separated from each other by large blue equal-armed hollow crosses which were only complete in the central area of the panel; where they formed the frame, only one arm of each cross projected into the main design, the other elements being joined together to form a continuous border. Two other detached pieces of this panel survived: D1090, 1.2m south of D1076, consisted of nine *tesserae*

which appeared to be out of position, and D1091, which lay on the south edge of the floor, was a fragment of the micaceous flagstone border, 1.7m by 0.16m in size.

Panel H: This design of panel was recovered from the western side of D1076, the largest surviving area of mosaic found. As expected, this was a rectangular panel measuring 1.46m east to west by 3.44m north to south. The repeat pattern, framed by a white and blue border, consisted of a square framed by diagonally opposed L-shaped areas, alternately white and blue around a central square which was quartered into small blue and white squares arranged so that the white squares were bordered by the blue L-shaped areas, and vice-versa. This design was repeated four times along the short edges and eleven times along the long edges making each repeat about one *pes* square. Where the blue L-shaped pieces touched the blue frame, three white *tesserae* were included to give a variation on the usual signature.

Panel I: The surviving part of this panel was recorded by Maw as being 2.7m east to west by 1.1m north to south, and was lettered on his plan as fragment F. Only the western end survived *in situ* and it was given the number D1093 but, despite the signs of robbing, none of this mosaic panel can be found at Rowley's House. There is some discrepancy between the record made by Maw in 1859 and his published article of 1861. In his 1859 watercolour, the Greek key border to this panel is shown to have six surviving repeats (including the north-west corner) but in his 1861 article, the Greek key is shown with only five elements and both north-west and north-east corners. It is probable that Maw altered his own record when making the 1861 illustration to make it fit his ideas about the uniform size of the panels. The design was relatively uncomplicated, consisting of a Greek key border 0.44m wide framed by white, then blue border lines on the outside, and a blue line on the inside. There were seven repeats on each side of the panel giving a total width of 3.18m east to west by 3.4m north to south. Internally, the pattern from panel F was repeated covering an area 1.8m east to west by 2.1m north to south.

Panel J: This panel, equivalent to Maw's panel E, consisted of two surviving fragments. The portion seen by Maw was originally 1.2m east to west by 1.6m north to south but all that remains of it is a panel 0.8m^2 in Rowley's House. The rest of the panel found in 1859 was destroyed when this was lifted. Another piece of the design, D1092, 0.6m by 0.5m in size, was found in 1982. The panel would have measured 2.14m east to west by 3.4m north to south. The design consisted of a white and blue frame within which was a simple blue grid on a white field, modified to include a small white square where the vertical and horizontal lines of the grid intersected. As with panel H, three white *tesserae* were let into the blue edges of the design, where they touched the blue frame, separating the pattern from the border.

Panel K: Part of this panel was recorded by Maw, along with its neighbour, panel L, on a single piece of mosaic measuring 2.7m east to west and 1.6m north to south, which Maw lettered G. No part of the panel survived on site and, although there were signs of robbing, no fragment remains in Rowley's House. However, from Maw's record it is possible to reconstruct the panel showing it measured 3.1m east to west by 3.4m north to south. Again, the design had a blue and white border, with a central design as in panel H, but with the colours reversed. It is also noticeable that there was no recorded use of signature *tesserae* at the edges of the mosaic.

Panel L: This panel, lettered D by Maw, had also been damaged by robbing but an area 1.2m by 2.1m survived on site and was numbered D1095 (Fig 56). The design consisted of a blue and then white rectangular frame with an internal design based on the basic pattern repeat of panel G, doubled in size so that each element was 2 *pM*^{2}. This design was found three times along the short side and five times on the long sides. Variation was created by making each repeat the negative image of its neighbour and, although no signature *tesserae* survive, it is likely that these were once present. The overall panel size would have been 2.1m east to west by 3.4m north to south. Two small fragments of the southern micaceous flagstone edging were found, both about 0.2m^2, and were numbered D1094 and D1096.

Separating each of the panels, as in the south aisle, was a narrow band of the same blue limestone *tesserae* as used in the main panels. This was 140mm wide and was thought by Maw to provide evidence for partitioning. No evidence was found on site for this, but there could have been free-standing moveable screens. The width of the micaceous flagstone edging of panels E to L varied along their length. In panel E, the north width was 0.44m and the south width was 0.22m, but by panel L the proportions were almost entirely reversed at 0.32m and 0.42m. The reason for this variation was not clear and if it had continued unaltered it would have led to considerable difficulties laying out the mosaic panels by the time the west end of the aisle was reached. This might suggest that somewhere along the aisle, there was another break in the design like the Greek key strip by panel B, the most obvious position being in grid 24 by the side of the central doorway in the aisle. This reconstructed layout allows for one more square panel, M, before the doorway is reached, but the only evidence for this was four white *tesserae* (D2505) which sat immediately next to the herringbone-tile floor patch in the doorway (see Phase T, above). These *tesserae* had been sheltered by the higher herringbone tiles and thus

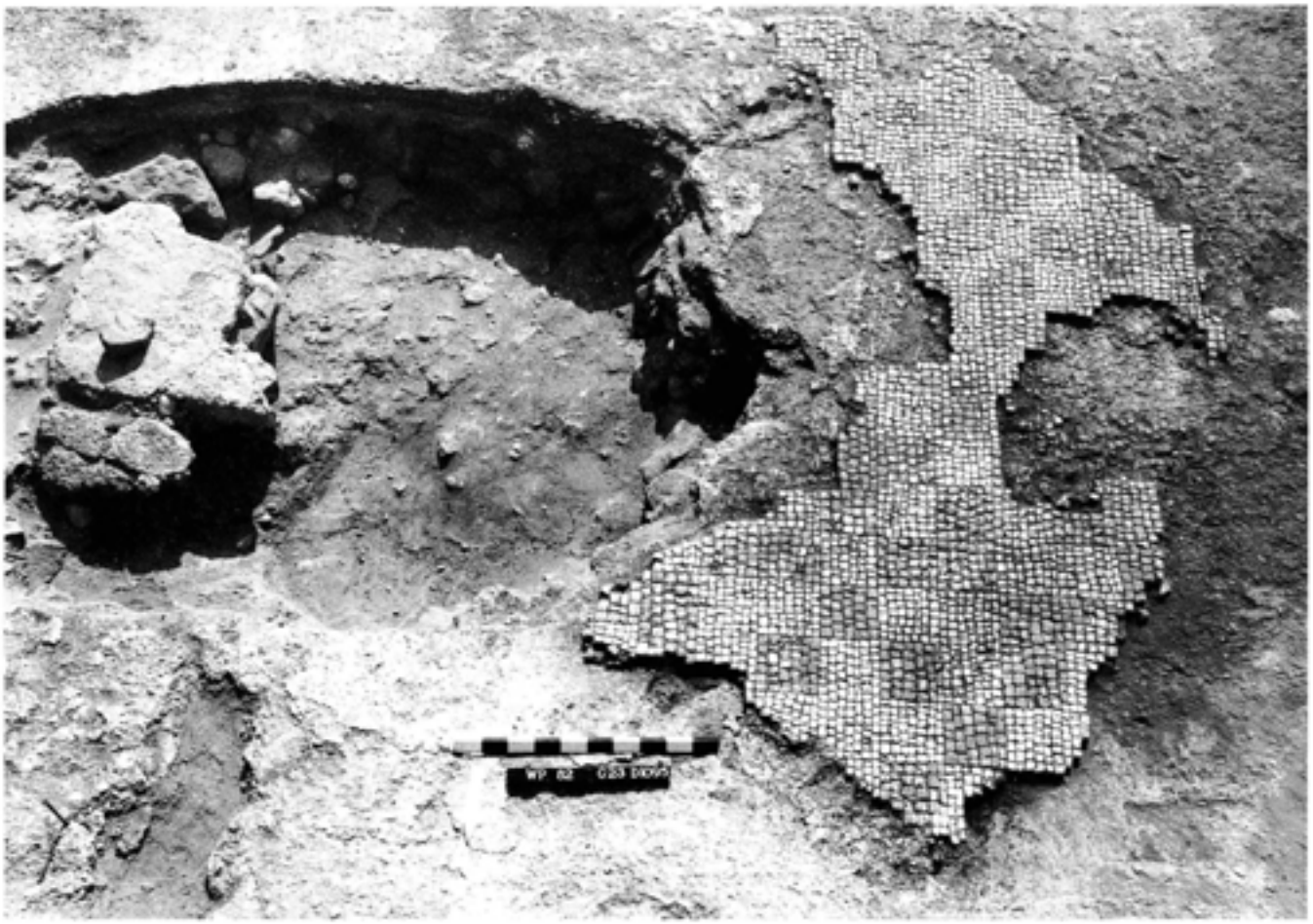


Fig 56 Fragment of mosaic panel L showing a classic mosaic robbing hole to left

survived *in situ* (Fig 57). The panel in front of the doorway, N, was probably picked out in some way, perhaps with full north to south border strips on either side as seen in panel B, so that the doorway was visually emphasised. A distinctive threshold would have broken the aisle into two, with 13 panels east of the doorway panel and 12 panels to the west. No evidence survived for the western mosaic panels, other than D1086, a possible laying-out line 2.1m long and 0.2m wide at the west end of the aisle. This would have marked the border between the large panel in the corner of the aisle and the rectangular panel to the east. This line showed only faintly in strong oblique sunlight (Fig 58).



Fig 57 Four white tesserae at d) from a mosaic panel in the north aisle which survive in situ *protected by the herringbone-tiled floor e). In the foreground, the scale rests on a patch of worn stones in threshold of central doorway. The photograph is taken looking south*

The designs of all the mosaics, including those in the south aisle, were geometric, using a grid as the basic unit of layout. Early parallels for these designs dated after AD 75 can be seen at Fishbourne (Cunliffe 1971, pls lxxivc, lxxv, and lxxviib). Here, the mosaics are within the general tradition of black and white mosaic work characteristic of Italian mosaics in the first two centuries AD (Strong 1988, 102), which also proved popular in the provinces (*ibid*, 237–8). More chronologically significant for showing the fashion for such gridded geometric mosaics are the examples found in the shops of the Market of Trajan in Rome (Blake 1936, 78–9; Virlouvet 1985, 165–6). Later British parallels for designs in the baths basilica can be found at Cirencester where there is a fourth century chequerboard mosaic similar to panel L (Neal 1981, 66, no 31), and other similar monochrome geometric mosaics of the same date (*ibid*, 58, no 23, 62–3, no 27).

However, these all include both *guilloche* and red *tesserae*. Clearly, the designers of the baths basilica mosaics used geometric designs because they were fashionable, but it is also apparent that a sequence of geometric panels was a practical choice when a long thin area had to be floored, and this arrangement is often found in corridors, for instance in the eastern corridor of Bancroft Roman villa, Milton Keynes (*ibid*, 41–2, no 5).



Fig 58 Opus signinum *floor of north aisle showing a possible mosaic laying out line or, more probably, a partition line. Postholes in foreground and middle distance to west of line represent wall line of Building 61 (Phase U and V)*

In both the north and south rooms of the annexe (Figs A23 and A38), the Phase S floor consisted of an extremely uneven hard, white lime mortar floor. The floor was given various numbers: B607 in the north room, and B669, B670, B671, B675, and B676 in the south room. It was fully exposed only in the north room (Fig 59), where occasional subsidences were noted, in places causing the floor to pull away from the offset of the wall. The floor was extremely rough in both rooms and heavy wear had removed the surface exposing the numerous pebbles within the mortar matrix. Some blocks of sandstone, often quite worn, were also noted in the matrix of the floor. The make-up of the floor varied considerably. In the western half of the south room, under B676, there was fresh sandstone rubble similar to that noted under the basilica floors, but in the eastern half of the annexe, where the mortar floor had been entirely worn away, thick dumps of make-up were exposed (B610 north room, B672 south room).



Fig 59 Annexe from south-east showing mortar floor of Phase S. Darker area to south is Phase T patching of floor

These were very mixed deposits of silty sand with inclusions of mortar, pebbles, and stones. In the southern room, the full extent of the mortar floor was not exposed as the north half of the room was still sealed beneath the Phase U dumps at the end of the excavation. It is unlikely that this mortar was the finished surface of the original floor. Comparison with the rest of the basilica floor suggests this would probably have been *opus signinum* or even mosaic.



Fig 60 Earliest excavated north portico floor looking west. Immediately to north is the sleeper wall of north portico colonnade. When the stylobates were in place, the floor would have been at roughly the same level

Neither was found *in situ*, but the annexe had been subjected to extremely heavy wear. The original use of the rooms is uncertain, though it has been suggested that these were the changing rooms (*apodyteria*) for the baths.

The west and north porticos (Fig A13–A17) lay on the west and north sides of the baths basilica, between the colonnades and walls of the sides of the basilica. Nothing was seen of the original floors of the porticos except in the north-west corner of the north portico where the removal of a narrow section of the Phase W floor revealed a surface of crushed tile and pebbles (D1334). This surface was previously numbered D181 in an earlier season. Much of it had been badly damaged by the various archaeological trenches but was well preserved under a narrow spine of surviving archaeology which was removed as it could not be preserved (Fig 60). The use of shattered terracotta tile was very noticeable. Some cobble was also included, and the floor appeared to be bedded in a matrix of *opus signinum* type mortar. This floor may be identified with the 'rough brick one' mentioned by Kenyon in her report (1940, 184) which, she stated, was 'considerably lower than the drain outside the portico'. However, Figure 60 makes it clear that the two were at roughly the same level, with the stylobate foundation wall at a lower level between them. With the stylobates in place, however, the colonnade would have formed a low barrier between the drain and the portico floor. Thus it seems likely that D181/D1334 was the original floor or, if not, was at the same level as the original floor. The use of this coarse flooring appears to conflict with the evidence for the flagstones noted in the west portico outside the *macellum* doorway (Graham Webster, personal comment), but it is quite likely that, as with the entrance to the *frigidarium* in the south aisle, only the areas outside the main west doorways were flagged and that the rest of the portico, where traffic was less concentrated, was floored in a different material.

Dating

The floors of the basilica were not removed and thus there is no dating evidence for the building other than a single worn *sestertius* of Trajan dated AD 98–117 which was found within the layers of sandy make-up beneath the rubble raft (Brickstock and Casey, unpublished, no 48). However, re-examination of the pottery from Kenyon's excavations in the baths suggests that building was completed there during the Antonine period rather than the Hadrianic, and it seems probable that the basilica would share this dating (Faiers 1990, 258–65).

A reconstruction of the baths basilica

In plan, the baths basilica was very simple, in keeping with the type that developed in the early empire (Zienkiewicz 1986, 161–4). It was a long, rectangular building with a central nave flanked by aisles to the north and south. It had an external portico to the north and west, and a two-room annexe on the eastern side. To the south lay the baths complex and its outdoor *palaestra*, the latrine, and a *macellum* (see Fig 21). Internally, the basilica measured 73.8m long (east to west) and 19.2m wide, although the north aisle colonnade was 0.3m longer than the south aisle colonnade. If these measurements are converted to the *pes Monetalis* (taken as 295mm, *ibid*, 96) which has been accepted as the unit of measurement from the evidence of the column spacing (below), then the basilica was about 250 by 65*pM* in size. Other measurements, such as the spacings of the nave and portico colonnades, and the widths of the nave, aisles, and porticos, all confirm that the building was laid out using the *pes Monetalis* measure (Table 2).

Table 2 Dimensions of the basilica

	observed	*postulated*		*error*	
Dimensions	*metres*	*pM*	*metres*	*metres*	*%*
south wall excluding dog-leg	71.20	240	70.80	+0.4	+0.6
aisle width	4.22	14	4.13	+0.09	+2.1
nave width	8.76	30	8.85	-0.09	-1.0
west portico width	5.46	19	5.6	-0.14	-2.5
north portico width	4.52	15	4.42	+0.1	+2.0
north colonnade	73.80	250	73.75	+0.05	+0.06
south colonnade	73.30	250	73.75	-0.45	-0.06
column centres (aisles)	5.31	18	5.31	0	0
column centres (north portico)	2.98	10	2.95	+0.03	+1.0

pM: pes Monetalis

The layout of the basilica was based on the *actus* (120*pM*) and fractions thereof. A line two *acti* long was laid out as the baseline. This later became the south wall of the basilica, the measurement being from the internal south-west corner of the basilica to the point where the Old Work turns in a right angle to the south. Lines were then laid out to the north and parallel to this base at measurements of 14, 3, 30, 3, 14, 3, and 15*pM* which represented the widths of, respectively, the south aisle, south colonnade, nave, north colonnade, north aisle, north wall, and north portico, giving a total of 82*pM* (24.2m), which is roughly equivalent to two thirds of an *actus* (80*pM*). This gives an underlying ratio of roughly 3:1 for the internal length against width, which is close to the Vitruvian ideal (*De Architectura* V, 4). Furthermore, the nave was approximately twice the width of each aisle and north portico. A minor modification was later made to this basic layout at the east end, where the east wall was displaced a further 10*pM* eastwards to allow for the insertion of a service door. The south wall here was also displaced southwards by a wall thickness (3*pM*) for the same reason. The width of the west portico would have been determined by the position of Watling Street, but it seems to have been aiming for about 20*pM*.

The construction of the basilica was relatively straightforward, once the basic plan had been laid out, but there was some evidence for a brief halt in the building process perhaps involving the re-cutting of the foundation trench for the south wall (see above and Fig 46). It was clear that some of the minor structural walls were later than the main construction. This is clearly the case with the annexe foundations, which butt onto the east wall of the basilica but are keyed into the north wall of the precinct. There was also evidence that the west end of the north portico colonnade wall between Watling Street and the line of the west wall of the basilica had been added at a later date (see Fig A17), and it can also be suggested that originally it was proposed to have the east wall of the basilica in line with the change in the angle at the east end of the Old Work (see Fig 44a). Though this evidence for a modification in the building programme is scanty, the interpretation is backed up by evidence for a similar break in the construction of the baths (Peter Ellis, personal comment). The reasons for this pause were not clear but might well involve the uncertain finances of the new town since there was no evidence of structural difficulties.

Once the external walls of the building had been raised to roof height, the internal colonnade would have been built (Fig 61). None of the columns were found *in situ* but their height can be reconstructed with certainty from the evidence of the Old Work, which is about 6.5m high and probably stands very close to the roof height of the aisles. Woodfield's analysis of the wall and his reconstructed section through it shows that above the vault of the *frigidarium* rose a parapet about 600mm high (Webster and Woodfield 1966, fig 3, 238). The full wall height must, therefore, have been about 7m (24*pM*) and this is where the wall plate for the roof trusses of the aisles would have rested. The columns must have been about 1m shorter than this, to allow room for the capital, abacus, and architrave, with the other end of the truss resting on the top of the architrave. Thus, Fox's calculation that the columns of the aisles would have been 8.21m high, allowing for capitals of the Corinthian order (1897, 147) is much too high. Given the base diameter of the columns of about 1m, a height of 6.2m is postulated (21*pM*) or a ratio of 1:7. There were thirteen free-standing columns in each colonnade with engaged columns, perhaps in stucco, at either end. The intercolumnar distance was about 4.3m, roughly 15*pM* , which was nearly equal to the width of the aisles (4.22m), and it was clear from the surviving stylobate fragments that the stylobates formed a continuous step between the nave and the aisles. It was not clear whether there was a screen or partition between the columns, separating the aisles from the nave so that they could be turned into cubicles, but this is a possibility. The sub-divisions of the basilica were emphasised by decorating both aisles with mosaic but laying a plain *opus signinum* floor in the nave. The mosaic floor was of plain, geometric panels constructed of dark blue and white *tesserae* with a paler green/blue border. The panels, at least in the north aisle, were arranged so that there were narrow panels behind the columns and broad panels between them.

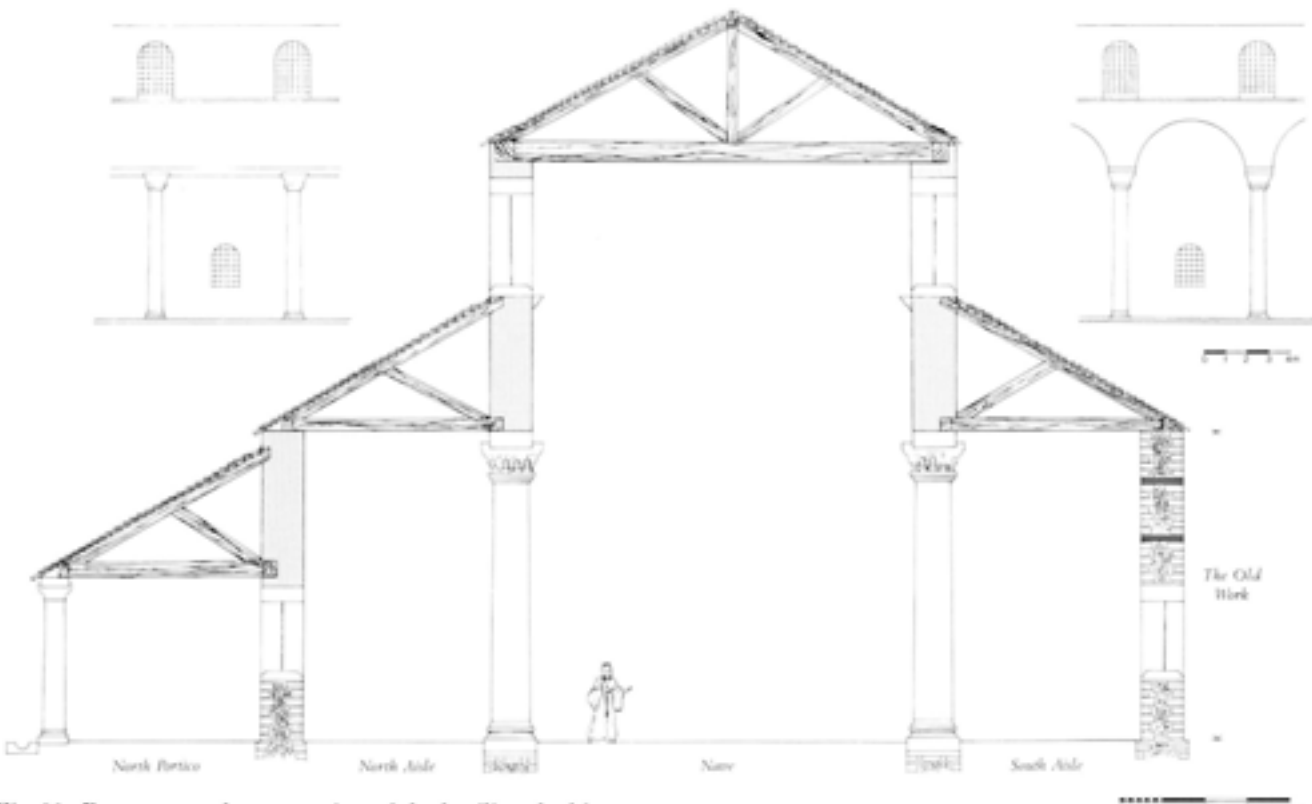


Fig 61 Reconstructed cross section of the basilica, looking east

The aisles would have been lit by windows high in the external walls, below the roof trusses of the porticos but above eye-level to ensure privacy. The presence of the portico roof would have considerably cut down the amount of available light in the aisles but this may have been countered by light entering from the nave clerestories between the colonnades, so long as these were not screened off by secondary partitioning.

Above the columns between the aisles and the nave rose a clerestory wall supported on timber lintels which were held in a channel cut into the top of the abacus, the lintels also supporting the horizontal members of the aisle trusses (above). There will have been some difficulty in the construction of the clerestory as the basilica slopes from east to west. At the base of the columns, the slope was overcome by cutting a step in the stylobate, as shown on surviving examples in the north portico colonnade (see Fig 28), but at capital height the problem would have been more difficult to deal with. The basilica was 73.6m long and higher at the eastern end. Profiles show that the difference in height between the ends varied from 1.36m in the south aisle, to 1.8m in the nave and 1.94m in the north aisle. The difference in the south aisle is accounted for by the presence of a herringbone-tile floor laid in Phase T which altered the original slope of the south aisle floor quite considerably. Only the north aisle can be used as a real guide to the original gradient of the building as here the Phase S floor remained largely unaltered. The north aisle profile gives a gradient reading of 1:0.026 for the whole basilica. This is slightly at variance with the measurement within any given ten metre section of the basilica where the difference in gradient is consistently about 300mm (1:0.03). Even with this higher measurement, the difference in height between the top of each capital, centre to centre, would be only 150mm, equivalent to the combined thickness of three bonding tiles.

Three possible solutions may be suggested to the problems of roofing a building built on a slope (Keith Brudenell, personal comment). One is that the roof might have been stepped, along with the floor levels, to level the slope between each column. No evidence was found for this. The second is that piers were built under each column so that the height of each capital stayed the same. Five possible pier bases were observed at the west end of the south aisle colonnade, but these these were no more than 0.15m, not high enough to compensate for the slope of the building, and they were not matched in the north aisle colonnade. A variant of the same solution would involve allowing the capital heights to follow the slope of the site, with the column bases still being cut into the stylobates to keep the columns vertical, and building the clerestory as an arcade on piers. As the ground fell away to the west, so the height of the arcade would increase. The difference in height between each pair of columns would only have been 150mm, which would hardly have been noticeable, although along the whole basilica the difference in height would have been 2m. This solution has



Fig 62 Cloister of the monastery of Certosa di Pontignano, Siena, Italy showing an arcade built on a slight slope

been adopted at the monastery of Certosa di Pontigagno, Siena (Fig 62). The third solution, which is perfectly possible architecturally but would not be considered today, would be simply to follow the slope of the site; so long as the columns were vertical, there would be no undue stresses on the building. Since the courses of masonry in the Old Work are clearly laid on a slope this is likely to have been the solution used, although an arcade is still a possibility (see Webster and Barker 1991, fig p6). Above the colonnade rose the clerestory whose windows probably provided the bulk of light in the basilica. There was no evidence for reducing the weight of the clerestory by the use of tufa as has been suggested for Caerleon (Zienkiewicz 1986, 156–7). It is probable that a stucco cornice ran just below the windows to separate the architrave from the clerestory. If an arcade is reconstructed, then the radius of the arcading would necessarily be half the width of the intercolumnation (2.15m) with the arcades spanning from the abaci. The aisle roof trusses would also have had to rest on the abacus, which would have demanded substantial purlins between each truss. The clerestory would have continued across both gable ends of the building providing a continuous band of windows. Depending on the size and number of the window openings, this would have helped to lighten the interior of the building and perhaps make it feel less oppressive. For the same reason, the interior of the building is likely to have been whitewashed, although there is some evidence for decorative stripes of colour, perhaps forming simple panels (see above). The external wall of the building, on the north portico, is known to have been whitewashed, with possible panels outlined in red. The portico columns were just under half the diameter of those in the aisle and thus were probably about half their height also (about 3m high, or 10*pM*). The portico capitals were in Tuscan style and a complete example was found during the excavation (*see appendix 2*). The capitals of the internal columns may have been in Corinthian style (*ibid*). All the doors would have been framed with ashlar, as shown by the robbing marks found in most doorways and by the

surviving example in the baths. Where the slope of the site made it necessary, there were stone steps outside the doorways. The roof seems to have been of diamond-shaped micaceous flagstone slates rather than terracotta tiles of the standard Roman pattern (Cantrill 1931, 95). This poses some problems concerning the pitch of the roof. Today, slate roofs have a pitch of about 45 degrees and terracotta tile roofs a pitch of about 25 degrees with flagstone slates somewhere in between. However, large slates, 600mm by 300mm in size, for example, can be pitched as low as 22 degrees (Keith Brudenell, personal comment). The pitch affects the ability of the roof to throw off water; if it is too shallow for a given material water will seep upwards. Whether the seepage will reach the roof timbers depends on the size of the tiles. If the steeper pitch is applied to a reconstructed section of the basilica, it is clear that the building would have had to have been much taller, which conflicts with the evidence of the Old Work. It must therefore be assumed that there was an original roof of terracotta tile pitched at about 25–30 degrees, which was replaced with micaceous flagstone slates at the same pitch, and that the slates were large enough to keep the roof watertight. One of the authors (PAB) is involved with maintenance work on Worcester Cathedral and suggests that the roofs of buildings of this size would have to have major repairs every 100 to 150 years. Since the basilica was finished in about AD 150 and was becoming derelict by the end of the fifth century, this means that the roof must have been relaid at least once, probably between AD 250–300. The latter end of this date range coincides with the postulated date for the laying of the areas of herringbone-tile floor in Phase T. It is therefore suggested that the tiles were replaced with slates at this time.

As already noted, an annexe was attached to the east end of the basilica. This was a simple rectangular building 18.55m by 7.7m internally (63 by 26*pM*) divided by a cross wall into two equally sized rooms. The only entrance was from the basilica, with a door into each room. The door for the south room was just to the north of the south colonnade and the entrance to the north room was just to the north of the north colonnade. There does not seem to have been an interconnecting door between the rooms but this is not certain. The annexe roof must have been tied into the basilica gable at the same height as the aisle roofs and there would probably have been windows in the east wall alone, as the south wall was overshadowed by the baths and the north wall masked by the north portico roof. There was no surviving evidence for the internal decoration or fittings of either floor or walls and this makes it difficult to assess the function of the building. Nonetheless, the fact that it provided two rooms close to the entrance to the *frigidarium* would suggest that the annexe might have been the changing room (*apodyterium*) for the baths. The tile arch covering the service door between the south wall of the annexe and the Old Work (north wall of the eastern cold plunge pool) (see above) would have been roofed by an extension of the main aisle roof.

Phase T: the herringbone-tile floor

(Fig 63)

The south aisle (Figs A19–A21 and A39)

The south aisle herringbone floor, D1000, which measured 48m by 4.3m or 206.4m², was the largest area of this type of floor recovered in the basilica (Figs 64 and 65).

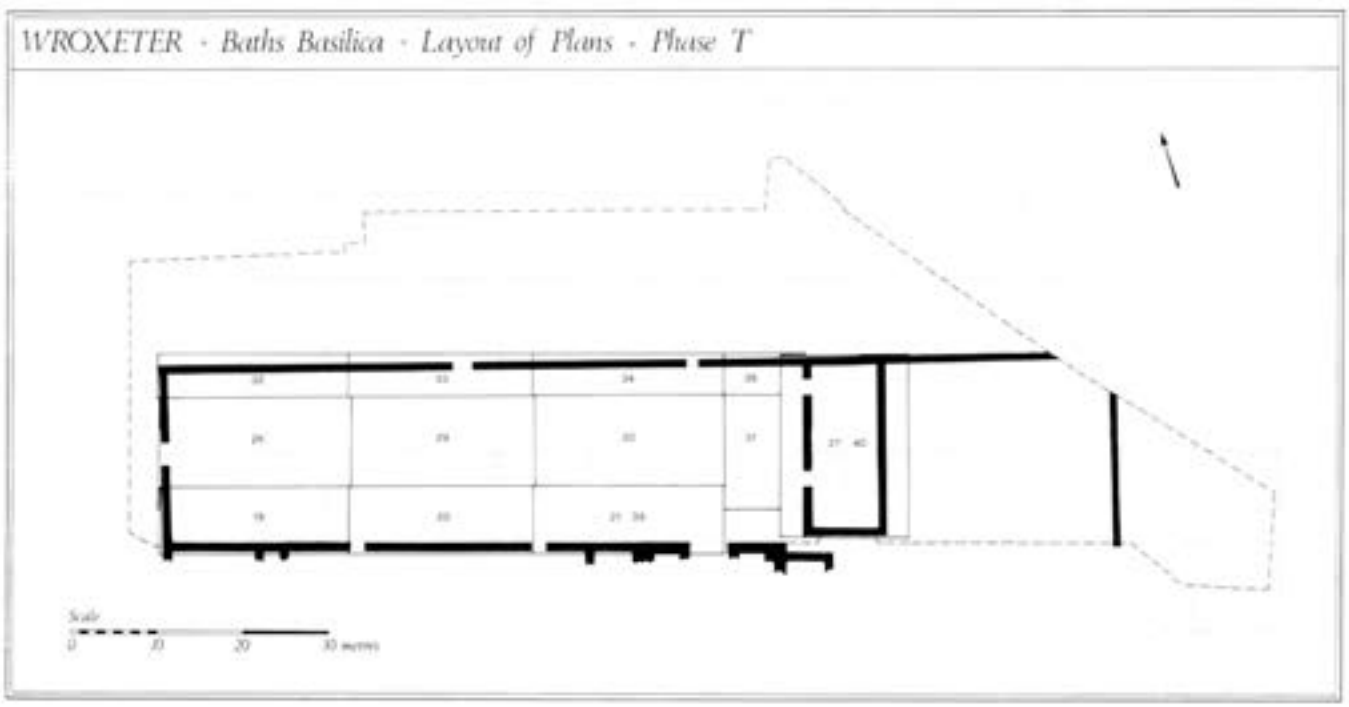


Fig 63 Layout of loose-leaf plans, Phase T



Fig 64 Herringbone-tiled floor of the south aisle looking west showing postholes of Buildings 72 and 73 cut into it, Phase T



Fig 65 Herringbone-tiled floor of south aisle looking east, Phase T

As with all these floors, it was made up of rectangular terracotta tiles which varied slightly in size but averaged 90mm by 25mm by 60mm. This would put them in the category of the 'playing card' shaped tiles found in other sites in Britain (Brodribb 1987, 52). Most were orange in colour but scattered randomly in some areas were overfired tiles which were blue/black. These do not appear to have been used to form polychrome effects in the surface as has been suggested for the Piddington villa (*ibid*, 53). The condition of the tiles also varied, with some being near-perfect while others showed signs of wear or even frost fracturing. As is normal with herringbone-tile floors, the tiles were laid so that they stood upright on their long narrow side, with the tiles in alternate rows laid at right angles to each other to give a 'herringbone' effect. In the south aisle, these rows ran from north to south. As recommended by Vitruvius (*De Architectura* VII, I.4), the surface of the floor had been finished off with a thin skim of white mortar to act as grouting and to make them watertight. This had mostly worn off, but where it survived it was numbered D2307.

Replacing the original floor of the aisle with herringbone tiles would have created problems in matching the new floor surface with the old doorways since the tiles themselves measured 60–70mm deep and were set on an *opus signinum* bedding layer, giving an overall depth of some 100mm. At the west end of the south aisle, this would not have been a problem since there was no door here, so the mortar and *opus signinum* foundation could be laid directly onto the old floor. At the east end, however, where the herringbone tiling had to be level with the original floor retained around the main doorway into the baths, the new floor had to be dug in. This was demonstrated in the section of one of Graham Webster's early trenches (Site 19) where the coarse *opus signinum* (D2464) underlying the herringbone tiles could be seen to cut the mortar raft of the aisle (D2465; Fig 66). Another archaeological trench in grid 12 showed the different construction found at the west end of the aisle (Fig 44b). Here there was a bed of coarse, pebbly mortar up to 100mm thick overlying the earlier mortar raft and original *opus signinum* floor. This was then sealed by the *opus signinum* D2464 into which the tiles, D1000, were bedded. This would have produced a progressive rise in floor level towards the west end of the aisle so that the tops of the stylobates of the colonnade, which were originally higher than the floor, would have been flush with the herringbone-tile floor. Further evidence for the changed floor level can be seen in another archaeological trench in grid 11, immediately to the north of the western doorway in the south wall where a fragment of the robbed step, D2506, remained in place, sealed beneath the mortar bedding under the tiles (see Fig 51). A second step, D160, in front of the central door, projected above the level of the herringbone floor due to the tiles at that end of the aisle being cut into the original floor (see Fig 50).

The process of laying the herringbone floor began with cutting away the old floor at the east end of the aisle. It is probable that up to about 10–15m length of flooring (east to west) had to be removed, although the cut would have got progressively shallower further west. Eventually, the shallower slope of the new floor would have meant that the old floor would have needed to be built up rather than cut away and it is likely that the debris from the cutting was used in the mortar bedding for the herringbone-tile floor. Having created a level platform, a thin layer of *opus signinum* 20mm thick, D2464, was put down, with the tiles bedded straight into it, starting at the east end where there is a straight butt joint with the old floor (see Fig 48). Presumably, the *opus signinum* would have been laid in batches equivalent to a session's work so that it did not harden before the tiles could be laid. The process of laying the tiles need not have taken much time, however, as the laying would have been quite mechanical and relatively unskilled compared with mosaic work. When the floor was drawn up from quadrupod photographs, it was noticed that though the tile rows began in straight lines, they gradually became more and more sinuous and that at intervals they had to be straightened by inserting shorter rows (see Figs A19–A21). These realigning rows were not equally spaced, however, suggesting that they did not represent breaks in working but were laid whenever it was necessary to straighten up the rows. It should be pointed out that these realignment rows were not obvious on site or on oblique photographs and would not have been visually intrusive. Additionally, it should be remembered that the tiles were not intended to be visible since the floor was originally covered with a thin mortar surface. Given the irregular spacing of the straightening rows, it is also extremely unlikely that they represent partition lines.

The herringbone-tile floor stopped at the junction between grids 8 and 9, at the west end of the Old Work, which left about 15m of the original floor exposed to the east. It is probably correct to assume that the Phase S mosaic pavement survived more or less intact here, though in two places it had deteriorated badly and been patched by tile flooring. The larger of these patches, D2458, lay immediately to the west of the paving stones of the threshold area outside the *frigidarium* doorway (D2408) and repaired a path trending north-west to south-east from the *frigidarium* into the nave (see Fig 49). This path persisted as a feature throughout Phase T and the subsequent Phases U, V, and W (see below). Unfortunately, not all of the floor patch was uncovered but the edges were exposed to show that it covered an area 2.03m by 1.77m. The tiles, which were roughly 0.3m square (equal to 1 Roman foot) and were thus *pedalis* tiles, had been laid flat in a cut in the floor, like the herringbone-tile floor in the north and south aisles and at the west end of the nave. The tiles were laid in rows aligned east to west. The southern row consisted of four tiles, the next partially visible row probably had six tiles, and the northernmost row five. There was room for at least three intervening rows which were obscured by the pebble floor patch, D2398, left *in situ* at the end of the excavation (see Phase U). At the north-east corner of the patch was a secondary repair, D2462, which consisted of a double row of four tiles, 0.2m square, aligned north to south. It is not absolutely certain that these tile floor repairs should be assigned to the same phase as the herringbone-tile floors but it seems likely that they were approximately contemporary given that all these repairs used the same method of laying the tiles within a cut in the floor. Areas of horizontally-laid tile flooring have been found elsewhere at Wroxeter but using the larger *Lydion* or bonding tiles (Brodribb 1987, 40, 54). It seems likely that the tiles were chosen because they would cope better with the very heavy traffic to and from the *frigidarium* doorway.



Fig 66 South aisle floor showing mortar raft (D2465) and opus signinum *floor (D2400) on which the mosaic was laid in Phase S. These are cut by Phase T* opus signinum *(D2464) forming the foundation for the herringbone-tiled floor*

An even more enduring material was chosen for a further patch on the northern edge of the aisle floor, between the smaller tile patch D2462 and the Phase S stone threshold area D2408. Here, where wear might be expected to have been particularly heavy, another block of yellow sandstone had been inserted (D2408–4), aligned north to south and measuring 1.5m by 0.7m. Like the original threshold stones this became very worn. It was then sealed by D2407, a thin skim of mortar also overlying the two northern stones of the paved area D2408 which appears to have been used to level off the worn surfaces. The only other patch at the east end of the aisle, D2461, was an isolated raised area of coarse *opus signinum* 1.07m by 0.81m in size in the western half of grid 8. Its surface would have been level with that of the mosaic and it may represent a rough repair in an area that was breaking up. All of these contexts were left *in situ* at the end of the excavation.

The nave (Figs A28–A31)

Two areas of herringbone-tile floor were found in the nave, one at the east end and one at the west. The largest was at the east end and covered an area 24m east to west by 8.3m north to south (199.2m^2). As in the west end of the south aisle, no attempt had been made to cut the herringbone floor into the existing floor since there were no doorways in this area, other than the one into the south room of the annexe which anyway may have been reached by a step (see Phase S). The only constraint on the height of the floor would have been the need to respect the colonnade stylobates, and it can be demonstrated from D2413, the small fragment of worn stylobate in the south colonnade, that the tiles had been laid flush with the top of the stylobates (see Fig 41). Similarly, on the north side of the nave the tile floor was at roughly the same level as the top of stylobate D2468 in the north colonnade. Unlike the south aisle, the tile rows were aligned east to west. At the southern edge of the floor there were two inserted rows, and in the centre of the nave there were two rows aligned in the same direction. This suggests that there may have been two laying-out teams, perhaps starting at either edge of the nave and meeting in the centre, or, more likely, that one team started in the centre and worked south, getting so badly out of line that they had to insert two realignment rows near the edge, while the other team worked from the north edge towards the centre where they had problems linking with the tiles laid by the southern team. The condition of the tiles in the floor, D2000, varied considerably with some being badly worn, such as those in the vicinity of stylobate D2468 which were considerably more worn down than those only a metre away on either side (Fig 67). This particular pattern of wear continued on the north side of the stylobate D2468, in the north aisle, and can be linked with the doorway there. The eastern edge of the herringbone floor, abutting the east wall, had been repaired with another area of herringbone floor tiles, D2450, 1.6m east to west and 8.3m north to south which had been laid in a slightly different pattern (Fig 68), though with the rows still aligned east to west. This repair may have been laid to replace a possible stone slab fronting the door into the south room of the annexe (see Phase S, above). The western edge of the major herringbone-tile floor was finished in a highly distinctive fashion. Although the tiles had broken up badly, exposing D2401, the *opus signinum* bedding for D2000, it could be seen that originally the floor had extended westwards until it ended in a curving slope 0.3m high preserved for a short stretch in grid 8 (Fig 69). This can only be accounted for by assuming that the coarse *opus signinum* D2401 had been poured and left to harden on top of the much smoother original *opus signinum* floor D2421. The edge of D2401, which stood proud of the underlying floor by about 200–250mm, would then have created an awkward uneven step in the basilica nave and must have been masked in some way. It is suggested that one practical solution would have been to cover the edge with a shallow timber step, one tread deep, fixed between two opposite columns in the north and south colonnades, although there is no positive evidence for such a structure.



Fig 67 Wear pattern on north edge of nave at east end showing a pebble patch on stylobate D2468 to left which runs up to and over the denuded edge of the herringbone floor of the nave



Fig 68 East end of nave, looking south with Old Work in background and basilica's east wall to left. Junction between the herringbone-tiled floor of Phase T to right and a relaid area of herringbone-tiles abutting it. The discontinuity is reflected in the underlying opus signinum *as well. Relaid area may have replaced an original flagged area at this end of the basilica*

A step in the reflooring removed the problem that continuing the new floor level unchanged would have created at the western end of the nave. If the whole of the nave had been refloored at the height of the east end, then, because of the slope of the site, the floor would have ended up halfway up the doorway in the west wall thus blocking the western entrance. Instead, the west end was refloored separately at a lower level, cutting the tiles into the sub-floor so that they were flush with the original floor level. It is likely, however, that raising the floor at the east end of the nave was only a labour-saving device: it would have been much quicker to dump make-up on to an existing floor and set tiles on to it than to cut away the old floor and lay a new floor to the level of the old surface. Nonetheless, it may well have had a dramatic impact on the interior of the building, creating in effect a raised tribunal at the east end.

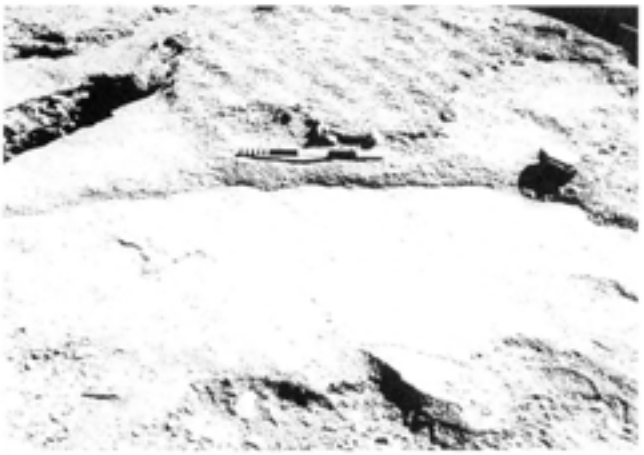


Fig 69 Central area of nave showing: in the background herringbone-tiled floor on deep opus signinum *base. This* opus signinum *stops in a steep curving slope which must originally have been protected, possibly by a timber step. In foreground earlier, smoother Phase S* opus signinum. *In the immediate foreground Phase S* opus signinum *is worn away exposing the underlying mortar raft to wear*

The herringbone-tile floor at the west end of the nave was not completely exposed during excavation as the Phase W1 floor was left *in situ*, but enough was cleared to show that it had extended past the first columns of the colonnades and had covered an area at least 6.4m east to west by 8.3m north to south (53.12m²). This is likely to have been its full extent as it was presumably laid only in the immediate vicinity of the doorway, as in the north aisle. The tiles at the west end were extremely worn (see Fig 77), in some places only surviving as fragments 5mm thick. Clearly, much of the floor would have been completely broken up before it was patched in Phase W which shows the considerable use of this area. It proved impossible to trace tile rows clearly enough to determine whether there were irregularities or not. Three areas of tiling were exposed. One, in the south-west corner of the floor, covered an area 1.3m by 1.1m, and consisted of approximately 12 rows of tiles which were worn but not excessively so. The two other sections lay in the northern half of the nave and measured 4.4m by 1.8m and 1.1m by 0.6m and were heavily worn. All were bedded in the usual coarse *opus signinum* layer (D2463).

Between the two areas of herringbone-tile flooring, it is probable that the original *opus signinum* floor continued in use though some repair was carried out by laying a pebble floor, D1999, which survived well on the northern side of the nave but only patchily in the central and western areas.

The north aisle (Figs A32–A35)

Only a small area of herringbone-tile floor, numbered D1181, was found in the north aisle in grid 24 (Fig 70). The maximum east to west dimension recovered for the tile rows was 3.6m, and the north to south measurement was 3.5m. Unlike the south aisle, the rows were laid east to west and, given the narrowness of the section, no realigning rows were necessary. On the eastern side, the straight join with the mosaic panel M was preserved, except at the southern edge where the rows had become damaged with wear. The western edge was much more ragged and the length of the rows varied between 2–3.6m. However, the western edge of the tile floor must originally have been as straight as the eastern side. Overlying most of the south-west corner of D1181 was a later pebble floor patch, D1366 (see Phase U), which obscured all the tile rows except the southern four on the edge of the



Fig 70 Area of herringbone-tiled floor in north aisle immediately inside central doorway (right)

aisle floor, by the north colonnade. Though originally the floor areas on either side of the herringbone tiles were probably the Phase S mosaic panels, all that survived was the exposed and worn mortar raft of the original aisle floor. The junction between these surfaces had become very worn, but the tiles, being harder, were slightly higher than the mortar raft. It is clear, however, that the tiles must have been cut into the underlying raft and not laid directly on the old floor as otherwise they would have projected up to 100mm above it, creating an obstacle in front of the central doorway. This is proved by the four *tesserae*, D2505, which survived *in situ* on the eastern edge of the herringbone floor at roughly the same level as the surface of the tiles (see Fig 57). Since there was no sign of herringbone tiles further west, it is assumed that originally the area of herringbone-tile floor filled the gap of about 4.2m (*c* 14*pM*) between the columns of the colonnade framing the entrance, possibly replacing the postulated mosaic panel N (see Phase S, above). The tiles were identical with those in the south aisle but showed much more wear, perhaps predictably, since here they were in front of a main doorway.

It has been assumed that at least at the beginning of this phase the mosaic pavement elsewhere in the north aisle was still in use, although since the panel in front of the central doorway must have deteriorated beyond repair before the herringbone-tile floor was laid, it is likely that other panels were breaking up. In particular, the panels around the eastern doorway may have been affected by wear, and it is possible that panel E, which with its guilloche pattern and use of ceramic tile *tesserae* is evidently later than the other panels, may belong to this phase (see Phase S, above). Other damage is indicated by a line of postholes in panel C, orientated roughly east to west, which extended for 1.6m. Presumably this line represented a temporary fixture cut into the floor after the mosaic had broken up.

The annexe (Figs A23 and A40)

Only two major changes took place in the annexe in this phase. The central cross wall B609 was taken down leaving only the lowest course standing, and both rooms were patchily refloored. It was not at all clear why the cross wall had to be taken down. Possibly there was some structural difficulty with it, or perhaps it was just no longer necessary or desirable to have it standing. The actual timing of the event was also not certain. Presumably, the wall stood throughout Phase S and it is clear from the stratigraphy that the replacement cross wall B271 was in place by Phase U, leaving Phase T as the only phase in which the cross wall could have come down. It is not clear whether the annexe operated throughout Phase T as one large room, with the remains of the former cross wall acting as a step between the two halves, or whether the demolition and rebuilding of the cross wall was a relatively swift operation at the end of Phase T.

The patchy flooring of the annexe in this phase was found in both north and south rooms. It consisted of a levelling layer of red sand or freshly crushed red sandstone pieces surfaced by a soft mortar which lacked any trace of a smooth skin. This floor was of varying thickness and was found over most of the southern half of the north room and also in the south room. Some of the sandstone had been exposed to wear as the mortar disintegrated. The patches in the south room were given the numbers B666, B667, and B668 but were not fully uncovered. In the north room, patch B680 measured roughly 4.6m east to west by 3.2m north to south and abutted the remains of the cross wall of the annexe (see Fig 59). The depths of all these patches varied from a few millimetres to 70mm. In the southern room there were two further patches of a slightly different nature. B626 was a small spread of sandy material with crushed mortar, pebbles, and pieces of sandstone in the south-west corner which may have been a secondary patch on the floor, and B678, close to the west wall of the annexe, was an area of worn sandstone, ceramic tile, and two blocks of tufa, the whole context measuring 0.5m by 0.3m. It had been cut by an archaeological trench but presumably represented a path leading to the doorway in the west wall and thence into the basilica. All of these repairs were left *in situ* at the end of excavation, and it is probable that other patches still remain to be found under the surviving areas of Phase U dumping in the southern room.

Dating

As the various areas of herringbone-tile flooring were left *in situ*, it was impossible to date their construction precisely. However, it was clear that none of the tiled areas was original to the building and that the herringbone had been deliberately laid to repair areas subject to the greatest wear, such as around doorways. *Opus spicatum* was current in Britain throughout the Roman period (Brodribb 1987, 50–52), but on the baths site the reflooring of the *macellum* courtyard in this manner has a coin date of 270 or later (Site 84, 46 SF 3198 coin of Tetricus II dated 270–73 in uw/w condition, catalogue no 232). Given that Phase W1 in the baths basilica is dated to around 367 or later, and allowing sufficient time for the herringbone-tile floor to wear, it seems reasonable to conclude that all the areas of herringbone tile were probably laid in the late third century, perhaps during the Carausian episode, or just after in the early fourth century when Imperial funds were apparently being injected into the province under Constantius Chlorus (Perring 1991, 110–12). It remains possible, however, that the areas of herringbone tile in the basilica could have been earlier and the reflooring could have occurred at any time in the late second or, more probably, the third century.

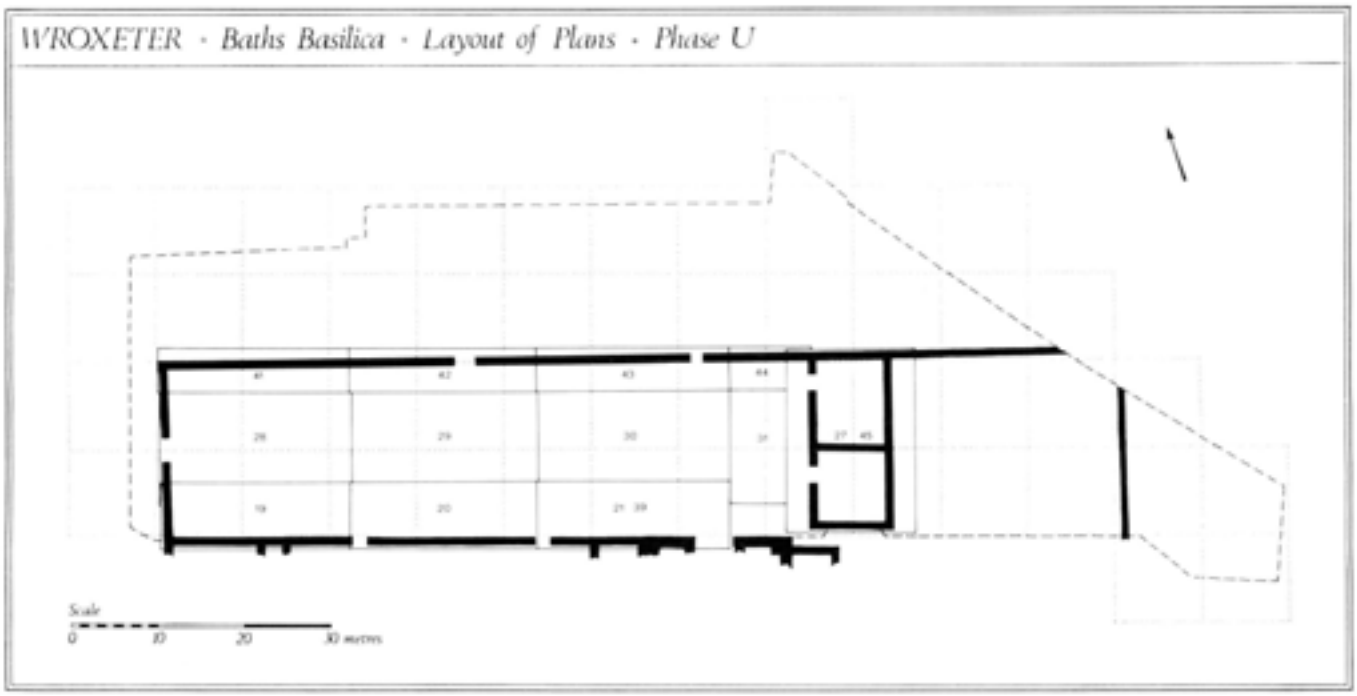


Fig 71 Layout of loose-leaf plans, Phase U

Phase U: repairs (Fig 71)

The south aisle (Figs A19–A21, and A39)

This phase could only be identified in the area lying between the heavily worn flagstones, D2408, forming the threshold of the door through the *frigidarium*, and the surviving herringbone-tile floor to the west beginning at the junction of grids 8 and 9. It was clear that any mosaic here originally had been worn away by the very heavy traffic approaching and leaving the *frigidarium* diagonally from the western part of the nave. This traffic had been heavy enough to wear a shallow hollow-way across the area which was initially repaired by pebble floor D2398. Further patches and dumps of material were laid down at the same time before these surfaces were finally sealed by an overall dump for the next phase floor.

The nave (Figs A28–A31)

Much of the activity here was represented by crude repairs involving the cutting away of broken-up areas of original flooring and their replacement with patches. Three specific areas of patching were noted in the nave, the differences being due largely to the varying floor surfaces used.

At the extreme east end of the nave, three areas of deterioration of the herringbone-tile flooring were found. These were within the area of relaid tiles, D2450, at the extreme eastern end, along the northern edge of the nave throughout the whole east end, and along the western edge of the herringbone-tile floor area. In the first area, D2450, at the extreme east end of the nave, most of the tiles had been removed down to the underlying area of *opus signinum*, D2437. No tile impressions could be seen on the surface of the *opus signinum* suggesting that the area had been left open to wear for some time. Pick marks (D2295) suggested that the tiles here had been deliberately removed rather than worn away. The cut was eventually backfilled so that it was level with the remaining herringbone-tile floor.

The second area of tile removal, on the northern edge of the nave, had left a linear trench, D2414, 18.3m long and up to 1m wide, along the whole edge of the herringbone-tile floor (Fig 72). The underlying *opus signinum* retained clear impressions of the removed tiles, D2415, indicating that the area had been immediately backfilled. The fill of this shallow trench must have linked up with D2439, the floor level which had been laid across stylobate D2468 to form a bridge with the north aisle (below). The severe wear on the tiles close to the stylobate indicates why this drastic repair had been necessary (see Fig 67). Once the tile rows began to unravel, the deterioration would have been swift. By removing about twelve rows of tiles and then immediately backfilling the cut (which preserved the tile impressions), further deterioration was halted. Of course, the tiles removed here could have been reused elsewhere in other severely worn areas.

The third area of wear at the east end of the nave lay at the western edge of the herringbone-tile floor. It consisted of two interconnected, roughly circular areas of wear, D2459 and D2460 (Fig 73). It is suggested that these two hollows result from wear caused by traffic down the centre of the nave which broke up the western edge of the herringbone floor when whatever had previously protected it was removed or had worn away. Because of the way in which the herringbone tiles were laid, in rows parallel to the colonnades, this would

lead to their rapid disintegration and unravelling from the west once individual tiles at the edge had been worked loose. Once the tiles were gone, a hollow, D2459, would have formed in the underlying *opus signinum*, eroding at the base and sides to reach eventually the mortar sub-floor. Another similar wear pattern, D2460, trending south-east towards the *frigidarium* doorway, had caused a secondary hollow to be formed with wear penetrating to the underlying Phase S *opus signinum*. D2421, to the north, may be the beginnings of a third hollow.



Fig 72 Trench cut along northern edge of nave to remove herringbone-tiles. Tile impressions in the underlying opus signinum *are still crisp, thus the trench must have been backfilled immediately. In the middle distance is a wear pattern established over a stylobate lying between two columns, at a)–a). Wear has been intense enough to erode the herringbone-tiled floor here causing the rows to unravel*



Fig 73 Two interlinked areas of wear marked a) and b) at the east end of the nave caused by traffic moving along the nave towards the Old Work in the background

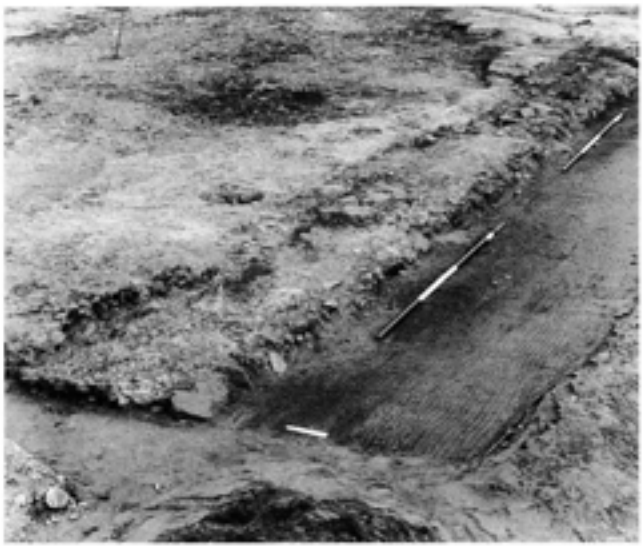


Fig 74 Part of linear cut D1400, in southern edge of the nave. Some of the worn surfaces filling the cut are still in place, particularly near the further ranging pole

The second major area of repairs to the nave floor was in the central area along its southern edge. This was a linear feature, D1400, at least 37.6m long which coincided along much of its length with an archaeological trench (Fig 74). It was a shallow cut, crudely revetted in places with irregular lumps of mortar or sandstone rubble and then backfilled with dark earth and rubble (D1419 and D1420; Fig 75). Elsewhere, a narrow ridge of mortar, D2094, marked the limit of the feature (Figs 76a–f). The eastern end of the feature had been cut into the sloping edge of the *opus signinum* foundation of the herringbone-tile floor, leaving pick marks in the underlying Phase S *opus signinum*. The purpose of the cut was not readily apparent but it may be suggested that it was a measure taken to level the nave floor, which had subsided in the centre. Throughout the building, it was evident that there were continual problems of subsidence and settlement. As the floors were not integral with the stylobates of the colonnades, subsidence in the centre, inevitably more pronounced in the nave, would cause the floors to detach themselves from the stylobates, leaving the edges higher than the centre. Cutting away these edges would have restored the level of the nave.

Another similar area of major repair was in the north-west corner of the nave where both tiles and the sub-floor had been cut away (D2374). The resulting wide shallow rectangular trench (Fig 77) had been filled with D2284, a compact layer of silt, with pebbles, ceramic tile, and mortar chips but also embedded in this layer were worn sandstone blocks, which showed that traffic had still been heavy over this surface.



Fig 75 D1400 showing crude revetting of the edge of cut with rubble and, immediately above label, worn rubble surface still in situ *in the fill*

This probably relates to the creation of Building 61 just to the north in the neighbouring aisle (below).

There was a scatter of quite large postholes particularly in the centre and at the east end of the nave. Their stratigraphic position was sometimes uncertain, and some may have been of Phase V rather than U, but in view of the uncertainty, they are here all assumed to be of Phase U. It must be said at once that this does not affect the interpretation of their function which is equally obscure.

The postholes varied in diameter from 0.5m to 0.2m and in depth from 0.1m to 0.75m. Some had stone packing, which had been left *in situ* and one at least, D1881, had clearly contained a post 0.2m square; the postholes had ultimately been filled with mixed earth with pebbles and larger stones. There was evidence in some cases that the posts had been cut off flush with the floor and rotted *in situ*. Detailed descriptions of all these postholes will be found in the Level III archive.

What is baffling is that the postholes make no coherent patterns so that it is impossible to do more than speculate on their function. The only group which seems to be related is the trio cut into the herringbone-tile floor near the east end of the nave (D2443, D2343, D2451). These were roughly equally-spaced in a line across the nave and may therefore represent a partition of some sort. The other postholes seem to be individual and almost randomly scattered. However, since they are all cut into floors which must have been in use and would have held substantial posts, they must have had an important and not very temporary function.

The suggestion that they are for scaffolding can almost certainly be discounted as they do not make the patterns necessary for a scaffold, nor would it be necessary to sink scaffolding into the ground. It would be more efficient and less destructive of the floors to use framed construction especially as scaffolding is by definition intended to be temporary. In addition, the roof trusses of the nave must have been at least 13.4m above the floor. Scaffolding on this scale must be massive to be in any way safe. By contrast, scaffolding for repairing, plastering, or painting the walls would almost certainly be mobile or easily dismantled, and not set into the floor.

The function of these postholes and the posts they imply, therefore remains obscure. It is possible that they may have been the more permanent elements of partitions or something similar, but, if so, the partitions have left no other detectable trace. If there were partitions they raise interesting questions of their function, which would seem to imply a radical change of use for the basilica. We cannot know.

The north aisle (Figs A41–A44)

In this phase, if not before, the mosaic floor of Phase S had broken up and been removed. Once the mosaic had begun to deteriorate, this would have been a very swift process. There were two principal causes for the breaking-up of the floor: wear and subsidence. The two main areas of wear occur in the vicinity of the two doorways in the north wall. Once the mosaic had gone from these areas the *opus signinum* bedding beneath was used as a floor, becoming smooth with wear, until it too wore away, exposing the underlying mortar raft, D1176. The wear patterns show the direction of the traffic movement within the basilica, fanning out from the central doorway in the north wall toward the doorways in the nave at the west end, the latrine doorway, and the *frigidarium* to the east (Fig 78). The wear pattern associated with the east door led principally to the *frigidarium* doorway.

The second cause of damage to the mosaic flooring, subsidence, could be seen in particular at the eastern end, especially in panels G and H (see Fig 55, and Figs A34, and A36), though there was also subsidence at the west end, for example under the Phase V wall D339. Once subsidence had started it was clearly impossible to preserve or repair the mosaics, and some levelling of the floor became essential, with the filling-in of hollows and the laying of further repair patches and floors. An extensive floor of compacted beaten earth, which had been badly mutilated by later disturbances, was laid over much of the eastern end of the aisle (D673–D679). Smaller pebble patches (D2439, D661, and D655) were laid in areas of greater wear, for example on stylobate D2468.

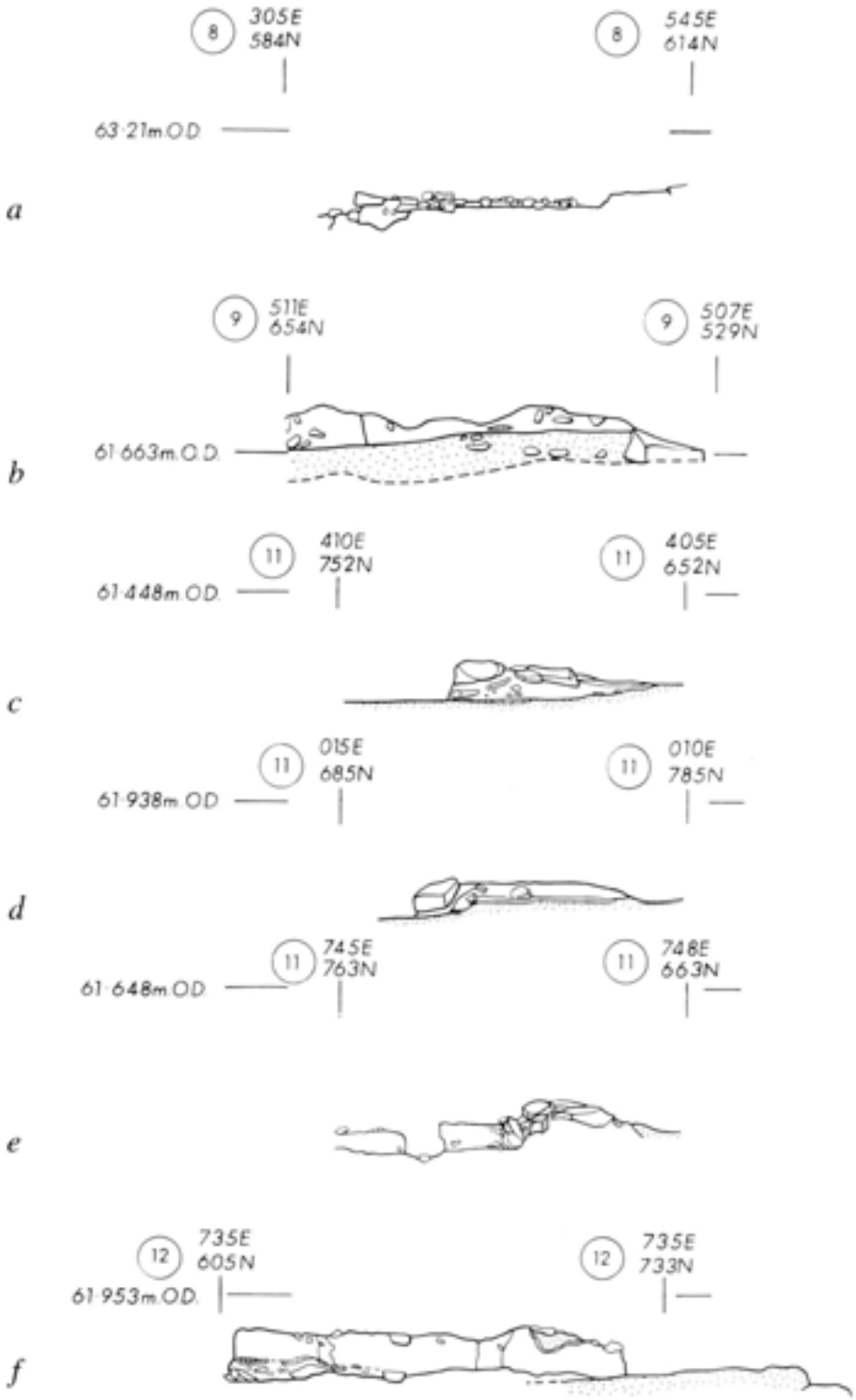


Fig 76 Sections a: South-facing section of cut D1400, at east end where it cut into Phase T herringbone-tiled floor; b–f: West-facing sections of cut D1400

Between the two doorways in the north wall, the major subsidence affecting mosaic panels G and H was initially covered by a rubble and silt dump, D1075, which was part of a larger overall levelling dump (D1077, D938, and D944). The good preservation of the mosaic shows that the collapse was sudden. Finer beaten earth floors were laid over the subsidence as it gradually continued to sink.

In the vicinity of the central doorway, more extensive patching was necessary. Three main irregular patches of beaten earth, with some crushed tile and small pebbles set in their surfaces, were identified (D1324, D1323, and D1325). Nearby was D1366, a fine pebble floor with inclusions of tile chips set in a sandy loam. A patch of worn rubble and pebbles, D1317, which lay close to the basilica north wall was

very heavily worn, and more than any other context confirms the presence of a robbed-out doorway here (see Fig 57), the patch having been made necessary by the wear and possible disintegration of the underlying herringbone-tile floor.

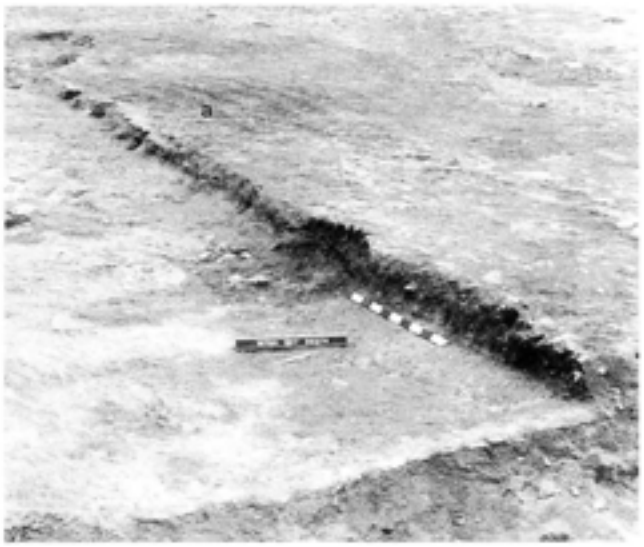


Fig 77 North-west corner of nave showing trench cut to remove floor along its northern edge, filled with dark earth and rubble, subsequently worn. At a) the extremely worn herringbone-tiled floor can be seen

The western half of the aisle was not refloored, the only new features being some postholes of uncertain use and a large shallow sub-rectangular pit, D791, cut through the floor. The base of this pit was 200mm below the floor and was very uneven as it consisted of the underlying mortar raft. The fill was of dark sandy silt with large fragments of *opus signinum* and pieces of unworn sandstone. The larger *opus signinum* pieces were collected and when reassembled within the pit fitted only its edges (Fig 79), suggesting that whatever had stood in the pit had been dug out by picking around it. This in turn suggests that a large fitting stood here which could not simply be lifted out. If the basilica were a present-day church or cathedral, one would suspect that a tomb or statue had stood here. There is no way of knowing what was here in antiquity. It may have been a stone or lead trough or something similar, though there was no sign of a drainage channel. The problem must remain unresolved.

At the extreme west end of the aisle there was a small group of postholes. Three of these, D862, D888, and D884, lay on or very near a laying-out line for the mosaic panel here, suggesting that a wooden partition had been put up creating a small room in the corner of the north aisle whose eastern wall ran north from the first column along the edge of the first mosaic panel



Fig 78 West end of north aisle showing wear pattern in floor which has worn away opus signinum *on the south side of the floor exposing the underlying mortar raft and, to the north (right) the remains of the* opus signinum. *The wear pattern tapers away to the west as traffic is trending towards the west doorway (close to the aluminium scaffolding)*

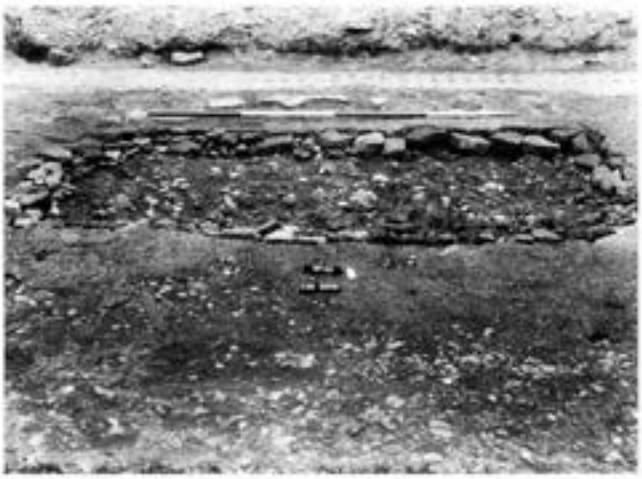


Fig 79 Rectangular pit, D719, cut into opus signinum *floor of north aisle, looking north. Lumps of* opus signinum *found in the fill have been replaced at the edges of the cut but clearly the original feature was much larger and was apparently bedded directly into the mortar sub-floor*



Fig 80 Detail of junction of cross wall of annexe and its east wall showing bond at offset level. Above the cross wall is the later narrower rebuild of Phase U



Fig 81 South room of annexe, showing interlinked pits and gullies, Phase U

(Building 61; see Fig 58). Within this room there were three other small postholes, D912, D590, D920, and a larger one, D796, which made no obvious pattern though the extreme end of the aisle had been completely destroyed by an archaeological trench which may have removed other structural evidence which went with them. The purpose of this small inserted room is not clear: it may have been a door-keeper's lodge or something similar.

The annexe (Figs A23 and A45)

Developments in this phase were limited to the southern room of the annexe and, although it is impossible to prove stratigraphically, it is seems likely that by the beginning of this phase the cross wall between the northern and southern rooms, demolished probably in Phase T, was rebuilt. The rebuilt wall, B271, was narrower than the original, being only 0.6m wide and was on a slightly different alignment, but was similarly constructed of squared sandstone blocks with a mortared rubble core (Fig 80). Only one course survived and that not completely, having been removed at the western end in Phase W1.

The adjacent floor level had been raised by a series of dumps and patches of hard-core, mortar, tiles, and rubble. In the northern half of the room was a series of inter-connecting pits and gullies, eg B640, which may



Fig 82 South room of annexe, stake-hole structure Building 74 and, in background, pits and gullies, Phase U

have been for some industrial use, though what this was is unknown (Fig 81). It is possible that postholes B656, B652, B659, and B657 may have supported a structure of some kind but this also is quite uncertain. East of this complex of pits and gullies was a series of stakeholes, B649, which is restored as a sub-rectangular wattle enclosure (Building 74) for storage or something similar (Figs 82 and 294). This structure, whatever it was, had soon been removed and a hearth, B621, constructed in the area. A similar but smaller wattle structure stood immediately east of Building 74. There was another small group of stakeholes, B664, further south, but since later trenches had cut away much of this area, their relation with the northern group is not known.

Dating

Little dating evidence was found in this phase but small quantities of Oxford, Nene Valley, and Calcite-gritted wares indicate a late third to early fourth century date. The deposits in the annexe were noticeably earlier (including a Durotrigian coin, for example) but were probably derived from dump levels elsewhere.

Phase V: repairs (Fig 83)

The south aisle (Figs A46–48)

In this phase the south aisle received a series of refloorings at the east end by the Old Work, and some patching at the west end. In between these areas, in the centre of the aisle, a mass of postholes and stakeholes had been cut into the underlying herringbone-tile floor (see Fig 64).

The area round the doorway in the Old Work was extensively refloored during this period, usually by laying down an overall initial floor make-up and surface which was then patched as it wore away, until a new floor level became necessary. The materials used for the levelling-up dumps and the successive resurfacings were very varied and had clearly been derived from many sources since they included fragments of *imbrices*, *tegulae*, and *tubulati* tiles, the last of which cannot have come from the baths basilica itself but must be from demolished buildings elsewhere. As in so many other cases in the later stages of the baths basilica's development the hard-core used contained every variety of earth, silt, pebbles, and broken-up building materials, some probably recycled more than once.

The initial make-up, D2371, was covered by an area of flooring in fine pebbles near the east doorway (D2348) and a larger pebble floor, D2298. This was subsequently patched several times, in many differing materials, before being replaced by a new overall floor D2175, which had an outlying patch, D2290, by the central doorway. Sealed beneath pebble floor D2175 on its southern edge, were one or possibly two pipe trenches similar to those excavated here in Phase W. These survived in two separate sections, D2332 and D2221 to the east and D2192 and D2194 to the west. The fills of these trenches were generally of sandy silts and included water-worn material, perhaps indicating that there had been wooden pipes here which had silted up before rotting away. The two pairs of pipe trenches are not in alignment, as can be seen from Figure A48, so that they may, in fact, represent four, rather than two, pipes.

Clearly the repeated repair and renewal of the floors here show that the doorway in the Old Work was in

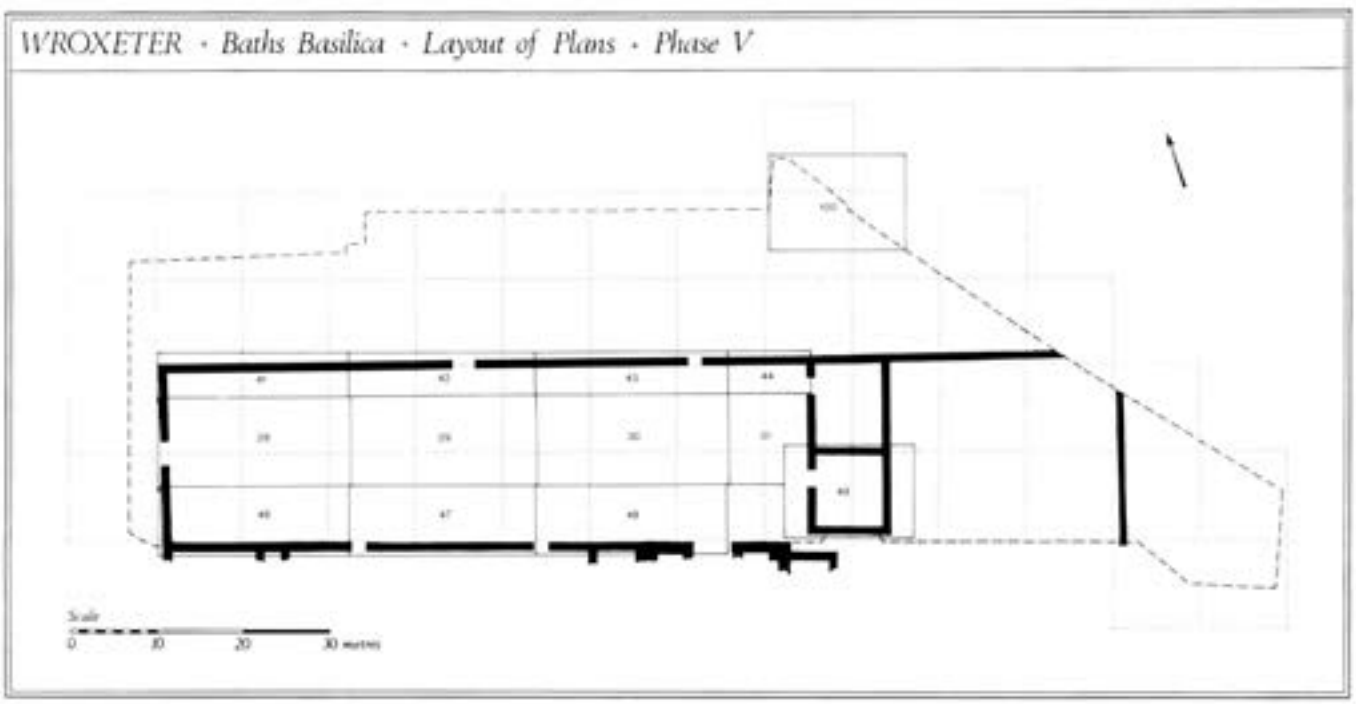


Fig 83 Layout of loose-leaf plans, Phase V

constant use at this time, as, apparently, was the central opening in the south wall of the aisle, where the area immediately to the north of the threshold had been levelled and surfaced in conjunction with the floors nearby using the same materials. This activity culminated in several small areas of pebble surface (D2006, D2120, D2131, and D2122).

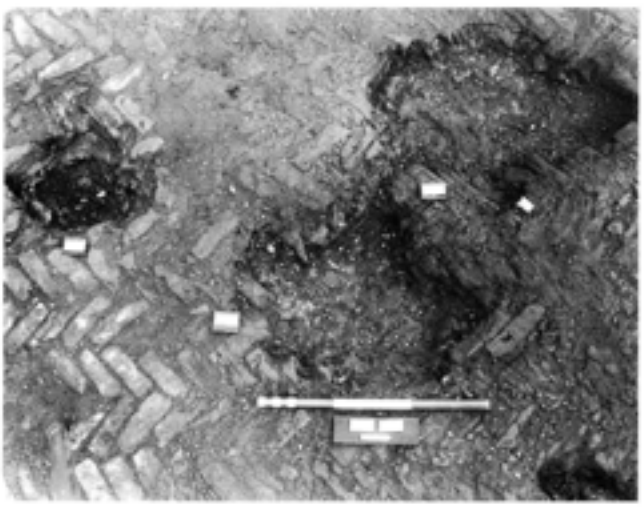
Further west still, in grid 12, a large pebble patch, D2306, was laid, presumably to repair the herringbone-tile floor where it was becoming worn by people crossing diagonally from the west end of the nave, through the colonnade towards the western door to the baths portico and the public latrine south of the basilica (Fig 84). There were also patches of silty make-up further west, up to the basilica's western wall, suggesting the patching may have been more extensive. Some of these, particularly in the corner of the building where wear would be least, may be natural accumulations.



Fig 84 Southern edge of nave, a localised worn sandstone patch, D1885, repairing a hollow-way leading into south aisle and latrine beyond (indicated by the fence), Phase V

Between the central doorways in the south wall was an extensive series of small postholes and stakeholes which had been cut into the herringbone floor of the aisle. None of them was of any depth and none showed post-pipes. There was also a number of larger, rather amorphous holes which seem too shallow to have held posts. Often the phasing of these various holes was not clear. Some were overlain by the floors put down in Phase W, but others were sealed only in Phase Y. However, when a comparison was made of the two groups of holes on the basis of the level at which they had become sealed, there was no clear differentiation. It is suggested that all the holes were dug before Phase W. It was clear, however, that although the holes do not form any immediately obvious patterns, they do fall into two distinct categories with either worn or unworn edges. This suggests two phases of use with the worn holes being earlier and raises the possibility that one set of holes might have belonged to Phase U and the other to Phase V. Given the uncertainty in phasing, both groups of holes have been discussed together.

Those which had sharp, unworn edges as if they were newly cut into the herringbone tiles are shaded grey on Figures A46 and A47, and those with heavily worn edges as though they had been subjected to traffic wear over a considerable time are shaded black. It is significant that neither the worn nor the unworn postholes appear to have been deliberately back-filled, the fill in them merely representing a gradual accumulation of silt. Consequently, all were filled with relatively soft dark earth with some pebbles and tile fragments, and it is for this reason that the edges of the worn postholes have been rounded, presumably by feet. This wear itself is remarkable as the tiles are very hard, and it must therefore have taken a long while and very heavy traffic to smooth their edges, as shown in Figures 85a and 85b. These postholes must have made the floor surface very uncomfortable, if not dangerous, to walk on, and it is puzzling that they were never filled with pebbles or broken tile and levelled up to the surrounding surface.



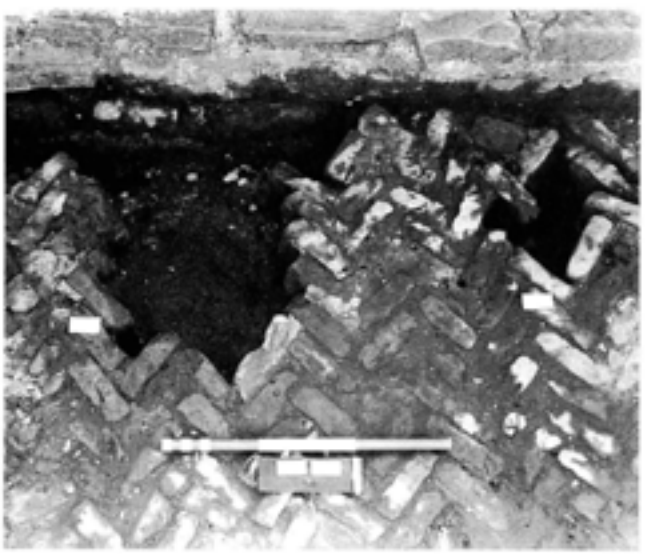


Fig 85 above: part of herringbone-tiled floor in south aisle showing postholes cut into it at a later date. The edges of these holes have become worn by traffic after the posts were removed; below: postholes with unworn edges cut into south aisle herringbone-tiled floor

As can be seen from the plan (Fig A47) neither series of postholes makes a coherent pattern, but it must be significant that, with one exception, D961, they are confined to the area between the two doorways and are bounded on the east by the pebble patches D2120, D2122, D2130, and D2131. It will also be seen that lying centrally between the two doorways was a large D-shaped hole, D918, abutting the basilica wall. This averaged 80mm in depth and had worn edges, as did an extension D999 on its north-western side. Its function is not clear.

What can we make of these two groups of postholes? One characteristic which the distribution of both groups shows is that most, if not quite all, of them lie away from the wall by about a metre. This might suggest that they were for scaffolding, except that usually it is not necessary to insert scaffold poles, with their essentially temporary nature, into a hard surface, especially a floor which may be needed immediately the scaffolding is removed. Scaffolding is almost always rectilinear in plan whereas these postholes are disposed semi-randomly, both groups concentrated in a loose band between one and two metres from the wall with one or two lines for example, D1049, D1050, D1051, D985, and D987 (worn holes), and D1058, D1054, D1007, and D974 (unworn holes) crossing the aisle from north to south. Experience of postholes and stakeholes on this and other sites, makes it clear that though almost all concentrations of small postholes and stakeholes are structural, some defy detailed interpretation. This seems to be the case here. The fact that they are confined within a rectangular area between the doorways, and that they form generalised, though not specific, patterns supports the view they are in some sense structural, though perhaps not the foundations of 'buildings' as such, and we can only suggest some temporary structures (Buildings 72 and 73) of unknown function in two phases, separated by a period long enough for the first phase postholes to become heavily worn.

The nave

The evidence for this phase consisted of a series of minor patchings of the floor, most of which were found in the central and western areas, though there were a few patches at the east end. The patches and repairs consisted, as almost always, of mixed rubble, pebbles, tile fragments, and earth. There does not appear to have been a concerted effort to refloor large areas at one time and the patches all had the appearance of an *ad hoc* response to localised wear. One of the more important patches was D1885, a dump of rubble filling a subsidence in the southern half of the nave in grid 12 where a hollow-way had been worn by those crossing to the west door in the south wall (see Fig 84). This replaced an earlier patch, D2305, of Phase U.

The north aisle (Figs A41–A44)

Only one area of reflooring was found at the east end of the aisle. This was D2392, a sandy dump which was associated with the stylobate D2468, already identified as a major area of wear. Further west, continuing subsidence of the mosaic panels G and H caused another beaten earth floor patch, D825, to be laid over D1113, the last Phase U patch.

The main reflooring in the north aisle was concentrated further west, in the area of the central doorway in the north wall of the basilica showing that it remained in use. Initially, the area was levelled with mortar dumps D1287 and D1175, the latter containing ox skulls and other bone, perhaps showing deliberate disposal of butchery waste (*see appendix 8*). Several floors were laid on these dumps, most of beaten earth (D1184, D1234, D1262, D1263, and D1274), but also including some pebble floor patches (D1196 and D1215) which were laid near the doorway. The function of two large postholes nearby (D1258 and D1281) is unknown. There are no others in the vicinity, and by themselves and at 45 degrees to the line of the aisle, they could hardly have supported scaffolding.

At the eastern end of the aisle there were a number of postholes lying roughly east to west. While they appear at first sight to be in rows, this may be illusory since this end of the aisle was badly disturbed by archaeological trenches most of which were longitudinal, so that many postholes may be missing from the pattern. It is not clear therefore whether we have here the remains of a post-hole structure, or posts connected with the repair of the basilica. On balance the variety of sizes of posts, and the lack of straight lines, does not favour interpretation as a building. (Though see the similar and even more conflicting evidence in the south aisle, and in the nave, above.)

At the far western end of the aisle two fragments of a clay bonded wall stood 4.5m east of the basilica's west wall (Fig 86). The larger, southern fragment D339, was four courses high and was 1.5m long and 0.45m high. The northern section, D831, was only one course high and 0.4m long and had not survived to its full width. The coursing of the masonry, which was of roughly squared blocks of sandstone, showed clearly that the underlying *opus signinum* floor had subsided before the wall was built as the lowest courses were used to level-up the depression and thus allow level coursing to start at the third course. The eastern face of the wall was much less accomplished than the western, but it was clear that it had been rendered with clay and that the irregularities would not have been visible. Presumably this wall was a replacement for the Phase U wooden partition, thus rewalling a long-lived room, Building 61, at the west end of the aisle. The gap between the two fragments of wall may have been a doorway, though the principal entrance may have been from the nave since it is also possible that the whole southern side of the room was open.

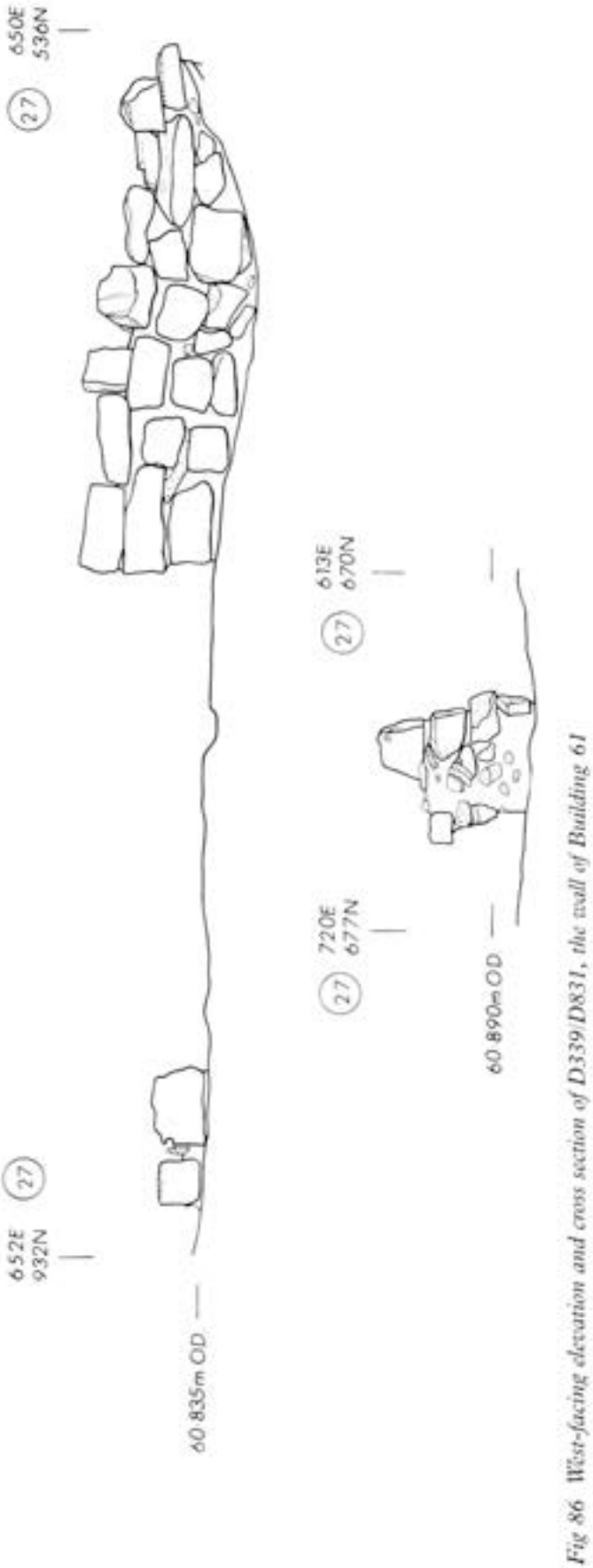


Fig 86 West-facing elevation and cross section of D339/D831, the wall of Building 61

The annexe (Fig A49)

In this phase changes were confined to the southern room and it is assumed that the northern room continued in use as it had been in Phase U. In the southern room, however, a new room (Building 69) was constructed in its south-eastern corner (see Fig 112). Two new walls, B212 to the north and B259 to the west, were constructed in a foundation trench, B677, which was about 1m wide and 150–250mm deep, cutting the underlying Phase U dumps and the mortar floor beneath. The trench was then filled with a layer of medium-sized cobbles and lumps of limestone on which a levelling bed of mortar was laid. The wall itself was of coursed squared sandstone blocks set in a cream-coloured mortar with a mortared rubble core. Both walls were butt-jointed against the original annexe walls with no attempt made to key them in. Only one course of the northern wall, B212, remained but three courses of the west wall survived. The north-west corner of the room had been removed by an archaeological trench but there was probably a door here, suggested by wear patterns (indicated by arrows) leading from the threshold B679, to the north-west. In the north-eastern corner of the room was a pit, B655, perhaps an inspection pit dug to examine the junction between the two walls. The function of the new corner room was not clear, but it may have been some sort of office.

The foundation trench fill, the mortar base of the wall and the ?inspection pit were all then sealed by a beaten earth floor (B602 and B603) which was found both inside and outside the corner room. Close to the threshold of the doorway in the outer room was an area of worn rubble (B618) which included two pieces of mill-stone, one of them complete with its iron axle (Fig 87). There had been a good deal of reflooring around the doorway, and the areas of floor which had survived a number of archaeological trenches were made up of a complex series of dumps and layers of very mixed materials.



Fig 87 Surface B618 in south room of annexe. In foreground, by scale, fragment of a mill-stone, with other half lying beneath rhomboid micaceous flagstone slate to north

Dating

Only three coins were found in this phase, the latest of which was AD 249–51. Clearly, these were residual, if the dating of Phase T is accepted (see above). A penannular brooch, which Donald Mackreth dates to the fourth century (*chapter 6, Fig 309, no 2*) and a very small quantity of Oxford, Nene Valley, and Calcite-gritted wares bear out a date firmly in the fourth century.

Phase W: the last reflorings (Fig 88)

The south aisle (Figs A50–A52)

Although the reflorings in the south aisle covered the whole floor area with the exception of the extreme east end, by far the greatest concentration of surfaces was seen at the eastern end of the aisle, in the region of the Old Work. Consequently, the following account will break the aisle down into two areas: east, and centre and west. At the east end there were at least three major subphases of reflooring with numerous patchings amounting to a total depth of nearly half a metre. An additional, and unexpected, complication, was the discovery of a sequence of water pipes associated with the floor surfaces by the Old Work. These pipes survived only partially, having been disturbed by later archaeological trenching. The central and western areas showed similar phasing but of considerably less complexity.

At the east end the first phase floor, D2175 *et al* (Phase W1), was a pebble and tile floor set in mortar which had been carefully laid to butt up against the existing herringbone-tile floor on the west. It was generally level but a hollow-way had been worn across it in the western half of grid 8 by traffic crossing from the nave to the *frigidarium*. There had been some localised patching of this floor, mostly associated with the hollow-way and the *frigidarium* doorway. Amongst these patches was D1679 in grids 7 and 8, three substantial areas of mortar/plaster which were quite soft when first found. As the layer was thought to be too soft to be a floor, it was suggested that it might be the remains of the lime-washing of the walls, dumped or fallen here. Within the lime were some pieces of straw and wood, a mixture also found in D1825 in the nave (below) suggesting that there had been repainting of the basilica in this phase.

To the west of the patches were two postholes, D1917 and D1918. Both were about 0.2m deep and filled with the same rubble as the overlying layer suggesting that they had been rapidly backfilled at the end of this sub-phase. The function of these holes is unknown. Between the Old Work and the central doorway, there was a further small area of reflooring, D1916, identical in character to floor D2175.

The pipe trenches discussed below may not all belong solely to Phase W1. Indeed, it seems most unlikely as the highly complex sequence uncovered hints at several phases of use. Nonetheless, as the overlying stratigraphy had been removed by two archaeological trenches, all will be dealt with here. It is difficult to account for the presence of pipe trenches running in front of the Old Work. Initially, the cuts detected here were thought to be the work of earlier archaeologists digging along the north face of the wall but in 1984 it became apparent from the fills that these represented a sequence of intercutting pipe trenches. Since the pipe trenches lay above the mosaic of Phase S, they must be later than both that phase and the next, which retained

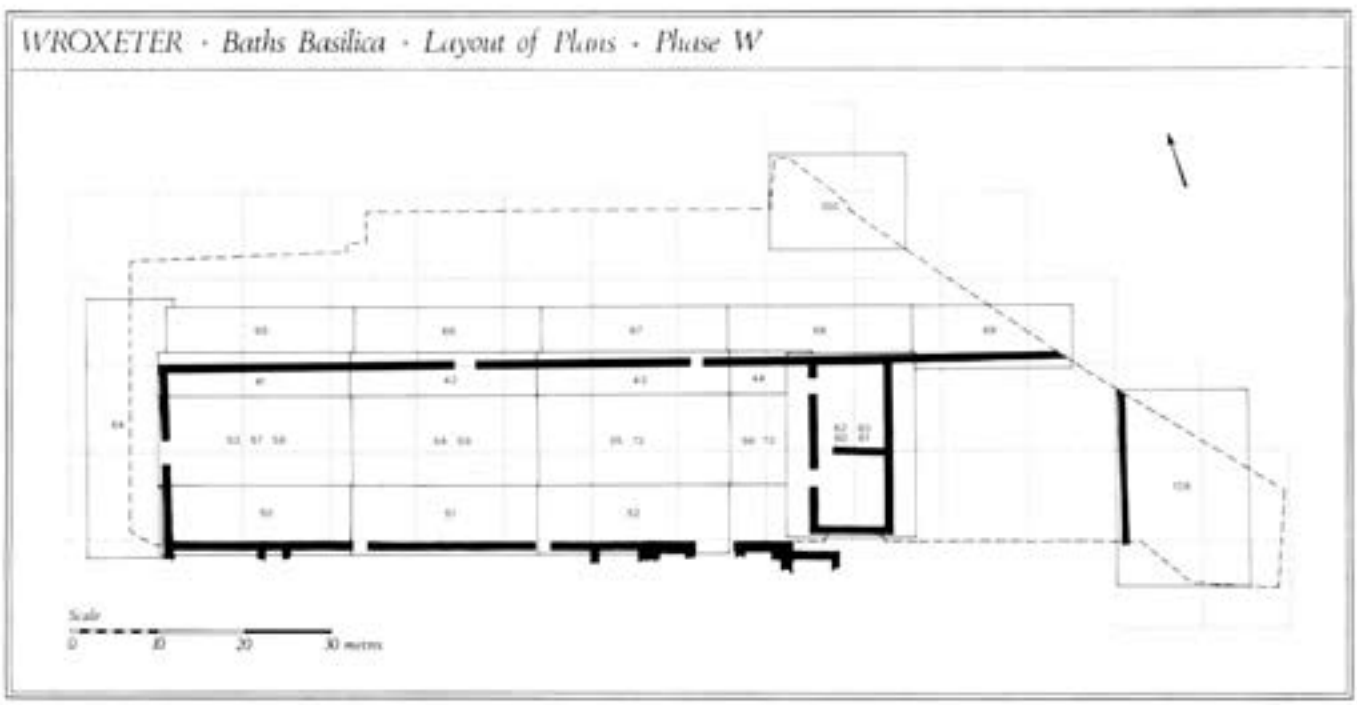


Fig 88 Layout of loose-leaf plans, Phase W



Fig 89 Trenches for water pipes at the foot of the Old Work after excavation. The large stone blocks may have been used to support the pipes in place

the original floor level. It is suggested that the earliest should be tentatively attributed to Phase V (see above). The south aisle pipe trenches might be continuations of two pipe trenches excavated by Graham Webster which were found south of the annexe, outside the north-east corner of the eastern cold plunge bath (Site 22, F.3102, F.3017; Jenny Hall, personal comment). The water might ultimately have come from the pipes which ran across the baths precinct, through a gap in the stub wall, B285, between the Old Work and the annexe, and along the Old Work to the *frigidarium* doorway where perhaps a spur took a pipe into the *tepidarium*. Such a pipe may have supplied the *labrum* located at the junction between the *frigidarium* and *tepidarium*, where the remains of a masonry pier and associated tile-lined drain still survive. West of this spur, the main pipe would have continued along the northern face of the Old Work and was then presumably routed through the wall into the baths via an exit channel roofed with a stone lintel at the western end of the Old Work (see Phase S, above). Since B285, the gap in the wall, the *labrum*, and the exit at the west end of the Old Work are primary features in the baths, the water pipes associated with the Phase W floors must reflect an original arrangement of the water supply.

The sequence of pipes was complicated but relatively clear though they had been cut away by archaeological trenches into detached western and eastern sections. In the western section three basic trench lines could be identified. The earliest showed as fill D1972, generally 0.2m from the Old Work. Overlying this was D1930, in the upper fill of which were several large sandstone blocks up to 0.2m square (Fig 89). It was noticeable that these blocks curved towards the foot of the Old Work, joining it at a rough break in the offset. This 1m long break, shown on obliques of the wall face (Fig 90), is odd in that although the offset is clearly cut away, the gap is still tessellated. Presumably a small area of the mosaic border was added after the pipe trench had been cut. Two courses above the centre of the gap is an isolated bonding tile. It is possible that this tile covered a hole through which a pipe passed into the plunge pool on the other side of the wall. Another pipe trench, D1896, was visible as a linear area of dark brown silty loam containing many small inclusions of tile chips and sandstone pieces whose line was continued to the east as D1925. All three pipe trenches were cut by a major pipe trench, D1913, which showed various fills along its sinuous course. No evidence was seen for any box-pipe sections or iron pipe-collars and it was sealed by D1899, a patch of mortar thought to represent an area of the overlying floor which had collapsed into the disused pipe trench.



Fig 90 Offset at base of the Old Work showing a section cut away to allow a water pipe to be passed through the wall and into the plunge pool beyond. The mosaic border has been relaid to cover the cut edges

To the east there was evidence for four pipe trenches (Figs 91a and b). The two lowest, D1812 and D1924, lay either side of D1926, a narrow spine of sandy loam which had been cut on the north side by a third pipe trench D1914, whose primary fill was D1925, which equated with D1930 to the west. Sealing this were two sandy fills, D1873 and D1874, also equated with D1930. Above D1873 lay several smaller patches of material culminating in D1769, which was a

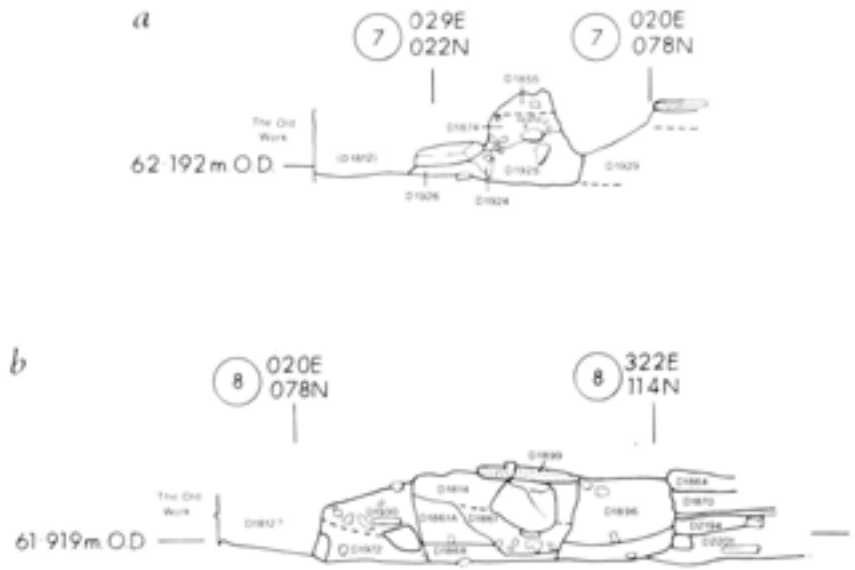


Fig 91 Sections a: east-facing section of the water pipes just to the north of the Old Work in grid 7; b: east-facing section of the water pipes just to the north of the Old Work in grid 8. D2201, D2194, D1870, and D1864 are floors. D1899 is a mortar patch in a floor repairing a point where the floor has collapsed into the underlying pipes. Four pipe trenches are visible: the two earliest are D1972 and D1896 which may be contemporary. Both are cut by D1868 which is then cut by D1861. D1812 may be another pipe trench

sandy layer 0.25m thick and 2.6m by 0.6m in extent, iron-stained and containing many small pebbles, which presumably represented disturbed pipe-trench fill.

Sealing the Phase W1 postholes and areas of patching was a dump layer of loose rubble and mortar which formed the foundation for the next sub-phase floor (Phase W2) which was a pebble surface D1680, similar to the Phase W1 floor. It was constructed from a number of interleaved pebble surfaces and patches, the largest of which was D1394. At the western end in particular, where the hollow-way persisted, much of the surface had eroded, exposing the rubble of the underlying make-up to wear. To the north of the pipe trenches there was a marked ridge in the floor which had to be patched more frequently than the areas around it.

This worn floor was extensively patched, chiefly in the region of the *frigidarium* doorway (Fig 92). The usual sequence of make-up and flooring was found although the actual materials used varied considerably. The most durable make-ups were mortars but there were simpler dumps of loose material. The surfacing pebbles were, on the whole, quite fine although some larger pieces of stone were included to increase durability.

The area around the central doorway in the south wall was also resurfaced, with a pebble floor, D1549, on a thick make-up dump, bringing the floor up to the level built up around the *frigidarium* doorway. This floor was also reinforced with larger pieces of stone and tile, and equates with D1394 to the east. The Phase W1 pebble floor, D1916, projected from beneath this floor and would have been used with it. These pebble surfaces were also patched, as with the western series, but not as often.

The last major reflooring in this area, D1006, was of variable character with a dense pebble surface at the eastern end and predominantly worn rubble and pebble elsewhere. The ridge along the southern edge of the aisle was still prominent in this phase (W3). Patching generally occurred outside the two doorways. Eventually, the whole floor was levelled with a thick dump of mortar (D779) covered with a pebble surface which had survived only patchily and was therefore given several numbers (D818, D783/D95, and D30). The only repairs to this surface were found in the area of the doorway to the west of the Old Work.

Between the complex series of floors and patchings at the east end of the aisle and the moderately complex area at the western end (see below), it was clear that for much of its length the herringbone-tile floor of Phase T



Fig 92 Build-up of pebble surfaces on the flagstones in the region of the frigidarium doorway, Phase S. The uppermost pebble floor is of Phase W1

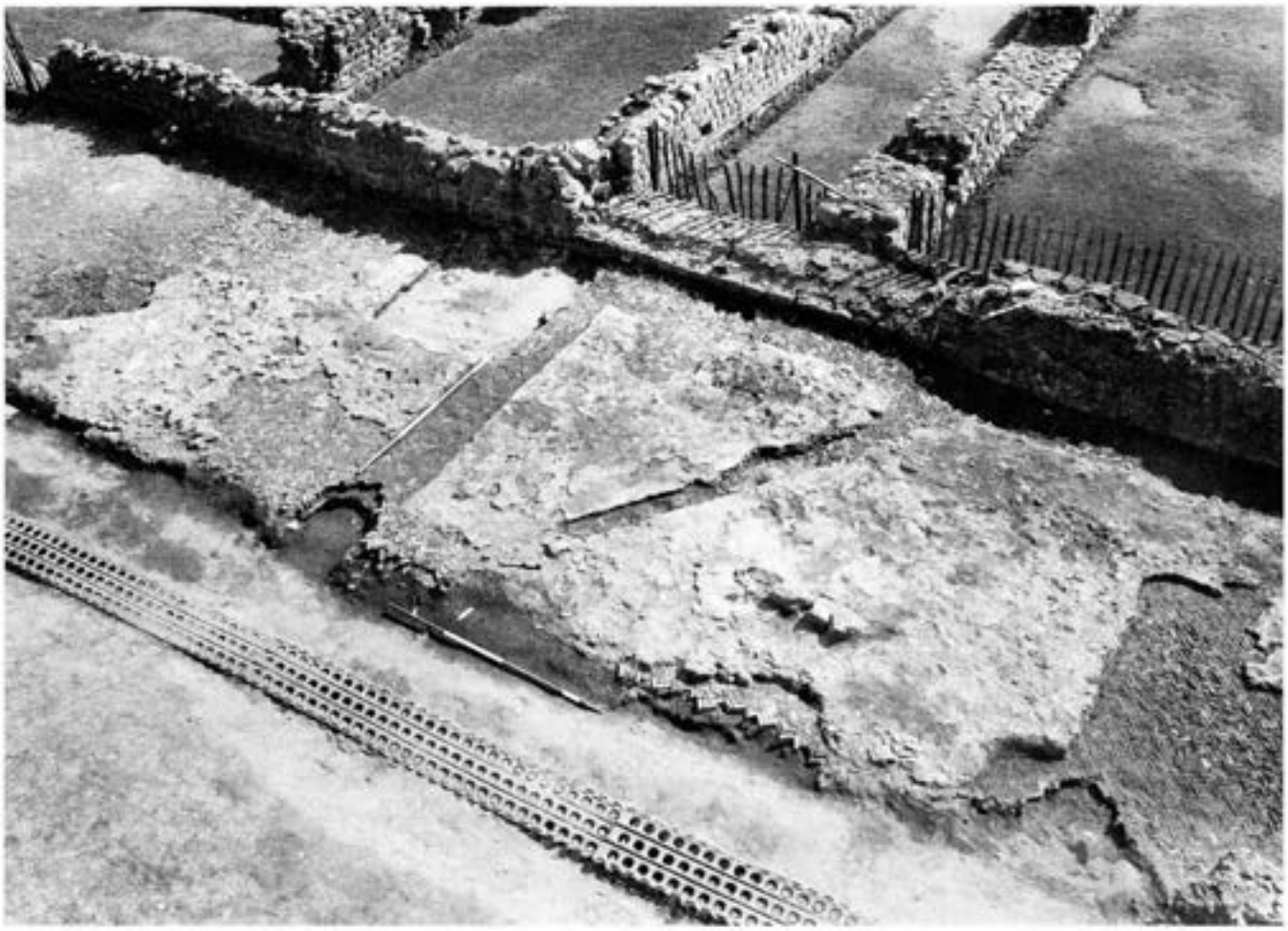


Fig 93 Crude mortar floor laid at the west end of the south aisle in Phase W, looking south-east

remained in use. One small area of durable reflooring was noted (D905/D1114/D1078) west of the central doorway.

At the west end of the aisle, an extensive mortar floor was laid (D956, D97, and D978). Its surface, although generally level, was abraded and pot-holed, presumably from wear (Fig 93). It lay on a make-up (D957 and D977) of fresh, crushed red sandstone with occasional inclusions of bone, some pebbles, and tile fragments. This layer provided an important link with the foundations of the floor levels in the north aisle (see below). Several features cut this surface. The largest was D924, in grid 12, a linear slot unlikely to be structural given its oblique angle to the south wall. It may have represented a large plank or other piece of wood which had been incorporated into the mortar surface and had subsequently decayed or been removed for reuse elsewhere. Immediately to the west of D924 was D975, a line of three worn sandstone blocks whose purpose was also unclear. Further west were several cut features including shallow pits, D934 and D936, and other smaller holes (D939, D942). All were shallow and are unlikely to have been structural. On the northern edge of the floor a dump of rubble, D934, showed signs of burning which indicated that this might have been a setting for a brazier.

In the middle of the aisle against the south wall was a series of overlying dumps all similar in character, consisting either of loosely compacted areas of light yellow-pink medium-to-coarse sand with inclusions of fragments of red sandstone and micaceous flagstone and ceramic tile or of patches of silt. All had the same surface profile, sloping down from south to north (see Figs A3 and A4). It was thought that these deposits may be a wind-blown accumulation during a period of abandonment of the aisle. This interpretation was based on their location in the angle of the wall and floor, the fineness of the silt, which had few inclusions and generally no rubble, the lack of an identifiable solid floor surface (assuming they had been make-up dumps), the slope, and the fact that each succeeding layer was wider than the one below it, suggesting the material was gently drifting down the slope of the underlying dump.

This hypothesis can be rebutted on several points. First, an accumulation solely through natural agencies is impossible as some large inclusions were found within the dumps, primarily painted plaster which, when examined, did not derive from the basilica itself and must have been dumped here along with the other material. Second, although the dumps did increase in width in most cases, there was at least one instance

(D758) where the higher dump was narrower than the previous one. Third, despite the fact that this was not an obvious floor surface, it can be demonstrated that areas in the vicinity of doorways were surfaced in harder materials, with pebbles at the central door and mortar at the western one. It seems that these dumps were purely to bring the level of the centre of the aisle up to that of the refloored east and west ends. They were in an area which received relatively little traffic, where a heavy-duty surface was not necessary. Their uneven survival would thus be due to heavier traffic on the northern half of the aisle wearing away these soft dumps.

The nave (Figs A53–A56)

This phase in the nave was represented by a great number of successive floorings, repairs, and patches. Activity was centred around the west doorway, the main entrance from Watling Street, and at the east end where traffic would have been passing between the doorways in the north wall and the *frigidarium*, with the central area of the nave needing little repair. Nonetheless, it was apparent that all the surfaces found represented one phase of activity which could be divided into up to three sub-phases. To describe the floors the nave has been broken into three sections: east, centre, and west. The earliest Phase W floor at the west end of the nave was left *in situ*.

At the east end the floor (grids 20–22, 6–8, Phase W1) consisted of a fragmented pebble surface (D2367) which had been laid on a make-up layer (D2366) of mortar and earth. This covered the southern half of the nave. In places, the floor had been worn away to reveal both the underlying make-up and the herringbone-tile floor. The northern half of the nave floor was covered by a layer of sandy mortar over beaten earth (D2391). Between the two areas the underlying herringbone-tile floor was exposed, presumably as a result of wear. The northern edge of D2391 was partly overlain by a mortar floor D610, which spread from the north aisle across the stylobate block D2468 into the nave (Fig 94), linking the phasing in the two areas. Further west, the nave was floored with beaten earth, D2357 and D2356, and a pebble floor, D2378. Two other patches of flooring could be associated with this sub-phase floor. These were D2082, an earth and pebble surface, and D2191, a mortar and pebble surface. Clearly, the materials used varied considerably. There was no unifying overall make-up layer, as was the case in the north aisle.

Subsequently the southern half of the nave was treated like the south aisle, and the pebble floor was repeatedly patched in a bewildering variety of materials. These patchings showed that the bulk of traffic was from the west end of the building, but at least one hollow-way, D2137, was found running across the nave from north to south. The northern half of the nave was refloored several times with mortar, which probably relates to the mortar surfaces found at the east end of the north aisle, and showed clear north to south patterns of wear. At the end of this sub-phase an extensive beaten earth floor was laid over much of the north side of the east end of the nave (Fig 95). This had been severely eroded along the northern edge where more patching became necessary.

Included within the make-up dumps for these various surfaces was D2073, a dump of painted plaster. The plaster in this dump was of interest in two ways. First, it preserved its micaceous flagstone tile backing showing that it had come from a ceiling (Zienkiewicz 1986, 286), and second, the pattern on it was the same as that recorded on plaster from D1651 30m to the west (see centre section, below), showing that the make-up was coming from the same dumps.

To the west of D610, the floor across the north aisle colonnade, the surfaces were less complex. On the northern edge of the nave, the make-up dumps for the



Fig 94 Mortar floor D610 from the north-east. The floor originally covered the whole of the east end of the aisle (see Fig 107) and clearly extended over the north aisle colonnade stylobates into the nave



Fig 95 High level view of the beaten earth surface at the east end of the nave. Hollow-ways have been worn into the surface in various areas, eg by the ranging pole. The two areas in the top left corner are at a different phase

floors tended to be thicker to match the rising levels further east. One of these dumps was of crushed yellow and red sandstone, a make-up also used in both the north and south aisles. The original floor was patched several times then sealed by beaten earth into which was worn a north to south hollow-way. The south side of the nave was floored with beaten earth, D2317, which may have been surfaced with pebble floor. It became badly eroded in places and was eventually levelled with a dump of mortar on top of which were the patchy remains of a pebble surface.

The next sub-phase began with the laying down of an extensive beaten earth floor with a patchy mortar surface which covered nearly the whole east end of the nave (grids 20–22, 6–8, Phase W2) with the exceptions of the south centre and south-western corner which were floored with pebble patches instead. This floor was extensively patched, particularly in the centre of the nave and, more especially, along the northern edge. No patches were detected west of the surviving stylobate D2468. Materials again varied, from crude *opus signinum* to beaten earth, and attempts were made to fill the many hollow-ways which continued to be worn into the surface.

The last major reflooring at the east end (grids 20–22, 6–8), Phase W3 (Figs A58, A59, A72, and A73) was the most extensive of all the sub-phase floorings with a genuine attempt made to lay a complete make-up over the whole surface. This consisted of a thick layer of lumpy white mortar (D471, D1595, D1545 *et al*), numbered D102 when first exposed in 1975, whose surface was pitted and uneven (Fig 96). At the east end, the overlying surface consisted of a smooth white mortar floor (D470, *et al*) within which were tile chippings. It was worn into discontinuous patches, showing that considerable traffic was still using the nave. Further west, the make-up was surfaced with pebbles rather than mortar. At the eastern end the floor was subsequently patched with pebbles and, more usually, beaten earth, while at the western end patchings tended to be in a crude *opus signinum*, also seen in the central area of the nave (see D1651, D1610, etc below).

The final repair was found over the whole of the east end. The surface was levelled with a layer of brown silt, D407, overlain by a layer of hard white mortar, D379, which survived only as isolated patches on the surface. A western continuation of this layer was renumbered D1395 in a later season. It was not clear whether this mortar surface had been a floor in its own right or whether it merely represented a make-up layer for an overlying pink plaster floor, with inclusions of crushed ceramic tile, D378, which extended in patches over roughly the same areas as D407. Further west the brown make-up silt continued as the dump D1494, D1495, and D1418, which may be equated with D1569 in grids 8 and 9, 22, and 23 (see below). The surface on this dump, where it survived, was very fragmentary and patchy, as with D1395/D379 with



Fig 96 Part of the crude opus signinum *and mortar floors of Phase W3 at the east end of the nave*

which it was equated. Much of the dump was covered by small irregular patches of *opus signinum* with pebbles which had badly decayed (D1402), and over which lay small patches of mortar which may be equivalent to D378, the pink plaster.

The central area (grids 22–24, 8–10) is a transitional area between the east and west ends of the nave with a definite character of its own, not least in that no single overall layer could be distinguished. Instead, all that survived were small islands of archaeology sat upon the underlying pebble floor of the nave (D1999, Fig 97). These must once have been part of overall layers and so it can be assumed that originally they had been set within a loam dump so similar to those of Phases X and Y that when these dumps were removed, no observable change was seen other than where these different areas of material existed. Consequently the surrounding layers must have been entirely removed down to the next hard surface: the nave floor. Similar problems have been found in excavating other 'dark earth' deposits in late Roman contexts (Perring 1991, 78–81).

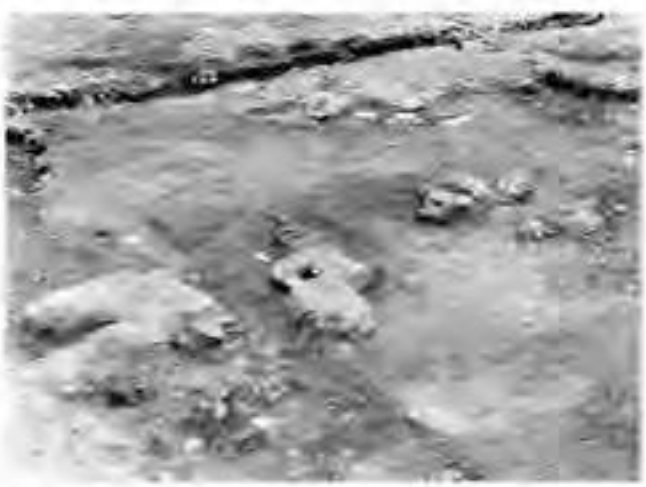


Fig 97 Isolated areas of crude opus signinum *flooring in the centre of the nave. Clearly, these cannot have survived for long in this way and must have been lying within an earth deposit which has been excavated from around them*



Fig 98 Phase W pebble floor at the west end of the nave. The stones in the floor have obviously been heavily worn, as has the threshold in the foreground

The remaining patches when viewed as a block, however, appear as a trapezoidal area in the centre of the nave. This shape is probably the result of diagonal wear patterns created by people crossing from the central door in the north wall to the *frigidarium* door.

The first phase of reflooring, equivalent to sub-Phase W1, was a beaten earth layer, D2362, which levelled the difference in height between the original basilica floor and the raised floor levels at the east end. Ten metres further west were the remains of a pebble floor which linked up with the Phase W1 surfaces at the western end of the nave. Between the pebble surface and the beaten earth floor the Phase S basilica floor was exposed, presumably a result of wear.

The next phase of activity, which may equate with sub-Phase W2 to the east, survived as a series of patches of sandy mortar over a large area of the nave floor, particularly on the southern side, with patches of silty material with pebble areas towards the west. Two of these patches, D1582 and D1586, lay over cut D1400 (see above) thus proving its antiquity.

The next, and last, sub-phase, which linked in with Phase W3 both to east and west, was the most complete of all. The reflooring consisted of a dump layer over which a floor surface had been laid. The make-up dump was composed of two main contexts: D1569/D1396 to the east and D1389 to the west. D1569 was a massive mixed dump composed of a loose sandy loam with patches of sand. Included within it were large amounts of red sandstone rubble, some mortar lumps, plaster, shattered micaceous flagstone slates, and ceramic tiles, occasional pebbles, and charcoal flecks. Large quantities of small finds indicated that it had been derived from a midden, or possibly a demolished building, and scattered within the layer was a probable dispersed radiate hoard (*see appendix 1*). The layer had been deposited in a wedge, tapering from east to west, which levelled out the difference in height between the by now heavily repaired east end and the central nave floor. It had been eroded by traffic on its southern edge but its full extent was indicated by outlying islands of the same material, such as D1651, showing that it must have covered the whole of the centre of the nave. Some of the painted plaster from this layer was the same as that found in D2073 (Phase W1) at the east end of the nave. Plaster from D1569 matched that from dumps on the north aisle and the north portico (see below; and Shaw 1987, unpublished) suggesting that somewhere outside the basilica the same dumps were being worked for make-up throughout Phase W.

Patches of the crude *opus signinum* floor surface on this make-up survived over the entire area showing that it had once been continuous (D1634, D1637, D1638, D1639, D1610, D1611, and D1612).

Unlike the other areas of the nave, the west end (grids 10–13, 24–7) was treated as a single unit when it was refloored in Phase W1. Over an area of more than 30m east to west by about 8m north to south (240m^2), a fine pebble floor with sandstone rubble inclusions (D1623, D1557, D1606, and D1947) was laid on a foundation of compacted silty clay with sand (D1964, D1967, D1605, and D1556; Fig 98). The quality of the floor meant that little substantial repair work was needed but some patching was discovered, principally in the vicinity of the large west doorway.

Characteristic of the make-up dumps of this floor was a high degree of black loam mottling in the basic silty clay matrix. These mottles were often circular or ovoid in shape and were easily mistaken for stakeholes where the overlying pebble floor had been removed. In 1967 part of this surface in the southern half of the nave was exposed at the base of a large trench dug by Graham Webster and the mottling, with some other features, was interpreted as part of a stakehole building (Building 30, see below). Though subsequently rejected, Building 30 was important in the history of excavations at Wroxeter since its identification prompted a change in method to large-scale open-area excavation.

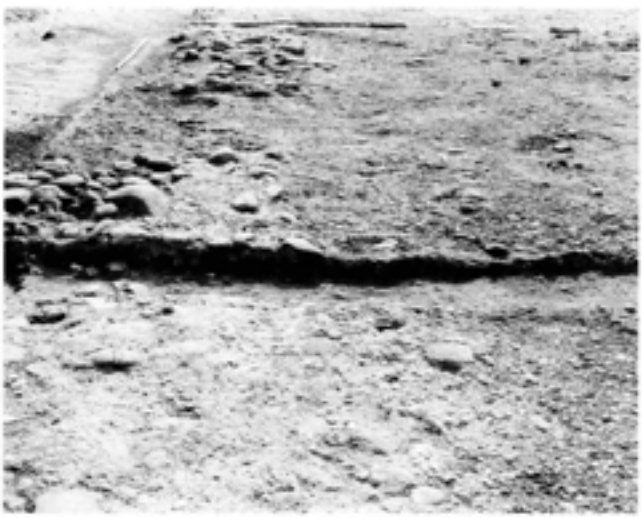


Fig 99 Detail of the Phase W pebble floor at the west end of the nave, looking east. The northern edge has been strengthened with rubble which has become heavily worn

Included within the make-up were several dumps of worn sandstone rubble located mostly on the northern half of the nave. The largest of these dumps, D1955, filled a slight depression in the floor. Heavy wear had brought the dump level with the surface of the surrounding pebble floor, but when first laid it must have projected some way above (Fig 99), perhaps to provide a step between the floor and the stylobates. Two similar areas of sandstone were found further west, D1956 and D1882. On the south side of the nave an area of red sandstone rubble, D1575, projected through the pebble floor, and again was very worn. These set-in patches are very reminiscent of the path seen on the west portico (D1331, see below).

On the south edge of the nave, on the northern edge of the earlier cut D1400, a distinctive linear feature was noticed. This was D1587, an intermittent line of worn sandstone blocks, occasional fragments of ceramic tile, and blocks of tufa set in a black loam (D1614) which was also traced further west, where it was numbered D1602. This was observable as a persistent though discontinuous feature for another 20m westwards. In some places, the line of stones was replaced with a ridge of dumped mortar (D2094) on which the stones sometimes sat (see Phase U, above). In 1967 this line of stones and the mortar ridge was interpreted as evidence for a wall line for Building 30. The function of this line of stones is not clear but perhaps it protected the relatively fragile edge of the cut D1400.

Within the make-up D1556, beneath the eastern part of the pebble floor and on the north side of the nave, a coin of Gratian dated to AD 367–75 was found. The pebble floor laid on the make-up survived quite well; it was composed mainly of pebbles, with some terracotta tile pieces, and it was clear that it had originally continued across the line of stones on the southern edge of the nave without a break.



Fig 100 Stake and solution-holes at the south-east corner of the putative Building 30 (see Fig 7). These holes have been cut into the make-up of the Phase W floor but from an unknown level. In the background are the worn stones seen in Fig 99

There were few later patches on the pebble floor and most seemed to be levelling rather than mending. On the northern edge of the nave a sandstone rubble dump, D1380, filled a depression in the floor (Fig 99). South-east of D1380 a series of beaten earth patches, including D1672, and an area of crude *opus signinum* with a pebble patch levelled other small dips in the floor. Similar beaten earth patches were found further to the west (D1777, D1746). Above the pebble floor generally was a more extensive earth surface which might have been a deliberately laid floor, or might have accumulated on the pebble floor as trample.

In 1967, in the base of a large trench cut on the south side of the nave some substantial postholes and smaller stakeholes were excavated along with what was thought to be a hearth and a possible wall line D1587, etc (Fig 100). These were interpreted as part of a building, Building 30. On re-excavation, in 1984, it became clear that although the postholes were genuine, the stakeholes were less certain, as where the pebble floor D1623, *et al* was intact, mostly in the northern half of the nave, none could be identified. Thus the stakeholes appeared to be merely the pockets of dark loam within the make-up D1556 and are unlikely to have been genuine. At the time of their re-excavation, the policy adopted was to number all the existing cuts as well as new ones and then assess each individually using a subjective judgement of whether they were positive (group A), rejected (group B), or possible (group C) features. Rejected features have not been numbered on the publication plans.

In general terms, the stakeholes were concentrated in grids 10 and 11 where they appear to form three main groups. Along the eastern edge is a large number roughly aligned north to south and apparently in association with posthole D1479. This was thought to be the south-east corner of Building 30. Further west of these was an arc of stakeholes envisaged as being inside the building. These are separated from a third group by a narrow spit of surviving pebble floor. It was thought that the pebble floor, which here looks like a path, was framed by walls on either side to form a cross passage. The southern 'wall' is the most convincing, composed as it is of postholes D1411 and D1422, which frame the entrance to the 'cross passage', and the intermittent line of stones and ridge of mortar (D1587), *et al*). It is understandable that this was thought to be a building but no further evidence was found outside the area of the 1967 trench, and it seems likely that the larger postholes belong to an earlier phase (see Phase U, above). The saga of Building 30 demonstrates graphically the unreliability of ihterpretations based on the partial evidence that is inevitable from even a quite substantial trench.

The only other substantial group of stakeholes found in this phase was on the northern edge of the nave floor in grids 25 and 26. These had all been cut into the pebble floor and its underlying make-up and may be interpreted as a rough fence line running east to west between two of the north colonnade columns. Presumably this represented a temporary fitting cut into the floor.

Contemporary with the stakeholes or perhaps slightly later, was a series of patchings of the pebble floors. Most were located at the extreme western end of the nave, where they were associated with two possible buildings. At the eastern end of the pebble floor, however, was a series of small, scattered patches of beaten earth indicating localised repairs associated with the worn sandstone rubble patches on the northern edge of the nave.

In the vicinity of the west doorway, some evidence for structures was found, for example two postholes, D2349 and D2532, cut on the south side of the nave, but most activity related to repairing the floors. Repairs began with a series of small dumps and floor patches, all in the south-west corner of the nave, over which was laid a patch of shattered micaceous flagstone tile fragments.

Overlying this small-scale patching, and covering the southern half of the nave was a more extensive area of reflooring composed of several contexts with varied make-up. The most important layer was D2095, a deposit of crushed red sandstone and decayed sandstone blocks some of which showed signs of wear. This was covered by more dumps of sandstone and mortar on which a patchy pebble floor had been laid. This was replaced by a series of beaten earth patches associated with a line of worn stones D1996. The largest patch was D1997.

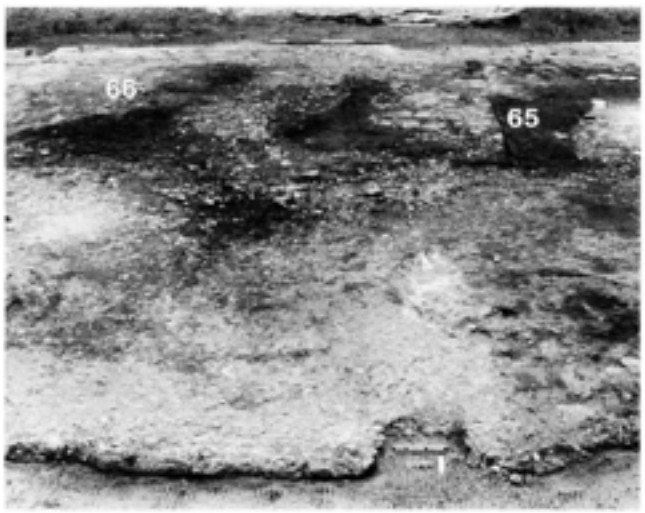


Fig 101 Charcoal platforms of Buildings 65 and 66 looking south. Building 65 has been cut by an archaeological trench

This floor was sealed by an extensive soft dump of compacted clay with numerous charcoal flecks in it and some ash (D1751, D1750, D1595, and D1594). The dump was divided by a north to south hollow-way surfaced with pebbles. The largest area, D1751 and D1750, formed a platform which tapered away to the west and ended in a steep scarp slope on its eastern side. The dump material ran under D1871, the pebble floor surfacing the hollow-way which separated the two halves of the platform. On the other side of this path, roughly 1.6m to the east, a second scarp slope of dump formed the edge of another charcoal and clay platform (D1595). This also tapered out, this time to the east. An outlying portion of the platform, D1594, had been severed by an archaeological trench. These two platforms were highly visible when first uncovered due to the unusually large amount of charcoal within them (Fig 101). Scattered patches of charcoal and silt were found further north which did not appear to be part of the platforms. Within D1751 there was an east to west

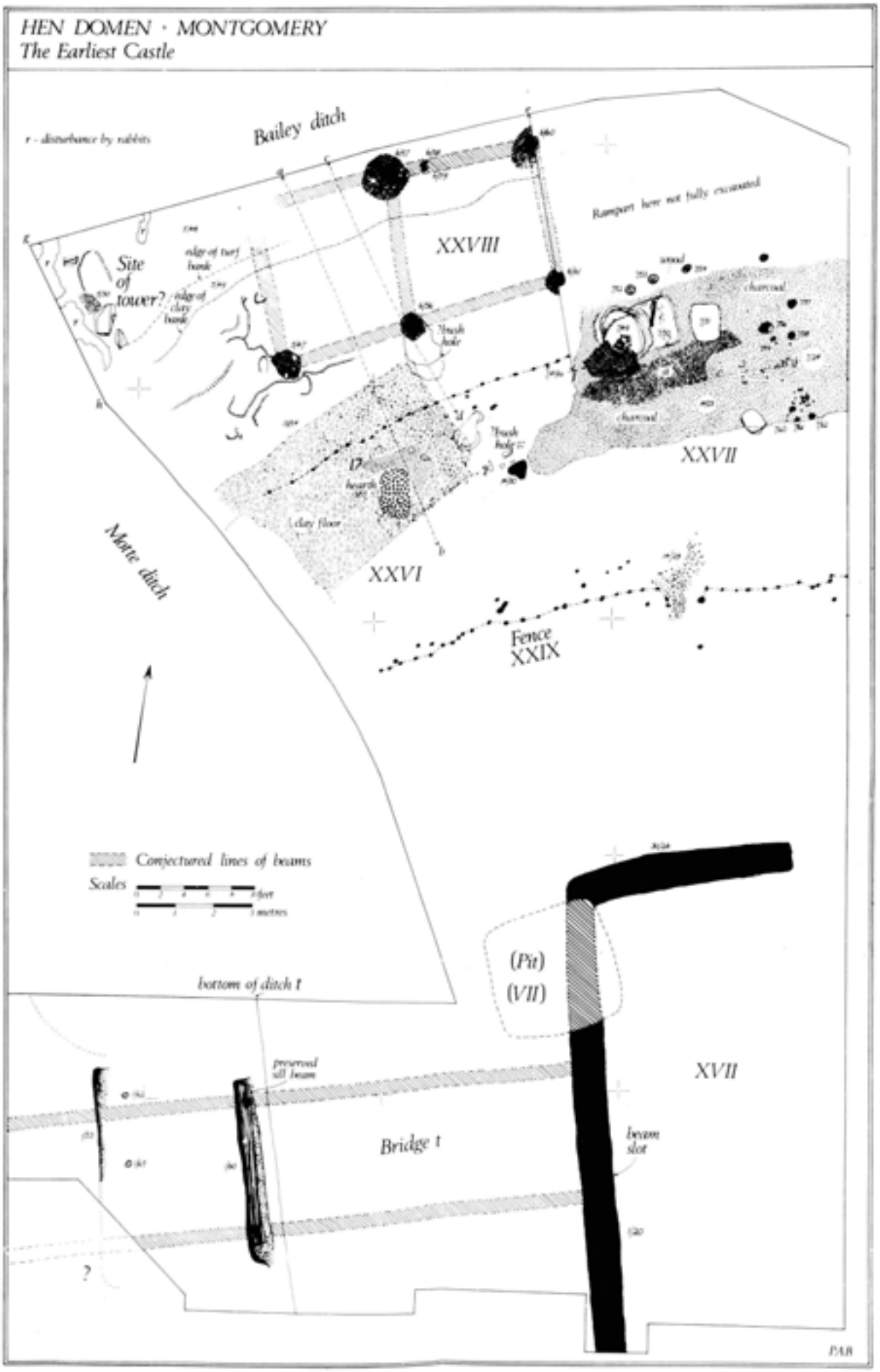


Fig 102 Plan of Buildings XXVI and XXVII at Hen Domen, Montgomery (Barker & Higham 1982, fig 16)

line of sandstone blocks (D1996), all quite worn. Most measured about 0.2m by 0.1m, and they seemed to be deliberately laid, perhaps to support the edge of a structure.

The round-cornered appearance of these shallow platforms was very reminiscent of the evidence for the booths on the gravel street in Phase Z (see below), and it is suggested that two lightweight structures stood here: Building 65 on D1751 and D1750 and Building 66 on D1595 and D1594. The evidence for their existence was very slight, being mainly the squarish shape of the platforms, and the fact that something, presumably structural, had confined pedestrian traffic to the narrow path for long enough to wear a hollow-way. Exposed, without buildings, the platforms would have been rapidly worn away.

A parallel for these platforms comes from the excavation in the bailey of the timber castle at Hen Domen, Montgomery, where at the tail of the rampart in a sub-phase of Phase 1 (AD 1070+) there were two very similar sub-rectangular concentrations of clay and charcoal, which were without doubt evidence for buildings (Barker and Higham 1982, fig 16, here reproduced as Fig 102). One, Building XXVI, had a hearth, while the site of the other, Building XXVII, was marked a group of small postholes and a trio of pits, one with a very elaborate (collapsed) superstructure.

At Wroxeter there were no associated structural features for the buildings, so it is assumed that the superstructures would have been free-standing and very light, perhaps wattle or even wickerwork. It was thought that the charcoal dump might have represented the destruction of these buildings by fire but analysis of the charcoal by Rowena Gale (*see appendix 7*) shows that there were nine species of wood involved, perhaps too various a selection to suggest building materials. It is unlikely that the charcoal and ash originally came from braziers inside the booths since the charcoal layers were sealed by fragmentary beaten earth floors found in both buildings.

As noted above, the hollow-way between the two putative buildings was surfaced with a pebble floor (D1871) which ran on north for a short distance (Fig 103). Some coarser stones and cobbles had been included at the north end to make it more durable, and at the south end, a path of micaceous flagstone slates, D1831, was laid on top of the pebble patch. After the buildings had gone out of use, most of the west end of the nave was levelled with a mortar dump (D1733, D1731, and D1850) which sealed both the beaten earth and the pebble floors. The stones within the surface of the mortar were heavily worn indicating that it had been used as a floor in its own right (Fig 104), though patches of the overlying surface survived. These included a worn sandstone path associated with the west door (D1732 and D1663), an area of pebble floor D1730/D1774, and D1662, resurfacing the hollow-way. More pebble patches were found in the centre of the nave. The area immediately inside the west door, where the Phase W1 surface had worn back to the underlying herringbone-tile floor, was repaired with a beaten earth floor followed by a worn sandstone patch (D1852 and D1853). This is clearly a fragment of the surface D1732/D1663. The northern edge of the floor had few patches and it was clear that much less traffic was heading north from the west door. Throughout this phase people entering the basilica from the west door seem mostly to have walked straight down the nave to the baths or veered off south to the latrine or south-east towards the bath courtyard, perhaps suggesting that the baths basilica was ceasing to be used for more general purposes, such as exercise and socialising.

Nearly all the evidence for the last sub-phase at the west end of the baths basilica (Phase W3, Figs A58 and A59) came from the north side which had not been damaged by the large archaeological trench excavated in 1967. A layer of mottled-brown and black loam, possibly equivalent to the so-called dark earth often found in late Roman towns (Perring 1991, 78–81),

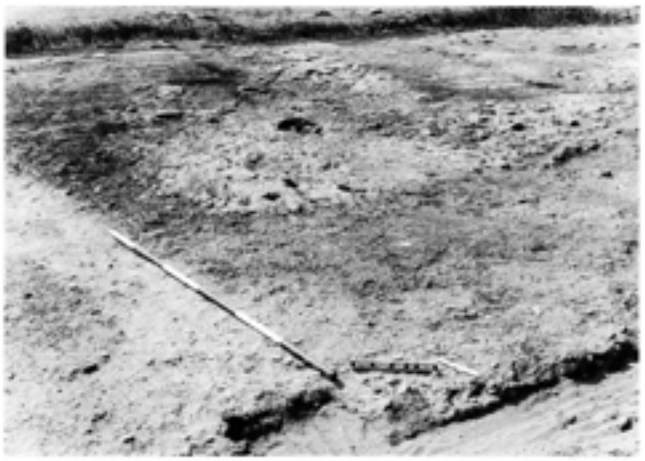


Fig 103 Platforms of Buildings 65 and 66 showing hollow-way between them and coarse worn rubble surfaces to the north



Fig 104 Heavily worn superimposed pebble and sandstone floors within the floor area of Building 65. It is argued that the wear on these floors could only have been achieved over decades



Fig 105 West end of nave, looking east, showing dark earth deposits which are typical of the last reflooring of the basilica. The dark earth is clearly not a cultivated soil as it contains sandstone rubble which has been worn in situ

was deposited over the whole of the west end of the nave. This layer had originally been numbered D210 and represented the continuation of loam dumps D1569 *et al*, in the centre and the east end of the nave.

The layer was generally smooth and had an undulating surface (Fig 105) which had given the impression that this was a naturally accumulated, wind-blown deposit. There were, however, significant large inclusions such as micaceous flagstone tiles, sandstone pieces, and tile pieces which could not have been wind-blown and which also showed signs of having been worn *in situ*. The layer was up to 50mm thick in places. Opinion is divided as to its origin. One view is that it was deliberately imported fine earth put down either as a surface or a make-up layer for floors above. Another suggests that it was an accumulation of soil from various sources such as weed growth and worm action as well as some wind deposits, accumulating on a neglected surface, with larger stones and rubble embedded in it, perhaps loose material from the heavily eroded layers below.

In fact, the two views can be reconciled. It is likely that the layer started out as a make-up dump, since scattered over the surface of it were small surviving patches of what must once have been a more extensive pebble floor. When the building fell out of general use in the next phase, however, it is likely that this dump began to weather. The already high humic content would have encouraged water percolation and worm action allowing a certain amount of mixing to take place and producing a natural appearance in the dump. The mixing would only have ceased when the next impermeable surface was reached: the underlying pebble floor. This process would have increased considerably after the roof was totally removed in Phase Y, and the building was converted into an open courtyard floored with dumps of more dark earth topped with roofing slates.

The north aisle (Figs A41–A44)

There were two main areas of persistent resurfacing in the north aisle in this phase and not surprisingly they were associated with the two doorways in the north wall. Elsewhere, it is clear that the whole aisle had been refloored once, though in a variety of materials, an operation that may be equated with Phase W1 in the rest of the basilica, and that this surface had been patched *ad hoc*. The later repairs have not been divided into sub-phases but the description of the floor surfaces is divided into three areas, east, centre, and west. Building 61, at the west end, continued in use.



Fig 106 Baby burial found in make-up of the Phase W floor in north aisle



Fig 107 Surviving areas of the Phase W1 mortar floor at the east end of the north aisle. The mortar floor D610 e) extends across the north aisle colonnade into the nave (see Fig 94). The approximate position of the east door in the north wall is indicated f)

The initial refloorings throughout the aisle (Phase W1) were unified by the near identical make-up used, whatever the overlying floor surface. This make-up, as at the west end of the south aisle, was composed of freshly broken red sandstone often with other inclusions and finds. At the east end of the aisle, which had been considerably disturbed by mosaic robbing during the nineteenth century, this make-up layer enabled us to link the islands of archaeology left by the robbers. Sandstone was used in large quantities mainly at the east end and centre of the aisle. At the west end and the area between the doorways, more mixed dumps were found. Presumably this reflected a difference in anticipated wear. Around the central doorway the sandstone make-up had been exposed and worn smooth. The same phenomenon has been seen in the south aisle (above).

Within the rubble make-up near the central door, 0.1m south of the north wall, a baby burial, D1162, was found aligned east to west (Fig 106). The lack of a proper cut would indicate that it was interred within the rubble while it was being deposited and before the overlying floor was laid. Several other baby burials were found in the annexe in this phase and it is noticeable that they also lay close to walls, a recurrent feature found throughout the Roman period but especially in the fourth century (Philpott 1991, 97; see Annexe, below).

At the east end of the aisle, overlying the thick sandstone make-up layer, the first floor surface, which was equivalent to sub-Phase W1, consisted of a layer of thick, very hard white mortar with inclusions of ceramic and micaceous flagstone tile fragments (D640, D652, D610, D609, D631, D653, D659, D649; Fig 107). One of these areas of mortar flooring (D610) crossed the colonnade into the nave (see Fig 94). Incorporated within the mortar floor, in the area of the east door in the north wall, were the remains of a compact pebble and sandstone path (D650/1, D638, D615, D654) which had originally extended across the whole aisle from the east door towards the *frigidarium* (Fig 108). The wear on the sandstone in D650/1 and the narrowness of the path are the first positive pieces of evidence for the exact position of the eastern doorway in the north aisle, since the wall foundations are deeply robbed here. Less precisely localised wear patterns in earlier phases indicated that the doorway was original.

The floor was patched sporadically with small areas of mortar, then repaired more extensively, again in mortar, and the new area of floor (D613, D652, D633, D2375, D600, D609, and D624) incorporated a replacement path made of very small pebbles and grit in mortar or earth (D628, D623, D608, and D649). The surface of the mortar floor had been cut by a number of stakeholes but because of the amount of disturbance in the area, no structural sense could be made of them.

After a small amount of localised patching there was another widespread reflooring, this time in beaten earth rather than mortar though its quality was nearly as high as before. The north to south path had been relaid in red clay with small pebbles set in the surface (D567, D568). There was some further patching above this surface but because of uncertainty in stratigraphy they have been assigned to Phase X.

To the west between the eastern and central doorways, there were fewer contexts than in the areas on either side. The probable Phase W1 flooring here appears to have been rather piecemeal and survived only in patches. Generally the materials used were beaten earth (D777, D807) with occasional patches of pebble floor on top (D806). This floor was relaid with a second of exactly the same type, the two being separated by a make-up dump. In places, all these layers were so heavily worn that the underlying *opus signinum* floor was exposed.

Around the central doorway the Phase W1 surface was a pebble floor which wore away, exposing the sandstone of the make-up to wear. This was covered by another make-up dump, more mixed than the first but still with much sandstone which served as a foundation for another pebble floor which again wore away. The remains of this floor were then sealed by a further make-up dump and a final pebble floor was laid. This, in contrast with the previous floors, had survived quite well. Wear patterns found in these successive floors fanned out from the central door so that the bulk of the wear was in the immediate area of the threshold and large areas of the southern half of the floor.

West of the central doorway, the reflooring only survived in the northern half of the aisle along the foot of the north wall. Wear had been heavy. The initial Phase, W1, survived as an intermittent series of mortar patches above the sandstone make-up. In places this had been patched with beaten earth, after which the area had been levelled with one overall layer of silt with some inclusions. All these floors extended up to the eastern wall of Building 61 but were not found within it.

The Annexe

While the baths basilica proper was, in this phase, still in use as a public building, the annexe had become roofless and been turned over to industrial use. This was shown by the lack of floor surfaces, by the demolition of the dividing wall between the rooms, and by the buildings in the north and south rooms which were put up to protect those working in this area from the elements.

The change of use for the annexe, Phase W1 (Figs A60 and A61), was signalled by the burying of the concrete floor under a very thick mixed dump of silty material with building debris in it (B521). Into this levelling dump, numerous features were cut which represented evidence for two structures, both of which were later rebuilt.

The first of these, Building 60i, was a rectangular building aligned north to south along the east wall of the annexe, the evidence consisting of four postholes, B536, B523, B511, and B529. As can be seen from Figure 109, a wide archaeological trench had destroyed any further evidence for the eastern side of the building, especially its relationship with the annexe wall, but presumably it leant against it, perhaps using existing putlog holes as roof supports.

It is not clear if Building 60i had solid walls or was merely an open-sided shelter. The lack of an identifiable floor or any evidence of a wall-line makes the latter the most likely interpretation, this shelter being apparently used by builders to prepare material for floor patches and for metal-working.



Fig 108 Fragmented remains of a very worn sandstone and rubble path running through the east doorway in the north wall. Worn patches a) and b) are in the north aisle, the latter being right in the doorway, c) is a corresponding surface in the north portico



Fig 109 The north room of the annexe, Phase W1. Building 59 d) is to the left, some of its postholes showing as dark areas. Building 60i c) is indicated by a greater density of stone to the west of the further ranging pole. The mixed nature of the floors here is very clear

North of Building 60i was Building 59i, the evidence for which consisted of a line of postholes, B522, B532, and B530, running east to west across the width of the annexe. North of B532 was a post-hole B596, while there were two apparent post-settings B533 and B531 close to the annexe's north wall. It seems likely that Building 59i was another open fronted lean-to and thus probably had a similar function.

South of the front wall of Building 59i lay B595, a posthole not clearly part of the building, and further south were two small pits, B593 and B540. B593 was filled with smooth yellow sand and had traces of burning and it is possible that this was a small metal casting pit. B540 was also lined with fine yellow sand and some coarser material, which also suggested a casting pit. However, the fill included the disarticulated remains of a foetus or newborn (Fig 110), presumably buried in the hole after the pit had gone out of use. South of these two small pits was a possible post setting B524, while 3m further south again was another baby burial, articulated though subsequently disturbed, in a small pit, B591. There was yet another baby burial just west of Building 60i, against the annexe cross wall, in a small pit, B534. Dame Kathleen Kenyon found a fourth similar burial in the north-west corner of the room (1940, 188, pl LXVa). These baby burials are often a feature of Romano-British buildings of all dates but their significance is unclear (see above; Philpott 1991, 97), although a ritual interpretation has been suggested (Scott 1991).

For the first time, the southern and northern rooms could be seen to be linked by a doorway in the west end of the cross wall. The door frame had been burnt and its charred oak plank threshold remained (B601; Fig 111). Unfortunately, not enough rings survived for a dendrochronological date (Jennifer Hillam, personal comment). The doorway can be shown to belong to this phase since the dump, B590, which floored the north-west corner of the south room, is part of the larger dump B521 which spilled through the doorway but beneath the burnt threshold. Another major structural change took place in the south room; the small corner room was dismantled, and left at two to three courses high around its full circuit. Within the remains of the room a hearth, B605, was built, with associated features to either side (Fig 112). From ash found on top of the surviving courses of the wall behind the hearth it was clear that the wall had been demolished before the hearth was constructed.

The hearth, B605, was a complex feature of two phases, the first consisting of three large blocks of sandstone, shattered and decayed by heat, with the third stone placed vertically at the short, north end of the hearth. Bedded into the ash from firing the hearth was a second hearth formed from at least three micaceous flagstone slates which were not heavily burnt, suggesting that this hearth was not used for long. Sealing this was a layer of ashy silt with charcoal which probably derived from the last firing of the hearth.



Fig 110 Largely disarticulated remains of a new-born baby buried in a casting pit in the annexe



Fig 111 Charred threshold plank B601 in the cross wall of the annexe. The uneven and unworn surface of the surrounding dump is apparent

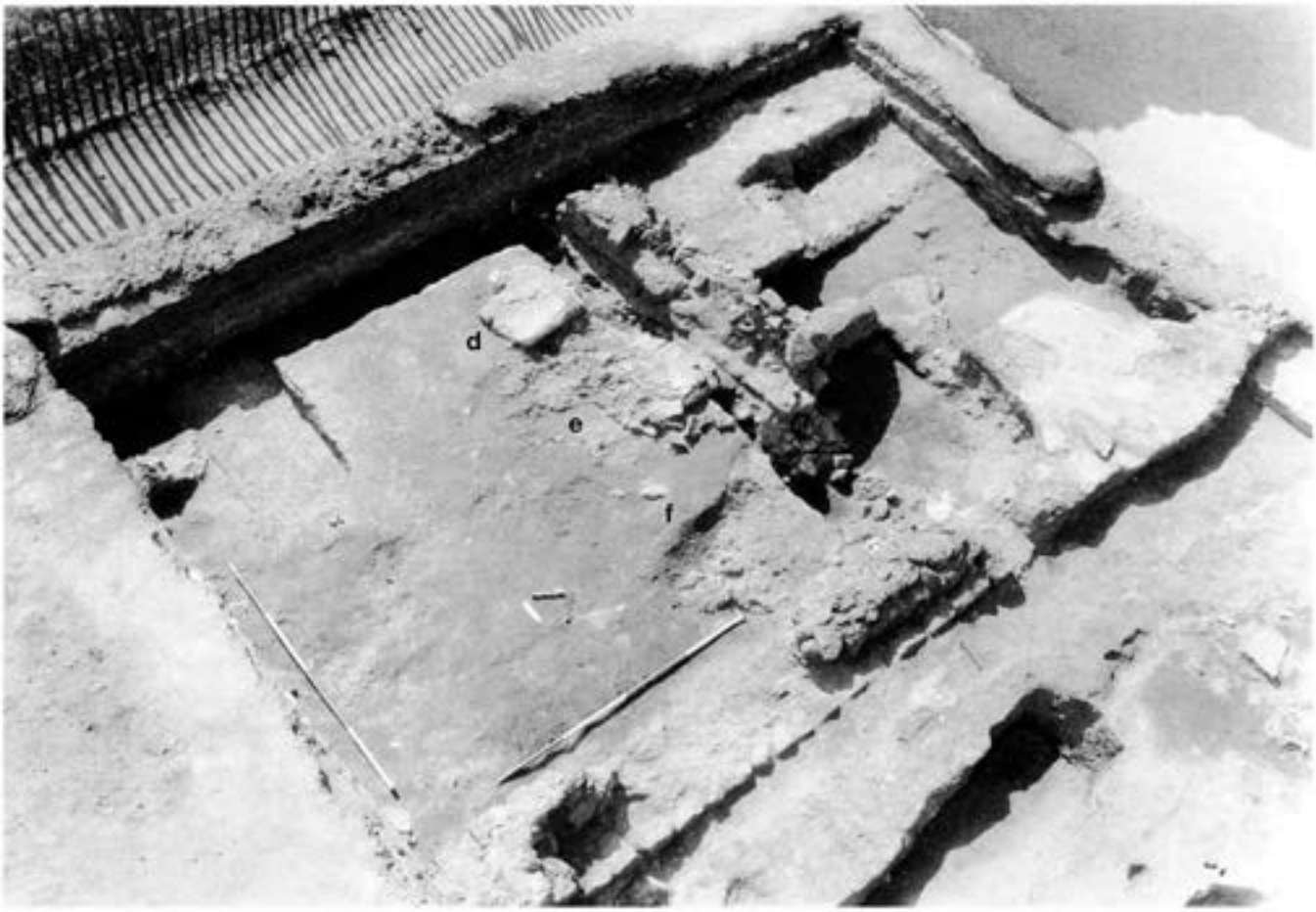


Fig 112 South room of the annexe, Phase W1 showing the demolished Phase V corner room, and evidence of industrial activity comprising a square block of opus signinum d), a hearth e), and a pit cut into the floor f)

Adjacent to this hearth on the south side was a slab of *opus signinum*, B604, which was heat-fractured but not marked by fire or ash, suggesting that it had been used in conjunction with the hearth, perhaps as a stand for crucibles or some other industrial use.

Nearly 1m to the north of B605 was a two-phase pit (B663, B608) which may also have been associated with the hearth, possibly a quenching pit.

Between Phase W1 and Phase W2 (Figs A62 and A63), the annexe cross wall was dismantled and the annexe from now on functioned as one room. In this phase Buildings 59i and 60i were rebuilt. The evidence for Building 59ii consisted of a line of postholes and settings, B459, B456, B515, and B439, lying parallel to the north wall of the annexe but slightly further south than previously. Again, it appeared unlikely that there were walls between these posts, and Building 59ii must have been an open fronted lean-to structure. Possibly associated with Building 59ii was a sub-rectangular sandstone block 100mm by 270mm by 50mm in size standing at a slight angle in a slot apparently cut for it about 1m south of the front wall of the lean-to (B487; see Fig 116). The most likely interpretation for this stone is that it was placed to support a prop shoring up the south wall of Building 59ii.

Within Building 59ii, evidence for use came mainly from two two-phase hearths. The first, B500, lay in the western half of the building just to the north of posthole B456 and was a roughly rectangular area of red clay, with a large sandstone block at the east end. Overlying this was B470, the remains of the second phase hearth, consisting of a spread of red clay with fragments of ceramic tile embedded in its surface, which was probably the layer on which the tiles for the working surface would have been placed. Sealing the hearth was the ash of its last firing (B444), and, nearby, burnt clay dumps representing rakings from it. At the eastern end of the building was another hearth, a rectangular area of burnt clay, B507, this time orientated north to south. The clay of the hearth was scattered with fine pebbles, and showed two soil-filled grooves which may have represented the settings for tiles, which did not survive. This was replaced by a hearth made of four clay tiles (B455, Fig 113) in which was found a complete iron trowel (Fig 114).

Building 60ii was a rebuild of Building 60i still leaning-to against the east wall of the annexe, but now with a free-standing south wall. The north wall apparently retained postholes B523 and B536. However, the west wall of Building 60ii was further west than that of Building 60i, the evidence consisting of three post-settings B511, B535, and B527, though there are other features round B527 which are clearly structural,



Fig 113 Tile hearth B455 in Building 59ii



Fig 114 Iron pointing trowel shown in situ on the floor of Building 59

but not easy to interpret. The south wall was no longer a lean-to but stood independently also on a new line as the cross wall had been demolished. The south-east corner of the building was represented by posthole B528. The first evidence for the function of Building 60ii is a hollow which had apparently been used for mixing several different mortars. A hearth, B477, was then built to the north of the mortar mixing hollow which became filled with ash, B458 (Fig 115). The hearth was poorly preserved and consisted of several heat-shattered terracotta tiles which were set in baked clay.

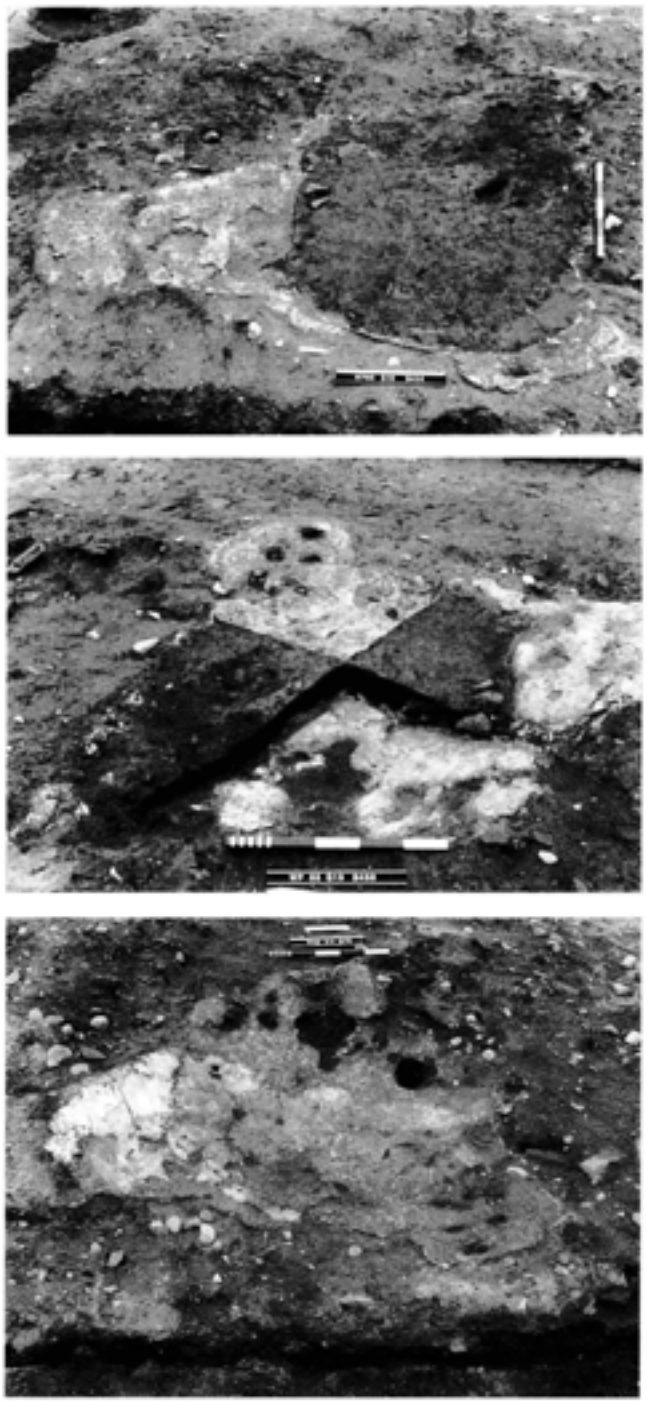


Fig 115 top: Hearth B458 constructed in Building 60ii; centre: the same after quadranting; bottom: irregular area of mortar, B476, filling a hollow which probably represents a mortar mixing area later abandoned

South and west of the buildings were dumps of various materials; a dump of crushed ceramic tile, a compacted spread of yellow clay with lime, a spread of limestone chippings, mortar, and small dumps of *tesserae*, and other small dumps of mixed materials. These dumps point strongly to the annexe being used as a builder's yard where materials were stored or mixed for use elsewhere.

Sealing this activity, and perhaps representing the disuse of the buildings or even their demolition, was a mixed layer, B405, consisting of sand and building



Fig 116 Building 60ii in the last stages of its existence. The mortar mixing area B476 is the dark, damp area filled with rubble in the left foreground. The stone d) is the prop for Building 59ii on the right hand side of the figure. An area of rubble, B304 is in the background, waiting reuse

debris which masked the underlying deposits and blurred the outlines of the buildings, although it is possible that the buildings still stood at this level since a possible partition line in Building 60ii consisting of 10 stones aligned east to west (B332/B457) continued to be visible at the surface of B405 (Fig 116). All the other contexts at this level were dumps of varying materials, including mixes of mortar, heaps of *tesserae*, stone chippings, etc, which were concentrated between the two doors in the west wall of the annexe and appeared to be associated with the use of the area as a builder's yard. Some of the last of these dumps lay on top of Building 60ii showing that it had been demolished before the end of the phase. The largest of these various dumps was B304, a triangular-shaped dump of rubble, mostly sandstone and ceramic tile fragments heaped against the west wall of the annexe. Figure 116 shows the height of this pile of rubble. It had probably been derived from a demolished wall and was stored here ready for reuse by those operating within the annexe.

In the southern half of the annexe excavation was complicated by the very numerous archaeological trenches which subdivided the room into small islands of stratigraphy which made links very difficult to establish. However, it could be shown that Phase W2 began here with an initial levelling layer of rubble which appeared to derive from a demolished wall, perhaps from the cross wall. A substantial amount of window glass was found in this layer which may have derived from the annexe windows.

All over this surface, numerous small dumps of building material were again found. Often, these were composed of only one type of material: collections of *tesserae*, tile chippings, sand, or lime which may have been the remains of the preparation of building materials to be used for repairs elsewhere. Inevitably, in the preparation and mixing some portion would be left behind to become buried under new dumps or mixing surfaces. As these dumps accumulated and became worn and trampled, they became the working surface for the next operation which in turn generated its own dumps.

Associated with this activity was a small structure, Building 67, which was built across the remains of the cross wall (Fig 117). It was post-built with a group of small postholes, B478 and B475, forming the west wall;

a single posthole B460 in the centre of the south side, a group of small posts, B438 and B442, at the south-east corner, two postholes, B467, at the north-east corner close to the wall, with a larger posthole, B466 in the middle of the north side cut into the cross wall.



Fig 117 Building 67 from the east, showing as a linear trench parallel to and below the far ranging pole, and two pairs of postholes on either side of a single large hole. The latter is the position of a barrel. The northern pair of holes are cut into the cross wall



Fig 118 Annexe cross wall after levelling. The two Phases of construction are readily apparent, the later has become severely worn and is partly buried below the dumps of Phase W

It is envisaged as basically a roof on legs, open-sided except on the west side which may have had a stretch of wattling for more shelter. It seems to have been constructed over a barrel, sunk into the ground and used, in all probability, as a water butt for the mixing of mortars or plasters. B471 is the cut into which the barrel was sunk. Slopped mortar built up around the barrel, exaggerating the depth of the cut. A path heads into Building 67 from the north-west. The upper surface of the surviving course of the cross wall became extremely worn during this phase; clearly the annexe was a busy place (Fig 118).

An isolated area of surviving archaeology by the west wall was slightly different in character from the rest of the room. It lay by the southern doorway into the nave and thus had many more worn surfaces than elsewhere and correspondingly less evidence of the preparation of building materials.

The west and north porticos

It was decided to leave the lowest Phase W floor in place on both porticos as in the west end of the nave. Consequently it is difficult to say a great deal about the construction of the earliest floor.

On the west portico (Fig A64), the primary Phase W surface consisted of a fine pebble floor numbered D1139 to the south and D1011 to the north. This floor lay on make-up layer D1293, which, on the surface at least, was an extremely hard-packed layer of yellowish clay/silty clay. Below this it was more mixed, the overall depth being 0.4m. No earlier floor surfaces were visible in section although the removal of the north-west corner of this floor (below) showed that some other surfaces might be expected within the apparently homogeneous make-up dump. On the baths basilica site sections were never a reliable guide to the number of floor surfaces that would be encountered when areas were excavated horizontally.

The pebble floor D1139/D1011 was similar to the Phase W1 floor at the west end of the nave and this link is graphically demonstrated by an extension of the pebble floor across part of the worn threshold stone of the main west doorway. The bulk of the floor was composed of small pebbles with a high proportion of shattered and worn ceramic tile fragments as well as bone. More enduring areas of sandstone rubble, D1336 and D1331, or cobbling, D969, had been set within the surface (Fig 119). The floor was mostly of fine quality with a generally level surface except where the edges rose towards the portico colonnade, suggesting that the floor had settled in the centre, pulling away from stylobates. In the northern half of the floor, one area of set-in sandstone, D1131, may mark a minor entrance to the portico from Watling Street and another was detected in the north-west corner where the pebble floor crossed the line of the colonnade. The pebble floor required little patching except south of the west doorway. The repair was a fine pebble floor (D1166) bedded on mortar.



Fig 119 above: Phase W floor in the west portico, from the north, showing the differing size of stone used according to anticipated wear. The path in 119b runs from d) to the standing figure;
below: The main area of wear in the west portico was the path leading to the west doorway. This was reinforced with large blocks of sandstone which have become extremely worn



The junction between the west and north porticos was badly cut by archaeological trenches and only one long, thin island of archaeology in the north-west corner survived. Since it was too narrow to survive final backfilling and consolidation it was decided to excavate this area down to the original portico floor. This allowed us to demonstrate that there had been a number of earlier floors and patches, but as there was no dating evidence associated they must remain unphased.

The north portico floor (Figs A65–A69) was the longest of all the floors recovered on the site, measuring approximately 93m in Phase W1 and 98m in Phase W2.



Fig 120 above: Subsidence D717 in the north portico showing the Phase W floor sunken into it;
below: East-facing section of an emptied Kenyon trench showing the collapse of the portico pebble floors into an underlying pit of unknown date



The initial surface was composed chiefly of pebbles between 3–40mm in diameter, but larger stones, mainly sandstone rubble, were incorporated where traffic was heavy, especially around doorways. In some areas, particularly at the edges, the pebble floor had been worn away, exposing the underlying make-up dump.

Much of the floor between grids 39 to 41 had collapsed into a deep central subsidence, D717, seen in section in a deep trench (Fig 120). The cause of this subsidence was not clear but presumably it related to activities within the legionary fortress, or early civil town, which lie underneath the baths complex (see Fig 4). As can be seen from the section (Figs A4 and 120), an initial pit had been backfilled and recut on a smaller scale, with vertical sides. This second pit had subsided dramatically, before its sides had had time to slump or erode. It is possible that the pit may have been planked over rather than backfilled resulting in a near catastrophic collapse several centuries later. The depth of the subsidence suggests collapse into a void. Though the collapse obviously happened very rapidly it had stretched the pebble floor rather than broken it.



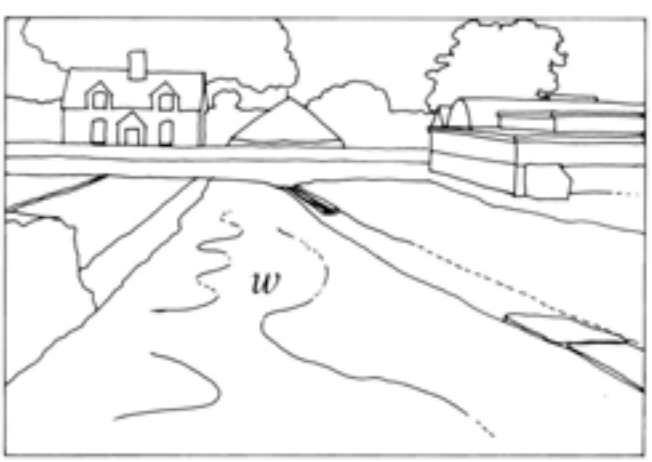


Fig 121 above: North portico floor, Phase W1, looking west. An apparent dry water course meanders down the centre of the floor. This may have been caused by a burst water pipe (several were found at the south edge of the street to the right) or a collapsed drain;
below: Interpretation; w) marks the line of the possible water course

In places on the southern edge of the portico there were traces of a beaten earth floor that may at one stage have covered the pebble surface, but which had been almost worn away. This confirms the existence of the portico roof since beaten earth floors need to be protected from the weather. When viewed from the higher eastern end, there was a shallow meandering valley down the centre of the pebble floor. This reminded one of the group (PAB) of a dried-up wadi and shared with a wadi the characteristic that the water had drained away before it reached the west end of the portico (Fig 121). The suggested interpretation of this feature is that it was a water course which had formed when one of the pipes or conduits which ran between the portico and the street (see Peripheral areas, below) had fractured or been removed and overflowed. The eroding water had scoured round the larger cobbles, leaving them standing proud.

There was little evidence of patching on the pebble floor, though the western end of subsidence D717 showed several attempts had been made to level it, perhaps indicating that this is where the subsidence had started.

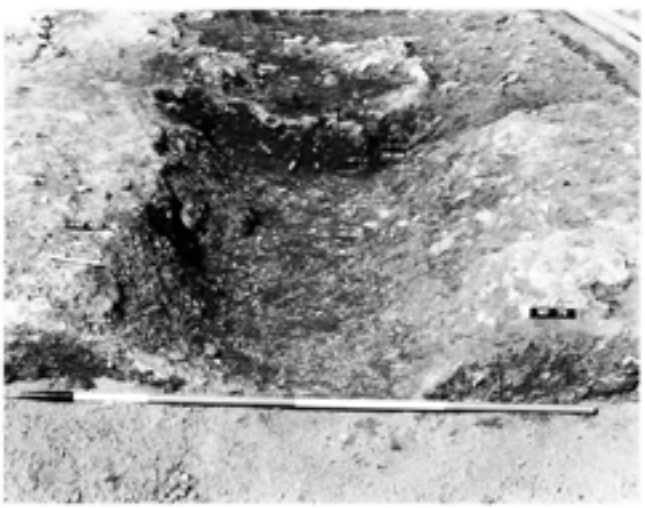


Fig 122 Subsidence D717 at the west end of the north portico showing the first major dump level in it, D338, half sectioned

The Phase W2 flooring was founded on a series of thick dumps, including C527 at the east end (*see chapter 6*), which levelled the underlying floor, thinning out towards the west. The surface laid on these dumps varied considerably along the portico. Most of the floor consisted of a mixed mortar, silt, and rubble surface (D483) or a rough pebble floor (D163, C146/C468), though a large area of mortar floor, D188, was located around the central doorway in the north wall. At the western end of the portico the subsidence was filled in with a dump of silt, but no resurfacing was found (Fig 122). Perhaps this area was thought too unsafe to use following the earlier collapse.

Dating

Four radiocarbon determinations were obtained from three contexts in this phase. From D2226, a floor patch at the east end of the nave in Phase W1, samples of charcoal produced dates of Cal BC 160 – Cal AD 350 (Birm–1239a, 1900±100 BP) and Cal BC 350 – Cal AD 90 (Birm–1239b, 2050±70). The second of these determinations lies outside the date range of the basilica itself while the first gives a *terminus post quem* for the phase of Cal BC 160 at 97.5% confidence. This early *terminus post quem* clearly has little relevance and a truer date probably lies nearer the centre of the probability distribution between AD 0 and AD 250 (see Table 17). Both charcoal samples may, of course, be derived from trees whose heartwood died long before they were cut down and eventually became charcoal. Both dates are earlier than the *terminus post quem* provided by the coin.

The later of the other two dates, which relate to the end of the phase, came from the Phase W2 surface of the north portico, D483, and was again charcoal. This was Birm–1187 which produced dates of Cal AD 410–650 (1520±60 BP). This gives a 97.5% confidence *terminus post quem* of AD 410. The fourth date was a determination for an oiled human skull fragment of Cal AD 80–420 (OxA–1580, 1770±70 BP) found in the Phase W3 make-up dump D210 in the nave. This clearly has no relevance for the dating of the phase but confirms that the oiled skull fragment belongs to the full Roman period. Although the *terminus post quem* for the phase is thus AD 410, the true date may, of course, be later. Indeed, on the archaeological evidence of the numbers of floor surfaces and, more importantly, their degree of wear, we believe that the phase had duration of some 75 years rather than the minimum of 40 years indicated by the coin and radiocarbon dates for the beginning and end of the phase respectively (*see chapter 7*).

Despite the large number of contexts in this phase dateable artefacts were rare; surviving sherds were small and abraded and only 6% (210 items) of the total number of coins were derived from contexts of this phase. Among these was a coin of Gratian, dated AD 367–75, which was in the make-up beneath the Phase W1 pebble floor at the west end of the nave. The problem is to determine whether this *terminus post quem* may be applied to the whole floor area.

The Phase W1 pebble floor at the west end of the nave can be shown to have continued across the threshold stone of the west doorway and may, therefore, be equated with the west and north portico floors. It did not, however, connect physically with the floors in the central and east end of the nave. There are no reliable links between the east and west ends of the nave until the whole surface is floored in the last sub-phase (Phase W3). Some of the other areas within the basilica can be linked through other layers. D610, the layer of mortar which crossed the north colonnade, links the Phase W1 surfaces in the north aisle and the east end of the nave. Below this, in the north aisle, floors could be linked together along its whole length by the crushed red sandstone make-up which underlay them and D610. Similar crushed sandstone appeared as the make-up for a mortar floor at the west end of the south aisle (D957, D977) so a subjective linkage can be made here. The rest of the south aisle was less easy to join to the sequence since the nature of the deposits changed from east to west. Instead, it might be possible to link the various areas of the south aisle with the nave according to the relative heights of surfaces as it was clear from D610 that from this phase on, the stylobates had been buried beneath the floors.

The annexe cannot really be linked to the rest of the baths basilica until Phase X, though subjectively, there is a strong link in Phase W since activities like the mortar mixing in the annexe would fit well with the floor repairs in the baths basilica. A similar subjective connection may be made between the various areas of the baths basilica, since they were all being extensively patched and refloored using much the same materials and techniques. Given that the maintenance of the floor clearly involved a good deal of thought and forward planning, it seems reasonable to assume that the reflooring of the basilica and porticos was conceived, and carried out, as a whole. If so, then the start of the whole operation may be dated to the period AD 367 or later on the coin evidence.

Phase X: the building yard (Fig 123)

The south aisle (Figs A70 and A71)

Two buildings were found in the aisle in this phase. One was located to the east of the central doorway in the south wall and the other was at the extreme east end of the south aisle in the corner between the eastern jamb of the *frigidarium* doorway in the Old Work and the east wall of the basilica. In this latter area, before the building was erected, all the original floor surfaces of Phases S–W had been quarried away down to the mortar sub-foundation of the aisle. This was presumably carried out in the early stages of Phase X, or less probably at the very end of Phase W, when the annexe was operating as a builder's yard.

The structure was thus built on the soft mortar sub-floor of the aisle (Fig 124). Much of the floor area of Building 54 had been destroyed by archaeological trenches dug to examine the junction between the Old Work and the annexe. The remaining structural evidence consisted of a beam-slot, D1340, which formed part of the north wall, and two stakeholes, D1678 and D1677, along the edge of a slight scarp of rubble forming the line of the west wall and delimiting the floor of the building. The building is envisaged as a relatively slight lean-to, with the Old Work as its back wall and the east wall of the basilica as its eastern side.

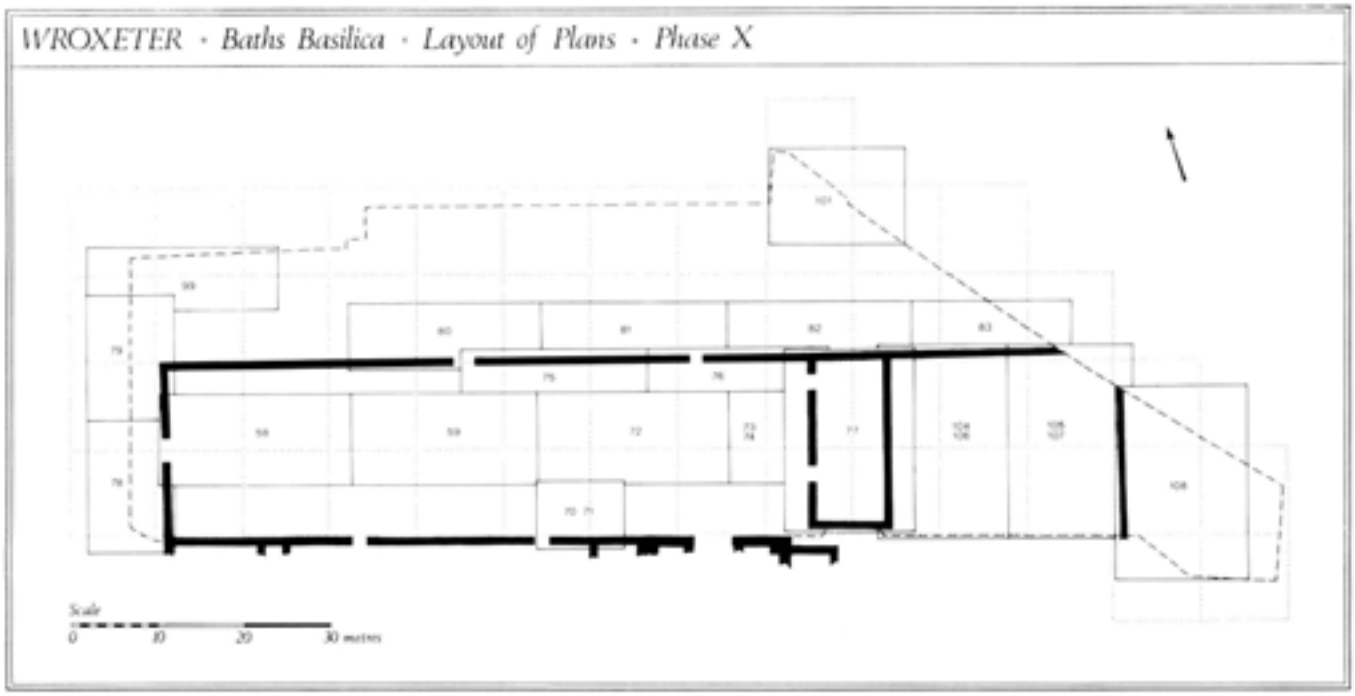


Fig 123 Layout of loose-leaf plans, Phase X



Fig 124 Building 54, at the east end of the south aisle showing the hearth D1365 beside the large stone block D1251 which had been moved to this position by Kathleen Kenyon's workmen. The hollow in the stone's centre may have been used for casting ingots

The positions of any doors connecting Building 54 to the basilica are unknown; since there were no obvious worn surfaces on the western side it may be that there was a door at the east end of the north wall, in the area cut away by trenches. If so this would connect easily with the service door in the narrow passage between the annexe and the Old Work, giving access to the baths precinct.



Fig 125 Detail of the micaceous flagstone hearth D1365 in Building 54 associated with metal-working debris

Much of the building's floor was covered with tile chippings which, as has been suggested in discussion of the annexe, were used in the builder's yard phase for making *opus signinum*. Near the centre of the building was a hearth of ceramic and micaceous flagstone slates, D1365, with much charcoal, ash, and bone (Fig 125). The charcoal was predominently of twigs, as though kindling or coppice wood had been used, though some nails hint at the burning of old structural timbers. Off-cuts of bronze suggest an industrial use for the hearth, and this suggestion is reinforced by the presence nearby of a possible mould for casting, cut into the surface of a large square block of sandstone, D1251 (see Fig 124). This measured 0.83m by 0.86m by 0.35m and had worn edges, with its vertical faces and underside showing tool marks. In the centre of the stone's upper face was a pear-shaped depression 0.7m long by 0.45m wide and 0.2m deep. At the narrower end of this was the remains of a lewis-slot. It is suggested that this stone had originally been the pivot-hole for a door, but the surviving hole was too big for this purpose and clearly the wrong shape. The base of the hole was fire-reddened and it is suggested that the stone had been adapted to cast metal ingots melted on the neighbouring hearth. Although the stone was found in 1983 close to the hearth, it was apparently discovered by Kathleen Kenyon in 1936 in the position shown in dashed lines on the interpretation drawing. She had it levered into the position in which we found it in order to examine the dog-leg in the masonry of the Old Work (Kenyon 1940, plate lxiiib). The stone has now been restored to its pre-1936 position. Just outside the west wall of the building and against the Old Work was an irregular oval pit, D1589, filled with rubble. The function of this pit was not clear and it may have been slightly earlier in date than Building 54. This combination of building materials and apparent metal-working suggests an industrial rather than a domestic use for this small building, a continuation of the work going on in the annexe in the previous phase.



Fig 126 Building 53 by the central doorway in the south aisle, looking north

Further west, close to the central doorway in the south wall of the baths, a mass of some forty stakeholes, D221, represented the evidence for the second structure, Building 53 (Fig 126). Their connection with the basilica wall, if any, had been destroyed by an archaeological trench, but they occupied a more or less rectangular space. Though clearly there was a structure here of some kind based on stakes or wattles it is not possible to say anything more about it.

The nave (Figs A72–A74)

The eastern end of the nave had been severely damaged by trenches which had removed much of the evidence for this phase here. In spite of this, it was clear that a small stakehole structure, Building 55 (Fig 127), had been erected in the northern part of the east end of the nave, 7.5m from the east wall of the baths basilica. As can be seen from Figure A73, the structure appears to have a southern wall, represented by the line of stakeholes D192/D190–D437 though it will be realised that an archaeological trench has removed whatever evidence there might have been to the south of this line. Postholes, D347 and D437, lay each side of a coarse pebble surface, D446, at the east end of the building, and these three features might represent its entrance. Internally there was a mass of stakeholes which were beyond interpretation, but which are paralleled by similar groups of stakeholes in other buildings in this phase (see Building 57, below).



Fig 127 East end of the nave, looking south, Phase X. a) earlier herringbone-tiled floor; and b) relaid herringbone-tiled floor exposed by archaeological trenches. c) lime pit; d) and e) other Phase X features; g) pit D182; and f) Building 55; all cut into the beaten earth and mortar floors of Phase W

To the south of Building 55 and beyond the archaeological trench was a large pit, D182. This had already been half-sectioned by Kenyon who had recovered an *antoninianus* of 270–73 from the fill (1940, 192). The pit was up to 0.55m deep and filled with red sandy soils. The western part of the pit penetrated only as far as the base of the herringbone-tile floor, but the eastern half had been dug through the floor to a depth of 1m. The function of this pit is unknown. To the southwest of the pit there was an irregular line of small holes (D2510, D411, D413, D412, and D379) which might represent a fence line dug into the floor.

One last feature at the east end of the nave was in many respects the most problematic. It consisted of a rectilinear block of solidified lime (D84/D460) which lay 1.6m west of the east wall of the basilica and just north of the south aisle colonnade. It had already been partly investigated by Kenyon (*ibid*) who had concluded that, as it had no stones associated with it, it could not be structural, but that it was not a lime kiln (she presumably meant a slaking pit). In her investigation of this feature, however, Kenyon almost entirely severed its relationship to the rest of the area making it extremely difficult to relate it to the surviving floor levels around it. Nonetheless, the stratigraphic position of the pit was clear: it cut all of the floor levels at the east end of the nave, including the underlying herringbone-tile floor (Fig 128).

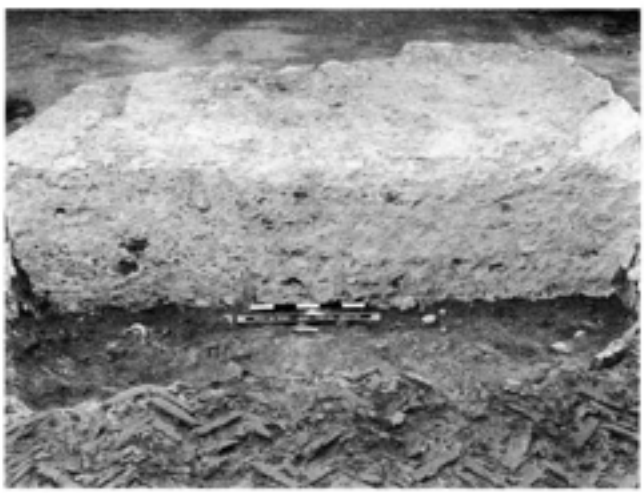


Fig 128 Lime pit D460 half sectioned showing that the cut penetrated the underlying herringbone-tiled floor

The shape of the pit cut (D2377) was given by the shape of the solidified lime within it. This had hardened to such a degree that it became easier to excavate the surrounding floor levels first and then to deal with the pit fill. Figure 129b–d shows that the pit was a slightly tapering cut, measuring 1.3m east to west by 1.5m north to south on the surface and 1.3m square at the base. Its depth was 0.32m although its profile was dished (Fig 129b and c) and in places it was only 0.1m deep. The fill of the cut consisted of 'carbonated unmixed non-hydraulic slaked lime' (Graham Morgan, *report in archive*) which was friable when first exposed but had hardened considerably on the surface. The lime was mixed with lenses which contained flint, tile, and

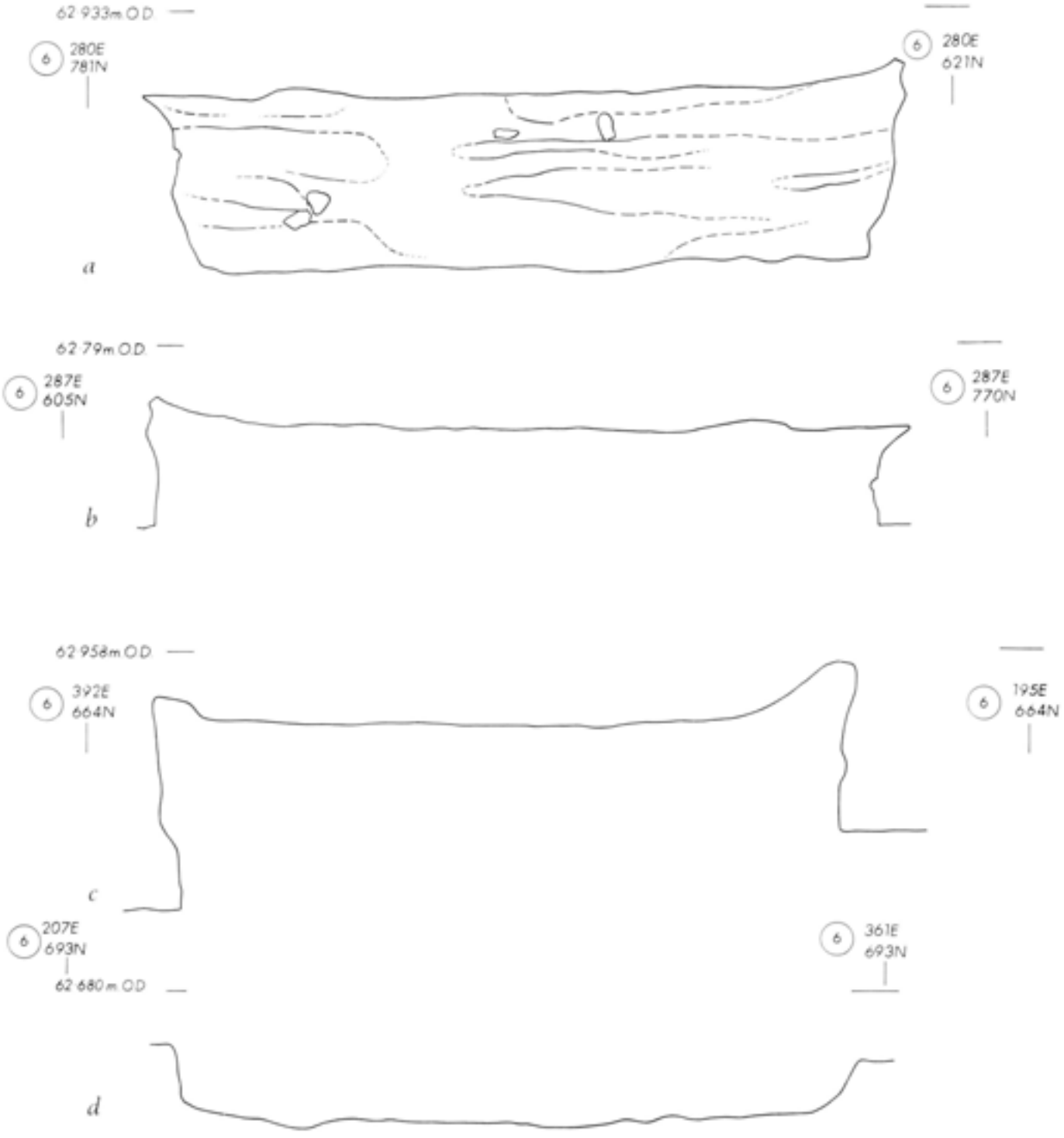


Fig 129 a: interpretative drawing showing the unhomogenised fill of lime pit D460; b: and c: profiles of fill of lime pit; d: profile of base of lime pit cut

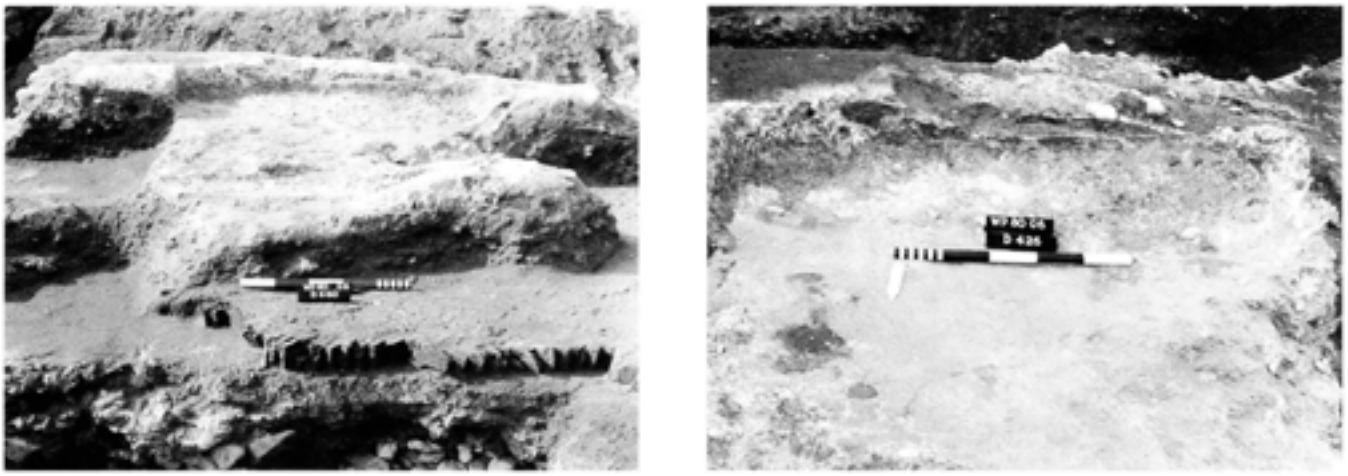


Fig 130 left: lime pit D460 from the north. The levels surrounding it were removed by Kenyon's workmen who found the solidified lime too hard to penetrate;
right: surviving edges of lime pit showing dished surface of feature

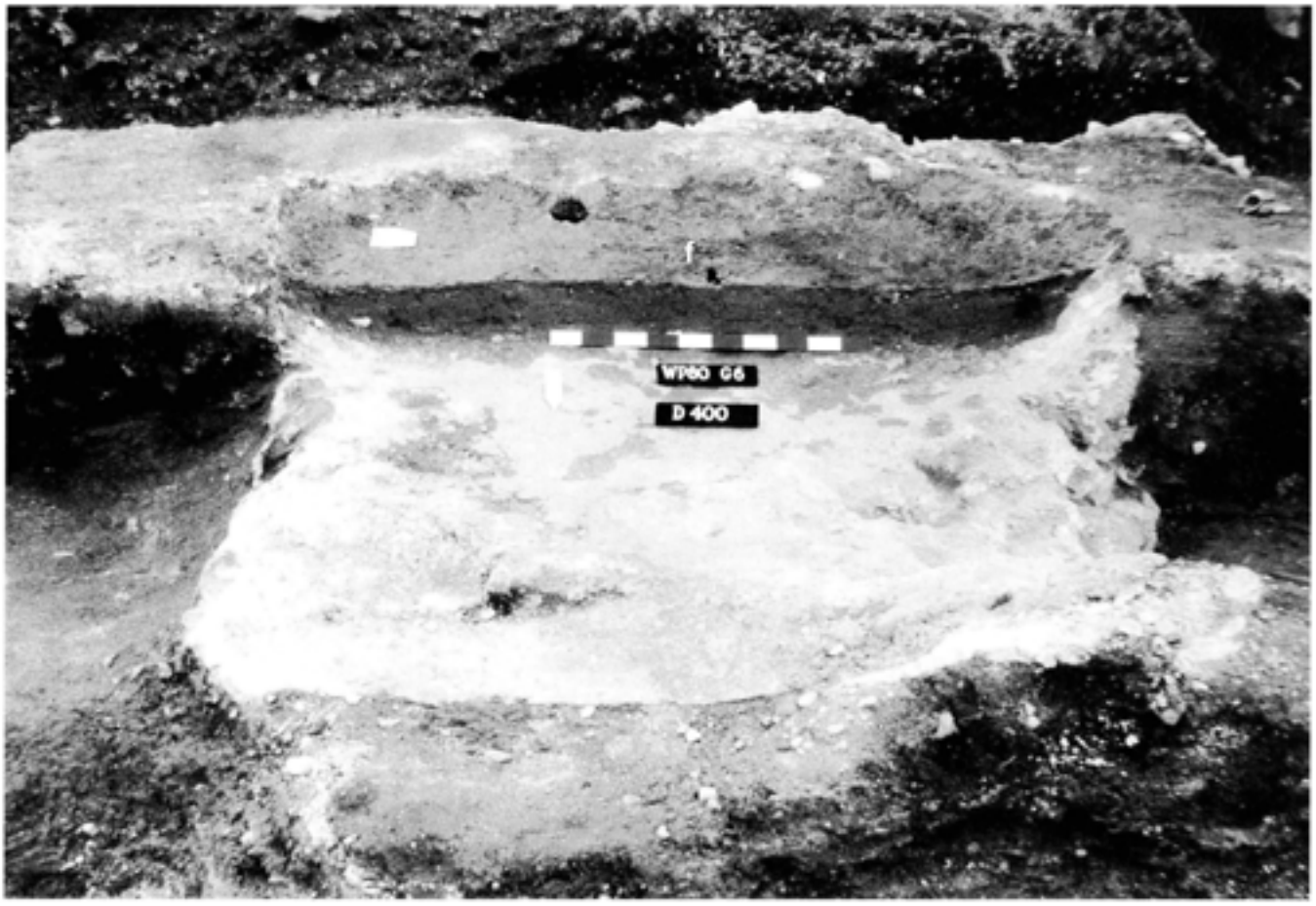


Fig 131 above: lime pit showing secondary sandy fill f) containing charcoal and lead droplets, after sectioning;
below: three layers in the top of the lime pit. The uppermost layer, D395 separated from the almost identical layer D403 by a charcoal horizon, D400



organic matter (probably straw), as well as small lumps of limestone, some of which showed signs of vitrification (Fig 129a).

The remains of an earlier episode were found around the cut as a patchy layer of extremely hard lime with a rough, uneven texture. The same layer was found on the northern edge of the pit where it was numbered D1811/D86. Elsewhere, this layer may have been partially removed by Kenyon. The contents of the lime pit, while it was in use, appear to have been associated with the slaked lime area in the annexe (B282: see below).

It was noted that the surface of the pit fill had a dished appearance with the lime curving up sharply at the edges to form a flat bottomed steep-sided cut with rounded south-east and south-west corners (the northern corners had been destroyed; Fig 130).

The pit became filled to the level of the surrounding floor, although most of this fill had been removed by Kenyon. The surviving fill consisted of three interleaved layers: D395, D400, and D403 (Fig 131). D395 and D403 were both layers of sandy silt, orange in colour and composed mainly of very fine sand with some pieces of charcoal and a significant proportion of lead droplets (28g in D403). Between them was D400, a layer of charcoal only 10mm thick which also contained some lead droplets (34g). Clearly these contexts were all related to the same activity, which appeared to be lead-working or casting within the hollow above the lime pit. Cut into the top of these layers were two stakeholes (D396 and D397) whose function was not clear. Sealing these were small patches of sand and charcoal which might represent the final use of the area before Phase Y.



Fig 132 above: Building 56, looking north, major structural features and lines of stake-holes defining internal and external walls. The dished surface of the underlying floor was probably caused by wear while the building was in use; below: Building 56, looking west, with west end incompletely uncovered



The north aisle (Figs A75 and A76)

As with the nave and the south aisle, activity in this phase was confined to the east end of the aisle. Only one building, Building 56, could be positively identified but mosaic hunters had disturbed the extreme east end of the aisle so severely that it is not possible to be certain whether or not there was a further building here.

Building 56 had been cut into a thick layer of fine yellowish silt, which appeared to have been laid as the foundation. As can be seen from the photographs (Fig 132) it had been laid as, or had worn into, a slightly raised area on the south and a slightly dished area to the north. These areas were, in general terms, outlined by stakeholes. The eastern edge of the building appears to be defined by the row of stakeholes D696, but there is a more substantial row, D218B, lying in a curve approximately a metre further to the west with a group of east to west stakeholes, D218D, dividing the two floor levels. Further west the northern part of the building has been destroyed in a recent disturbance but a mass of stakeholes, D218E, appears to mark its western limit since there is nothing similar beyond except a curious horseshoe-shaped group of stakeholes D218G, which appears to be something different. The south wall of the building may have been renewed since it showed as both a line of stakeholes (D218-C), and as a narrow slot, D215, which suggests a more substantial wall, perhaps framed, based on a sleeper beam. Within the limits of the postulated building were four larger postholes, D212 and D211, which were flat-bottomed and without stone packing, and D203 and D204, which were stone-packed and may be slightly later, though the stratigraphy is not conclusive. It will be noticed that the line formed by the larger postholes is continued by the northern edge of the group of stakeholes, D218E, and it will also be seen that the beam-slot, D215 ends immediately south of posthole, D212 but the significance of these alignments is uncertain. Although the evidence is far from conclusive the larger posts may represent a fairly massive partition, or support for some kind of internal fitting. The main structure of the building appears to have been of wattles: there was no evidence of clay walls cladding



Fig 133 North aisle, Phase X, showing the destruction of the area caused by mosaic robbing and trenching

the wattles such as has been postulated with similar groups of stakeholes on other sites (*see chapter 5*). Within the building a number of nails were found, which are plotted on Figure A75. It is possible that the nails are derived from planks cladding a timber-framed south wall or from other timbers reused to form the roof.

Further west there were a number of other, scattered features: the horseshoe-shaped group of stakeholes, D218-G, already mentioned, a pebble surface, D44, a patch of loam, D626, containing much carbonised grain, D240, another group of stakeholes and D237, a patch of burning, perhaps resulting from a small fire lit on the aisle floor.

At the east end of the aisle, the route running south-eastwards from the eastern doorway continued in use and the Phase W path was relaid. The path consisted of two patches of mortar, D542, and D544 and a patch of *opus signinum* (D543) all with worn surfaces (Fig 133). By it, close to the north wall, lay a ?two-phase hearth which consisted of fragments of heavily burnt clay with some pebbles and rubble (D530, D528, and D557). One of the contexts from the hearth (D541) was sampled for a radiocarbon determination (see below). Between the hearth and the north wall was a fragment of what appears to have been a hurdle or wattle fence. The evidence consisted of a line of stakeholes connected by a line of iron staining, D574. How a wattle fence or hurdle produced such iron staining is not clear.

The annexe (Fig A77)

No evidence of structures was found here in this phase, though it was clear that the annexe was still in use since large mortary dumps with rubble covered the north and part of the south room and were trodden and worn (B344, B368, B305, and B336). In addition there was a hearth, B292, formed of clay and ceramic tiles built in the south-west corner of the north room.

The area within the demolished walls of the room which had been constructed in the south-eastern corner of the annexe was covered with an uneven spread of clean and dirty lime lenses which, however, did not appear to be floor surfaces (B282; Fig 134). It is presumed that these layers are of slaked lime spread out to dry. The lime probably derived from the lime pit in the nave to the west (see above).

The presence of buildings within the baths basilica, although confined to the east end, raises the problem of whether the basilica's roof remained intact in this phase. Certainly, there was no more reflooring from this phase on and the quarrying away of floors at the east end of the south aisle is positive evidence for the dereliction of the basilica. Nonetheless, the lack of evidence for weathering on the floors and around the buildings, allied with the more positive evidence for the removal of the roof in the subsequent phase, hints that the nave and aisle roofs were only finally taken down in Phase Y, although they may well have been in poor condition in this phase.



Fig 134 Lime spread B282 in the south-east corner of the annexe. The cross-shaped feature is a rubbish pit dug by a searchlight battery team in the Second World War

The west portico (Figs A78 and A79)

In this phase the west portico probably lost its roof, in contrast to the basilica, leaving the colonnade still standing. Two substantial buildings were then erected, one on each side of the basilica's main doorway.

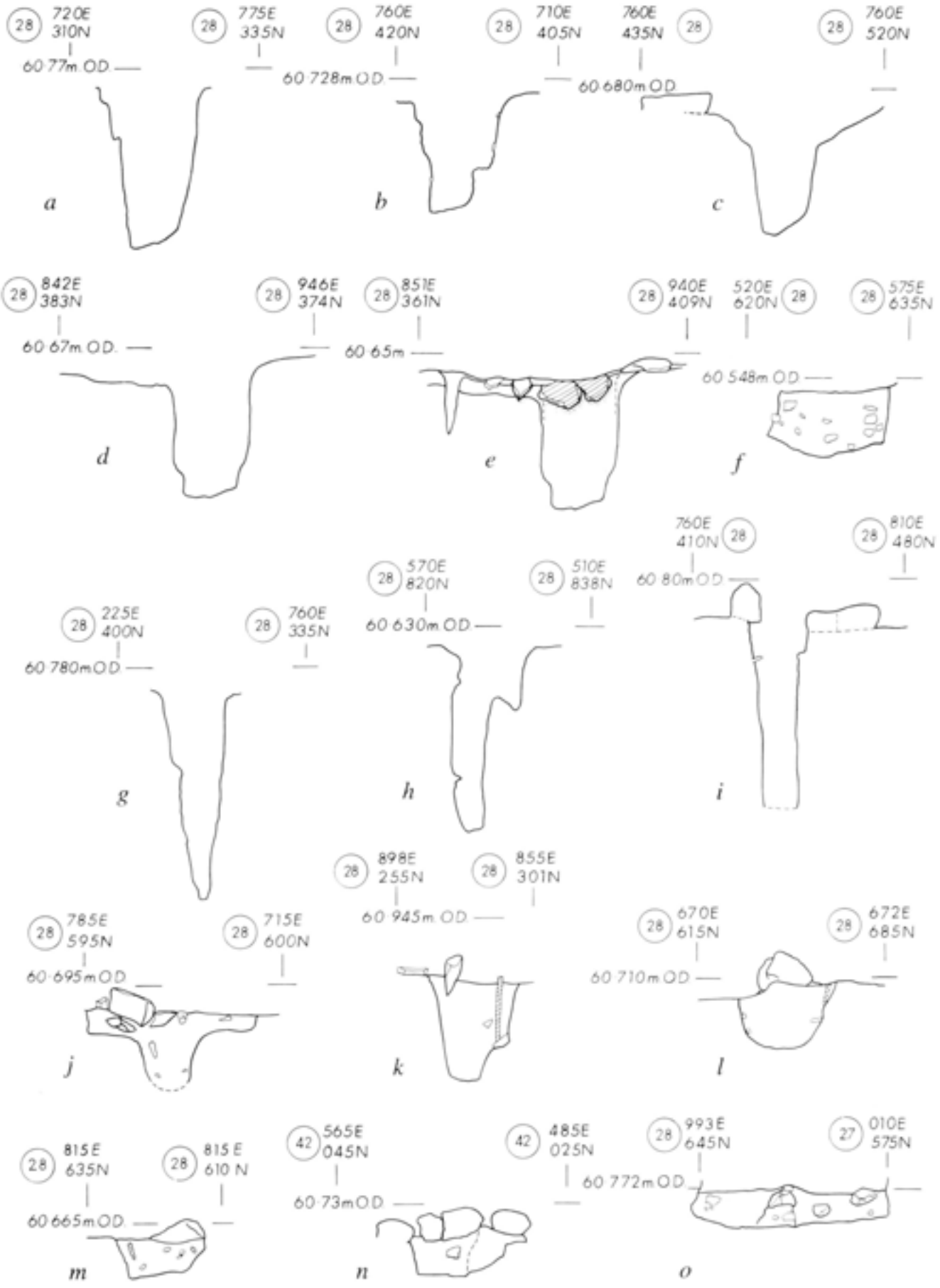


Fig 135 Sections of Buildings 63 and 64, postholes: a: D1194; b: D1199; c: D1197; d: D1264; e: D1025/D1264; f: D1221; g: D1198; h: D1229; i: D1238; j: D1197; k: D1097; l: D1018; m: D1019; n: D1239; o: D1125



Fig 136 left: Oven D371, looking east showing massive construction; right: Oven D371, looking north-west with hearth D969 beyond

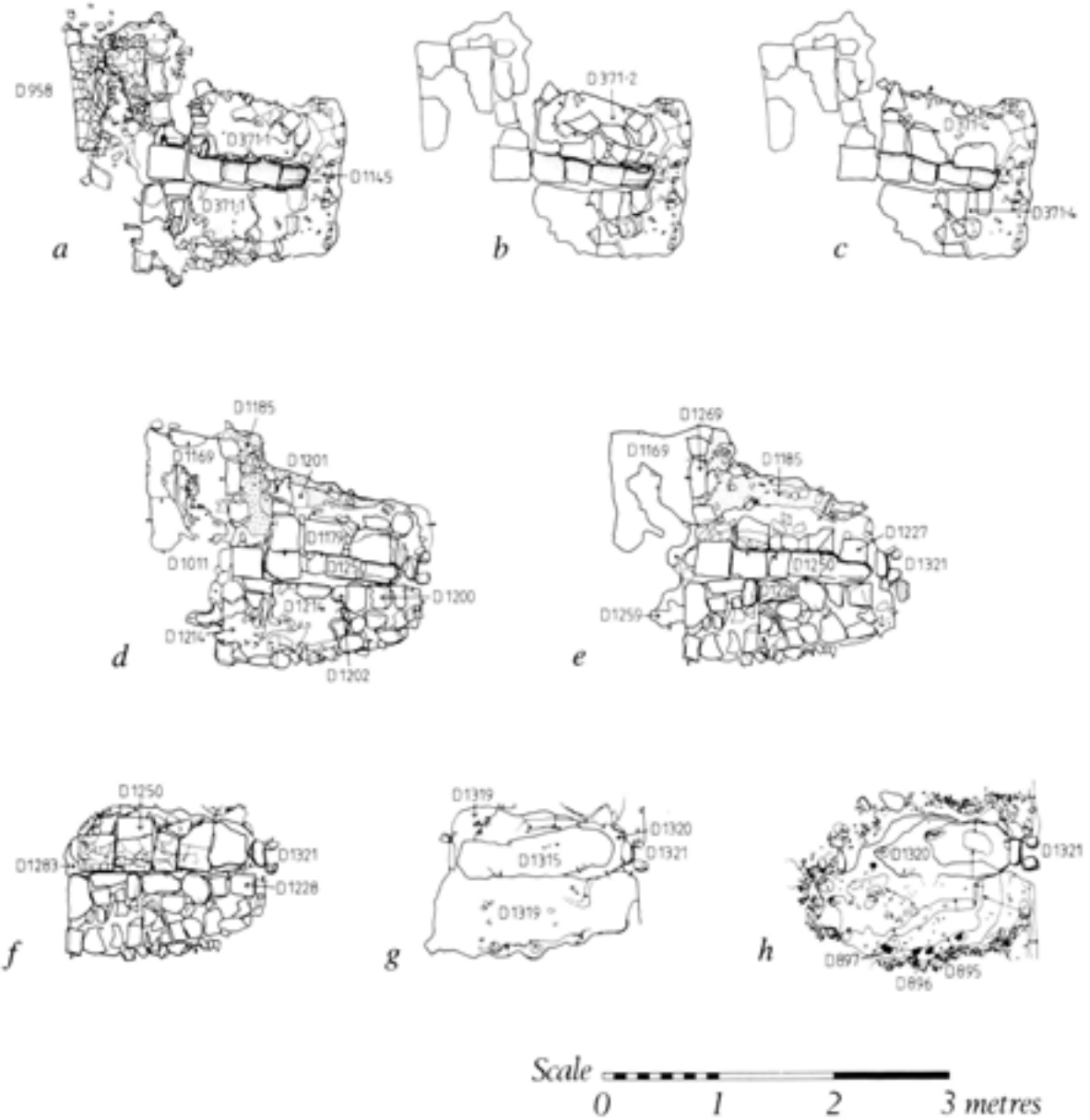


Fig 137 Dissection of oven D371

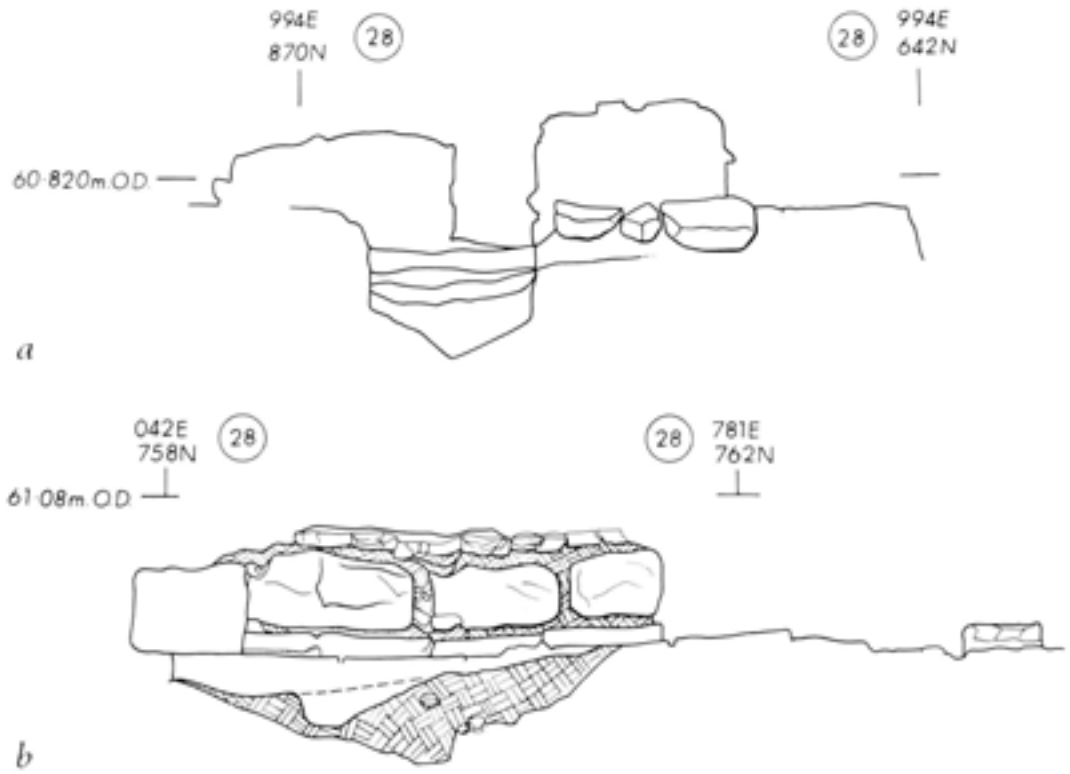


Fig 138 a: west-facing section of oven D371; b: north-facing sections of oven D371

The northernmost, Building 63, was a posthole building filling almost the whole width of the portico (Fig 135). It seems to have consisted of at least four rooms, or divisions, though the evidence is too slight to be certain. The south wall consisted of two postholes, D1194 and D1097, and a post-pad D1171, with the end of the wall probably attached to the basilica's west wall. D1171 formed the south-west corner and north of it the west wall consisted of three more postholes, D1221, D1229, and D1239, placed a little to the east of the colonnade stylobates. The building was divided into two halves by a line of postholes, D1018, D1019, and D1125, running east from D1221. This southern room appears to have been sub-divided into three parts by postholes, D1197, D1199, D1198, and D1194 and by D55, D57, D1025, and D1097. The adjacent room to the north contained a large hearth, D958, and an oven, D371, which backed on to the west wall of the basilica (Fig 136).

The oven had been built in a shallow trench (D1320) with a stone-built flue at the east end (D1321; Figs 137 and 138). This was filled with clean sand (D1315) and red clay (D1319) into which were set sandstone blocks on the south side (D1228) and bonding tiles on the north side (D1250). Alternate layers of sandstone and red clay were then built up, leaving a narrow flue channel between. This would have been covered eventually by large terracotta bonding tiles to form the floor of the oven, but these did not survive. An adjacent hearth of tiles set in clay, D958, was constructed at the north-west corner. The tiles had turned grey and had been shattered by the heat, and the clay had been partially fired in places. The superstructure of the oven had been destroyed but sufficient of it was left in the form of debris to show that it had been domed on a framework of withies. Three stakeholes, D897, D896, and D895, probably formed part of this framework.

A coin of Valens (dated AD 367–75) had become embedded in one of the oven's clay bonding layers, providing an unequivocal *terminus post quem* for the oven's construction, and remanent magnetism showed that it had last been fired in the first half of the sixth century, or possibly in the later fifth (see below).

Large amounts of charred grain were found in association with the hearth and oven, and in their destruction levels (*see appendix 6*). Since hearths and ovens such as these are typical of bread ovens down into recent times, there is little doubt that Building 63 was a bakery.

Building 64, which lay to the south of Building 63 on the other side of the basilica's west door, was also post-built (see Fig 135), and like Building 63, its west wall lay just inside the line of the colonnade. Its north wall consisted of posthole D1015 and post-setting D2535 which being at the ends of the wall perhaps indicated a framed wall. The west wall was of alternate post-settings and postholes with D2535 at the north-west corner and D1135, D1367, and D1210 south of it. The south-west corner was not found, but the line of the south wall was indicated by posthole D1016. It was approximately square with one internal posthole, D1120, but it is possible that it extended further south, out of the excavated area. There was no evidence for its use.





Fig 139 above: Phase W2 floor with joist positions shown by lines of pebbles and dark earth. The raised threshold outside the east door in the north wall visible above the ranging pole gives the approximate height of the timber boardwalk; below: joist positions (marked by ranging poles) on the Phase W1 north portico floor, looking west. The removal of the Phase W2 floor and its make-up left these lines which were thus formed from the compacted make-up of the overlying pebble floor

It is evident that in this phase the west portico, fronting as it did on to Watling Street, was in use by tradesmen or shopkeepers even if the roof and perhaps the colonnade had gone. This activity was traditional in Roman porticos, as shown by the nests of samian and piles of whetstones found by Donald Atkinson in the forum gutter following a second-century fire (Atkinson 1942, 127–46). Graham Webster also found evidence for similar activity on his section of the portico further south (Graham Webster, personal comment), while Atkinson found an identical baker's oven on the forum portico which was apparently contemporary with ours (Atkinson 1942, 108–9, pl 26b).

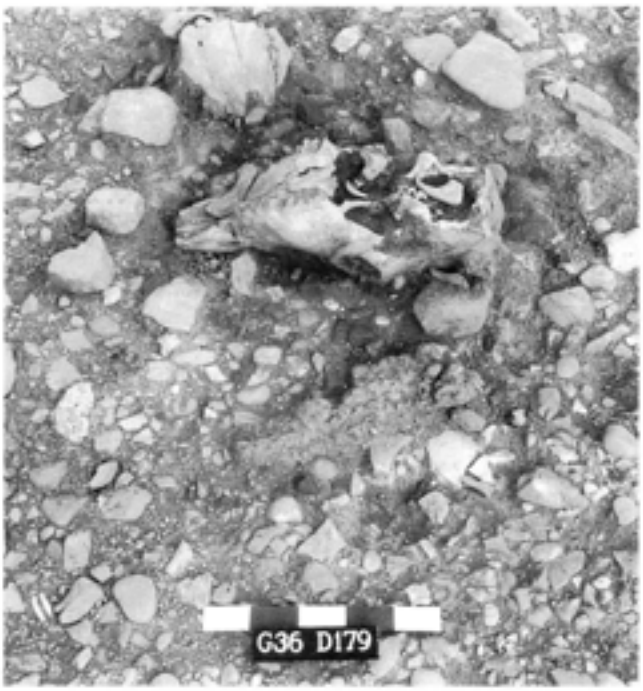


Fig 140 Ox skull found uncrushed on the surface of the Phase W2 north portico floor. This can only have survived intact on this floor because it was protected by the overlying timber boardwalk of Phase X



Fig 141 Two of the compression lines (D645, D646) on the north portico. These features were caused by the weight of traffic on overlying joists which compacted the underlying make-up differentially

The north portico (Figs A80–A83)

At the east end of the north portico it can be demonstrated that the colonnade had lost its roof and the columns had been removed to allow robbing of the portico stylobates. It is not clear how far west this robbing extended (see Phase Y, below). Even at the east end of the portico it was not wholesale, and four stylobates were left in place. The robbing trench was backfilled.

Further west, there was evidence that the subsidences of the north portico floor, some of them massive, prompted a fundamental change: reflooring with hard-core and pebbles was abandoned in favour of the construction of a timber boardwalk along most, if not all, of the length of the portico in front of the basilica.

The evidence for the boardwalk is strongest at the east end of the portico in grids 35 and 36. Here, trowelling of the whole portico surface in one operation revealed parallel lines of pebbles and long grooves in the pebble surface, though they were only obvious when viewed along the length of the portico, particularly from the east end (Fig 139). It is fair to say that if the portico had been dug in small areas or only viewed from the side, it is doubtful if the evidence for the boardwalk would have been recognised. There were five parallel lines, spaced roughly equidistantly across the width of the portico and these are assumed to be joist positions. These lines were traced on the pebble floor for approximately 10m but few surface traces were found west of grid 35. One of the most graphic pieces of evidence, however, was an uncrushed ox skull which lay between the projected lines of two of the joists in grid 36 (Fig 140). Clearly, if there had not been something to protect this skull, it would soon have been shattered or removed by the passing pedestrians. Further evidence was found when the upper Phase W portico floor was removed. Compression lines D644 to D648 were found in the make-up for that floor and corresponded exactly with the position of the overlying joists (Figs 139 and 141). Further west still, in grids 38 and 39, lines of stake-holes, or solution-holes D289, D294, D275, D287, D272, and D293 were found in the make-up which appeared to frame the large subsidence in the centre of the portico floor (Fig 142). Two linear areas of mortar, D513 and D550, may represent bedding for north to south joists. A distinctive but inexplicable line of iron-staining along the east edge of D550 may be taken as evidence for a sub-rectangular building or for a framework of joists placed around an area of subsidence to carry a timber floor over it. The latter hypothesis is perhaps the more attractive as it fits with the evidence further east and there was no sign of habitation in the presumed building. Nonetheless, a structure cannot be ruled out here. No evidence for a boardwalk was found further west.

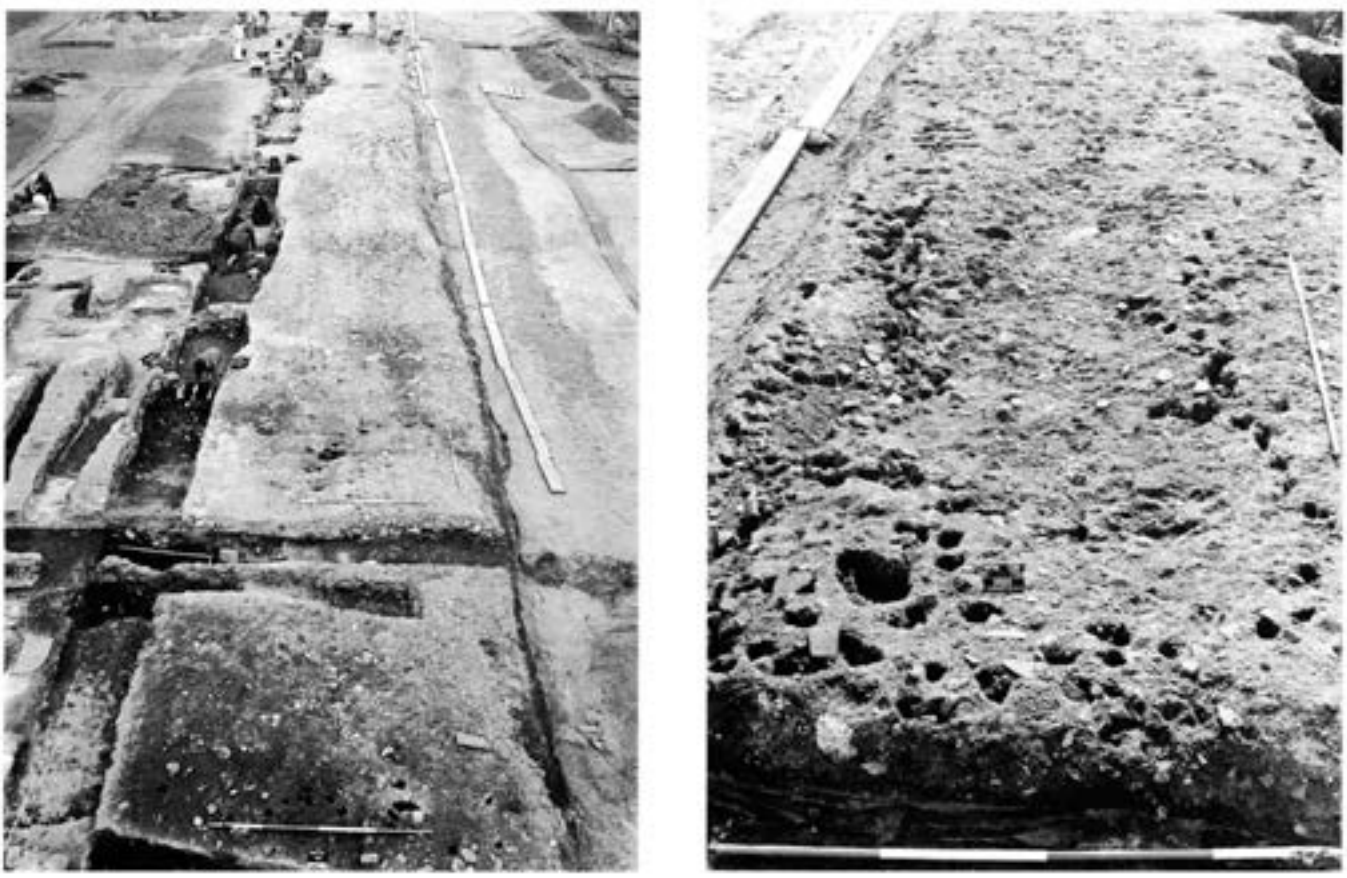


Fig 142 left: stake or solution-holes, marking the position of joists on the north portico floor, looking west; right: stake or solution-holes framing a subsided area of the north portico floor, looking east

To the east the boardwalk apparently ended at a north to south joist position in grid 34 (D536–D540) as immediately to the east of this was the remains of a small rectangular oven (D501) whose associated hearth had presumably been lost in an adjacent archaeological trench. This was of similar construction to that found on the west portico but was much smaller (Fig 143). The oven's floor consisted of micaceous flagstone slates, D1343, and its walls were of sandstone blocks set in clay. It may have replaced an earlier oven, which survived as a shallow charcoal filled scoop, D1349, just to the south, abutting the north wall.



Fig 143 Oven D501 on the north portico looking east showing the clay walls and micaceous flagstone base

More evidence of occupation was found to the east where two buildings of similar size, but different construction, appear to have been put up (Buildings 57 and 58). The evidence for Building 58, the western one, hinged on one posthole, C450, which had been dug into the backfilled robber trench for the north portico colonnade (Fig 144). This lay at the eastern end of a line of four stylobates (C451–C454) which were clearly still *in situ* and together these features represent evidence for the north wall of the building. A presumed matching posthole at the western end of the stylobates may have been removed by an archaeological trench here (see Fig 26).

From the extensive wear pattern between stylobates C451 and C452, it is presumed that a door was located here, and this was confirmed by a two-tread step made of compacted earth and pebbles (C455; Fig 145), which was found between the stylobates and the cobble street at this point. Inside the building, the subsidences in the north portico floor had been levelled with patches of beaten earth (C308, etc) and there was a second doorway opposite the first in the south wall which led into the annexe.

The second structure, Building 57, lay immediately to the east of Building 58 but was constructed entirely from a mass of stakeholes (Fig 146). Again, the general



Fig 144 North portico showing part of the stylobates left in position after the rest of the colonnade had been demolished and robbed out. These stones formed the north side of Building 58 which spanned the portico. Posthole C450, which is packed with a fragment of a torus moulding from an Attic base, is in the foreground

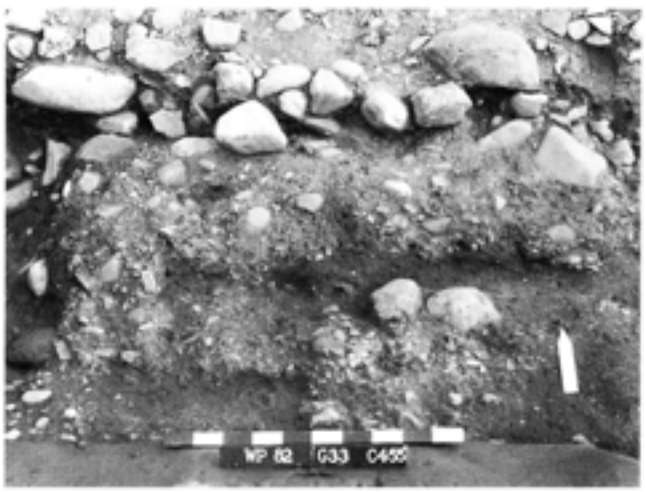


Fig 145 Foundation for a two-tread step between the cobble street and the north wall of Building 58

shape of the building was clear: a rectangular structure with a well-defined north wall made up of numerous stakeholes cut into the backfilled robber trench, with secondary lines of stakeholes, some of them double, running north to south to give possible west and east wall lines. In detail, however, the building is frustratingly difficult to make sense of, possibly because it had been rebuilt several times.



Fig 146 Stake-hole structure Building 57 seen from the north-east. The stake-holes are bounded on the north side by the backfill of the portico robber trench, showing that the stylobates had been robbed out and the trench backfilled before Building 57 was erected

A doorway leading south into the annexe was found and presumably there was a second door giving access onto the portico, either via Building 58, or directly, perhaps at the south end of the east wall.

Another group of stakeholes was found lying some distance east of Building 57. These do not seem to be associated with a structure but four of them (C117–120) appear to represent a short fence line.

Dating: Phase X

One determination, Birm–1181, obtained from charcoal in hearth D541 at the east end of the north aisle from the early part of the phase, gives a date range of Cal AD 410–650 (1520±60 BP). Two coins of Arcadius and Valentinian II dated 388–92 from the north portico colonnade robber trench and the 410 terminus post quem (confidence 97.5%) are consistent in suggesting that Phase X did not begin before the early fifth century. The end of Phase X is marked by firm remanent magnetic dates of between AD500–550 from the oven, D371, in Building 63 on the west portico. This was initially published as AD 400±100 (Barker 1983, 3) but a recent re-analysis of the date by Tony Clark (who carried out the original assay) has produced this new date. Given its importance, the evidence is here presented in full:

> Samples were taken from clayey material used to cement the tile structure, after removing three of the uppermost surviving courses of tiles. The material was only moderately stable magnetically, and only 5 of 12 samples taken were sufficiently well grouped to provide a reasonable result after partial demagnetisation at 10mT, as follows: Dec = 6.9°; Inc = 69.8°; alpha-95 = 4.9°
>
> Taking into account the trend of changes during the demagnetisation tests, a western bias in many of the readings, and the distribution of values within the group used, a tentative date in the first half of the sixth century AD is suggested. A less likely possibility is a date in the first half of the ninth century. The steepness of the inclinations seems to rule out the fifth century, except possibly its latter end.

Given this new dating, Phase X must have ended about AD 500–550. A date in the first half of the sixth century thus seems most likely for this phase, although the latter end of the fifth century is still possible. This broad date of roughly 60 to 70 years is, however, too long for the actual duration of the phase. All of the buildings were relatively flimsy and none had extensive worn surfaces associated with them. It is likely, therefore, that Phase X took place sometime within the period between the latter part of the fifth century and the middle of the sixth but may not have lasted more than a generation, a conclusion reinforced by the fact that radiocarbon determinations for the end of Phase W and Phase X were identical (Birm–1187 and Birm–1181; both 1520±60 BP) *(see Table 17 and chapter 7)*. The overlap in dating with Phase Y (see below) also indicates that that phase should also be dated before the mid sixth century.

Phase Y: partial dismantling (Fig 147)

The south aisle (Figs A84–A88)

At the east end of the aisle a series of dumps of mixed material including much masonry, micaceous flagstone slates, and ceramic tile had been used to fill the large quarry pit occupied by Building 54 (see Phase X, above). There were no structural features, nor had the surface, which was very uneven, been walked on. Near the top of this dumped material in D1282, a layer of unworn sandstone rubble in dark earth, were seven ox skulls, many almost complete and some showing signs of pole-axing (Fig 148). Opinion is divided as to whether they were ritual deposits or simply butchery waste *(see chapter 6 and Appendix 8)*.

Incorporated within the upper loamy layer, D1231, of the rubble were 24 billon and bronze coins of mid fourth century date. In the underlying layer, D1326, a further 34 coins were found bringing the total of this small hoard to 58 (Brickstock 1992). The coins had apparently been scattered, unnoticed, when the rubble was deposited, perhaps from a bag brought in from elsewhere with the rubble. However, it is clear from the overall site phasing that this dumping was probably taking place in the sixth century.

The rest of the south aisle up to the west end was covered with micaceous flagstone slate fragments in varying densities bedded, in most areas, on silt or hard-packed earth. This horizon of slates on dark earth was

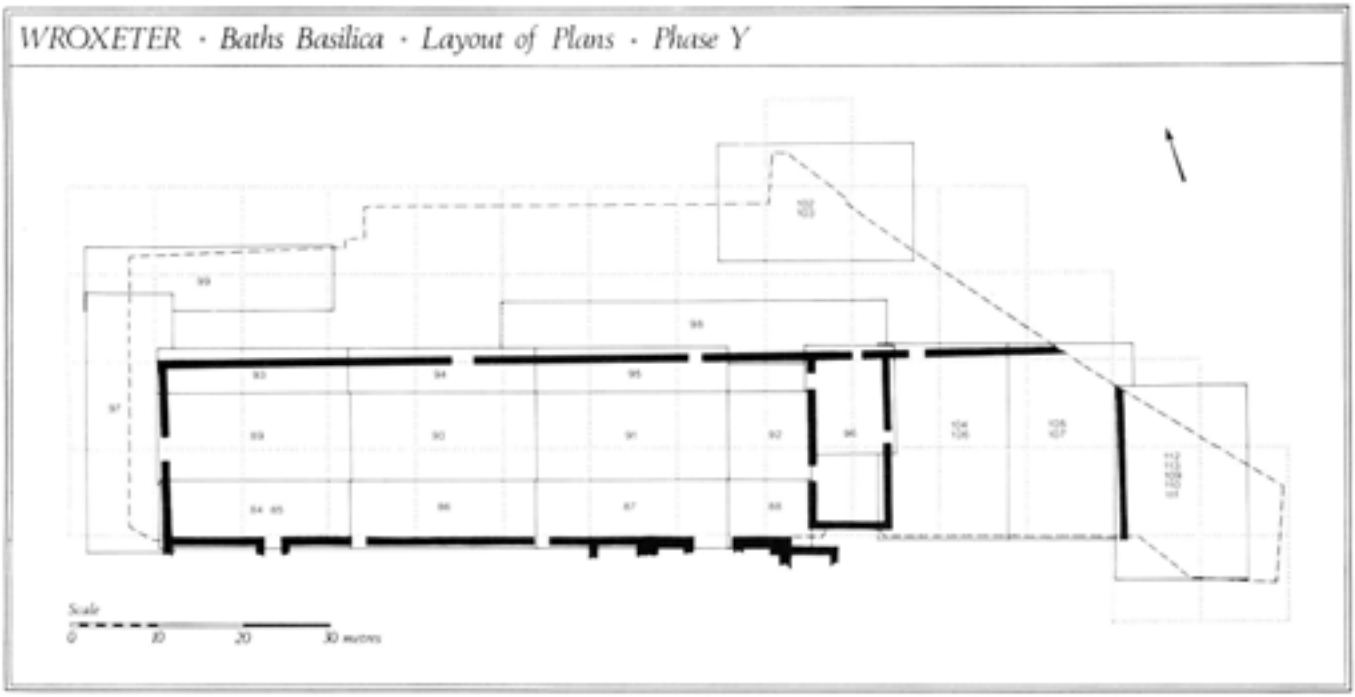


Fig 147 Layout of loose-leaf plans, Phase Y

found throughout the baths basilica in this phase and strongly suggests that the roof of the aisles and nave were now taken down, the slates being used to form surfaces on the floor. This hypothesis is given weight by the indications of the burning of worm-ridden timbers in this phase (*see appendix 7*).

At the west end of the aisle, beyond the western doorway, the sequence of events became more complicated, and Phase Y here seemed to consist of two sequences. Phase Y1 was a continuation of the shattered micaceous flagstone slate layer, while Phase Y2 consisted of a mortar platform, D419, at the extreme west end of the aisle bounded on the east by a line of



Fig 148 Rubble dump D1282 at the east end of the south aisle which filled a deep quarry hole dug in Phase X, (a) marks the position of a coin hoard. In the background (b) ox skulls which have been dumped here then buried beneath further dumps of dark earth



Fig 149 Building 52 (foreground) at west end of south aisle and beyond, to the right, worn tile surfaces D350 leading to various doorways in the south wall

rubble and interpreted as the floor of a small structure, Building 52, leaning against the west and south walls of the basilica (Fig 149). It is assumed to be of framed construction, and an area of laid terracotta tiles, D350, may indicate the position of the entrance. It directly underlies Building 28 of Phase Z (above).

East of Building 52 three areas of rubble appear to represent paths leading to openings in the south wall of the basilica (Fig 150). Rubble path D327 led to the original west doorway which gave access to the baths portico and public latrine, but path D325 led to a new opening in the wall giving access to the corridor between the latrine and the shops fronting Watling Street. Between the two paths lay an area of unworn rubble, D326.



Fig 150 Worn rubble surfaces D325 and D327 in south aisle which replaced D350. They are separated by an unworn rubble surface, D326

The nave (Figs A89–A92)

As with the south aisle, dark earth was dumped throughout the nave and this was then covered with a layer of micaceous flagstone slates, most of them broken and probably deriving from the demolished roof. These tile surfaces, which were recorded as thickest at the east end and towards the west end of the nave, seem to have been laid deliberately to make it easier to walk on what would otherwise have been soft earth, becoming mud in wet weather.

At the extreme west end, inside the west door, a more substantial surface of sandstone rubble was laid, D318 and D312, and this had become worn by the traffic entering the building (Fig 151).

At the east end, the micaceous flagstone slate floor was later buried by the collapse of the western wall of Building 31 (see Phase Z, below), and so was preserved in its original thickness although disturbed by the weight of the courses of stonework which had impressed themselves on the tiles when the wall fell (Fig 152).



Fig 151 Worn rubble area D318 just inside the west doorway of the basilica, looking west



Fig 152 above: micaceous flagstone surface D77 at east end of nave, looking west. The lowest course of wall D75 is in the foreground;
below: D77 looking north;
both views show distortion of the surface caused by the collapse of wall D75 after basilican site abandonment



Because of a mistaken understanding of this micaceous flagstone tile layer at the time of excavation it was not recorded in detail in the central part of the nave, and on Figures A89 to A92 the micaceous flagstone drawn is only that visible though the overlying Phase Z layer, but there is little doubt from the written record that the micaceous flagstone layer ran the length of the nave and represented a comprehensive reflooring, albeit crude, of the whole interior. The hatched areas on the plans represent its presumed original extent.

The north aisle (Figs A93–A95)

All the evidence for this phase had been removed from the eastern-most 20m of the aisle by nineteenth-century trenches. West of this area, however, in spite of numerous archaeological disturbances and trenches, it was clear that a layer of micaceous flagstone slates, varying in density, had been spread over a bedding of dark earth throughout the aisle.

A concentration of them was noted around the central doorway. Many of them seem to have been whole when laid but had later shattered *in situ* due to trampling or frost. At the west end of the aisle, the wall of Building 61 seems to have begun to deteriorate as the daub from its western face had collapsed in a heap at its foot (D715, D775; Fig 153).



Fig 153 Wall of Building 61 showing the collapsed daub facing, looking east

In grid 23 a large fragment of masonry four courses deep had embedded itself in the micaceous flagstone layer and the soft surfaces beneath (Fig 154). From its shape it was apparent that it was part of a window embrasure, plastered both inside and out and showing traces of red, white, and orange paint. From the fact that it had embedded itself deeply into the floor layers, it is likely that it fell some distance, either from the clerestory of the nave or from a window in the north aisle wall under the portico. From the angle of impact, the latter seems more likely. This fragment is important, not only because it gives information about the fenestration and decoration of the basilica but because it is the only fragment of such debris found anywhere within the building.



Fig 154 Fragment of north wall of basilica, impacted into north aisle floor after the micaceous flagstone layer was laid down

If the basilica had been allowed to collapse, even partially, there would have been many more such fragments, some of them no doubt massive, embedded in the floor. A visit to any ruined building illustrates the destruction caused by the collapse of masonry or of the massive roof beams necessary in a building of the basilica's size. All the evidence, which, except for this fragment, is negative, points to the careful dismantling of the building, with the minimum of damage. This piece probably fell from the north wall when it was being demolished in the phase prior to the great rebuilding (see Phase pre-Z, below) and was left to be incorporated in the rubble platform foundation for Building 10.



Fig 155 Area of laid micaceous flagstone tile around central doorway in north aisle

To the west of this fallen fragment were concentrations of slates laid apparently to form paths leading to the central doorway in the north wall (Fig 155). As elsewhere in the basilica these paths are evidence that its walls were still standing high enough to prevent people taking shortcuts over them.

The annexe (Fig A96)

Only one significant context had survived in the annexe in this phase. This was a micaceous flagstone slate and rubble surface, B299, probably a path, which led south from the opening in the north wall of the annexe. What it led to is not clear as all the surfaces belonging to this and later phases in the southern half of the annexe had been removed by trenching, but the faunal evidence indicates that the annexe was now disused (*see appendix 8*).

The west portico (Fig A97)

Little activity was observed on the west portico. The Phase W pebble floor and the Phase X buildings were both levelled by miscellaneous earth and rubble dumps (D762, D885, etc) which, unlike those in the interior of the basilica, were not surfaced with slates (Fig 156). A notable feature was the inclusion of much animal bone, including ox skulls. This was a common feature



Fig 156 West portico looking west showing the rough rubble flooring of Phase Y (D762, D763). A path leads to the threshold stone a) in the west wall

of large dumps at Wroxeter and it may be that dumping of butchery waste on surfaces due to be levelled was normal practice. The most important component of the dumps was an arc of rubble, D763, which led from the colonnade to the west door. This was clearly a path into the basilica, but its narrowness suggests that the partial blocking of this door was already in existence. North of the doorway, the oven flue was filled with a dump, D845, which indicates its disuse.



Fig 157 Worn rubble surfaces in the backfilled subsidence in the north portico

The north portico (Fig A98)

It is possible that over parts of the north portico the Phase X boardwalk was still in operation but this cannot be proved. In general there is little evidence that the portico was in use. At the west end in grid 40, the continuing problem of subsidence led to the deposition of a final, thick humic dump (D320) into which areas of rubble had been set (D314, D315, D316, D322). These stones were heavily worn showing that traffic was still using this end of the north portico (Fig 157).

In the centre of the portico no new surfaces were laid. Further to the east, in grids 35 to 38, D150, a patch of micaceous flagstone slates and rubble in mortar outside the east doorway showed that this was still in use (see Fig 139). This patch sat within the general levelling layers D151 and C275.

The north portico colonnade robber trench

This was the longest of all the features on the site (100m). As already discussed part of the portico colonnade had been robbed out in Phase X but the bulk of the stylobates may well have been robbed this phase. There was evidence that the stones were levered out onto the street where they could be easily carted away.



Fig 158 North portico colonnade robber trench emptied, looking west. The north portico floor a) was too high to allow robbing of the stones in this direction, consequently the stylobates must have been taken out on the street side b), over the spine of road wash. The street was later robbed out leaving the road wash isolated

This robbing must, therefore, have been carried out before the cut was made for the gravel street (Fig 158, and see Phase pre-Z, below).

The most obvious characteristic of this phase is the impression that the basilica was totally derelict. Nonetheless, the fact that someone had ordered the roof to be taken down carefully suggests that it was still under municipal control. Analysis of charcoal within this phase showed that it all derived from oak, some of which was worm-eaten indicating that the source was probably roof timbers too decayed to salvage (*see appendix 7*). Most of the roofing slates were taken away but considerable numbers were reused as rough paving around doorways and along paths inside the building. A path was found on the west portico leading into the west doorway, and the area around the latrine door was resurfaced twice. People were still using the basilica, even though it was unroofed, and it is not inconceivable that it was being used as an open-air market, a forum. One of the excavating team (Paul Barford) now living in Warsaw, has informed us that just such a market operates in the ruins of a public building bombed-out during the Second World War.

Dating: Phase Y

Two radiocarbon dates were obtained for this phase. One, from charcoal in dump D762 (Birm–1186, 1530±70 BP) on the west portico, gave a date range of Cal AD 390–660. This gives a 97.5% confidence terminus post quem of AD 390, but since dump D762 overlay oven D371 which had a remanent magnetic date of AD500–550, the earlier part of this range can be excluded. The second, for a human skull fragment found in the micaceous flagstone layer D100F–2 in the nave, produced a date of Cal AD 140–540 (OxA–1578, 1690±70 BP). Again, these dates are not relevant to the phase but only to the skull fragment which appears to date from before AD400 (see Table 17). A dress pin of Fowler's type E (*chapter 6, Fig 310, no 1*) which may have a fifth century date was also recovered from the annexe in this phase. It is too insecurely dated to add any further dating information.

Peripheral areas

This section discusses the areas outside the basilica in the levels below Phase Z. In Phase Z, it is possible to demonstrate physical links across site boundaries which allow the entire site to be dealt with as a single unit. Below Phase Z, while it is still possible to phase the interior of the baths basilica as a unit, comprising the north and south aisles, the nave, the north and west porticos and the annexe, four areas of the site cannot be shown to link in with the basilican area. These are the east to west street and associated water pipes, the *insula* 2 frontage, the baths precinct, and the eastern side of *insula* 5 with the north to south street and west frontage of *insula* 6.

Each of these areas has been phased taking as the starting point the overall Phase Z which, as noted, can be shown to be the same across the entire site. Below this, however, it is likely that independent chronological sequences developed. The phases have been lettered backwards from Z as with the basilican area but this does not mean that any of the phases can be said to be equivalent to those in the basilica or even to those in other subsidiary areas (*see Table 1*). There is a possibility that they are the same, but it cannot be proved and so it is safest to assume that they are different unless it is possible to link them subjectively. Nonetheless, for convenience, the layout sheets for each phase of these subsidiary areas will be found on the corresponding phase of the basilica.

The drains and the east to west cobble street, Sites C and E

This section deals with the contexts predating the cutting of the Phase Z gravel street (see Phase pre-Z, below). To the east and west they comprised the remains of the east to west cobble street into which the gravel street was cut, and to the south a spine of material, mostly road wash but including pipe trenches, which had accumulated at the edge of the cobble street against the stylobate of the north colonnade (see Fig 158). The importance of the spine was mainly that the material within it was undisturbed stratigraphically and thus provided a potentially good dating sequence for the basilica. However, the robbing of the portico colonnade had severed any stratigraphical links between this material and the portico. The road wash deposits were also excavated in the area at the west end of the site where the cobble street still survived, this being done so that the entire length of the stone drain for the basilica might be revealed. Unfortunately, this meant digging out of sequence with the surviving road surfaces, which were not excavated, thus severing the street surfaces from the potential dating material contained within the road wash and pipe trenches. In mitigation, it should be said that the equivalent deposits on the north side of the street remain untouched.

Pipe trenches and the fountain (Figs A15 and A16)

The only drainage feature which may be definitely associated with the construction and use of the baths basilica was a partially robbed stone gutter or conduit (E230) which survived only at the western end of the site. The gutter consisted of sandstone blocks which were rectangular in shape and had a hollow, U-shaped channel cut in them running parallel with the long edges of the stone. The stones, which were left *in situ* at the end of the excavation, were lettered A–Z and AA–HH, giving a total of 34 stones with stone A being at the east end (Fig 159). The total surviving length of the gutter was 38m with the width of the stones being



Fig 159 Stone gutter of basilica, looking west with north portico colonnade to the south, (cf Fig 23). Silts to the north are road wash within which are box-drains. The gutter has been robbed away and a timber box-drain butted onto it (see Fig 170)

generally about 0.7m. The stones varied considerably in size with the smallest (stones J and R) being about 0.5m by 0.75m in size and the largest (stone GG) being 1.8m by 0.75m. All the stones were about 0.4m deep. It is clear from Figure 159 that the ashlar blocks forming the gutter were laid up against the existing stylobates. This is demonstrated by the remarkably straight southern edge of the guttering, in contrast to the northern side where no attempt was made to straighten the edge. This latter fact would tend to argue that the northern edge was flush, or nearly so, with the road surface when first laid. Given this, it is not surprising to find that much of the northern edge of the stones was worn but that wear only occurred on the southern edge in certain areas, eg stones DD–HH which were at the heavily used north-west corner of the portico. The fact that the southern edge was worn in this case would argue that the associated stylobates would also have been heavily worn. Two stones, Q and R, appeared to be a repair (Fig 160). Tooling marks on the stones consisted of pecking and claw marks, the latter sometimes diagonal (stone B) or vertical (stone K), but never cross-hatched. The channel, which was a flat-bottomed U-shape 0.4m wide and 0.2m deep, was cut by chisel and was remarkably well-aligned.

Subsequent damage to the gutter was apparent in two places. Stone DD at the west end had partially subsided causing its southern edge to be raised out of alignment with the others (see Fig 23). There was no obvious cause for this, but subsidence into underlying pits had caused similar problems at the west end of the north portico. The southern edge of this block, despite being raised above the level of the other gutter stones, was not worn except at the west end, this being due to a column that stood just by this stone and therefore protected it (see Fig A15). The second area of damage involved stone Q which was a replacement made from a much more friable sandstone and had sunk so that it was much lower than the surrounding stones. It had apparently been needed because subsidence in this area had caused the original gutter stone to sink and fracture. This was then removed and the new stone, E283 (stone Q), inserted. It too sank. One final context noted was a graffito (E282) on stone W. This was a numeral, *VII*, inscribed as though intended to be read from the north (Fig 161).



Fig 160 Gutter stones Q and R. These blocks were shorter than the others observed and one, E283, was of a different sandstone which had begun to disintegrate as it subsided into an underlying feature

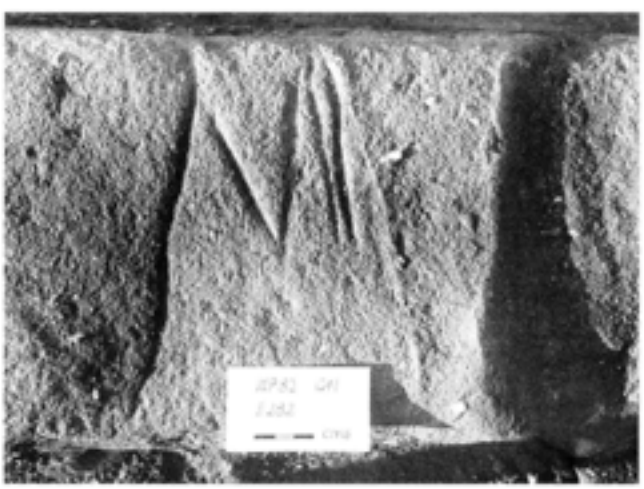


Fig 161 Numeral VII cut into the northern edge of stone block W in the gutter. The long ridge to the right is a natural vein in the stone, and the long cut to the left is a natural fracture of the stone

The four strokes making up the number were cut with a chisel and were quite sharp. As this was not the seventh block from either end of the sequence, it may represent a batch number for the partially dressed block before it was put in position or could, perhaps, refer to the nearby columns as the stone lay between the sixth and seventh columns of the portico colonnade.

To the north of the stone gutter, the associated street surface was either still buried beneath the later surviving cobbled street at the east and west ends of the site, or had been almost totally removed by the cutting of the gravel street (see below). In the spine, the remains were given the numbers E97 and E138. They did not represent a distinct archaeological horizon but merely the material left *in situ* after the road metalling had been removed. Much of this material was crushed sandstone with pebbles, a foundation for road surfaces also noted on the north to south street (Site A). At the western end of the gravel street, where the amount of material extracted had not been so great, there was some evidence for stratified surviving street surfaces and associated pipe trenches. The presumed Phase S street surface (E291/E307), which was the first identifiable street surface lying at about the correct height for the gutter, was found to have three pipe trenches below it. One of these (E314/E303/E205/E214, etc) was probably contemporary with the Phase S street surface and will be discussed below. The other two were traceable only in short sections and presumably belonged to a phase earlier than S, possibly being in use in the early civil period (ie about AD 90–120).

The earliest of these pipe trenches, E316/E319, was present merely as a number of voids beneath the second pipe trench (E304) suggesting that the second pipe was a direct replacement for the first. Only two of the voids, E316 and E319, contained pipe collars, at different spacings from those in E304 overlying it. These were left *in situ*. E319 was 0.4m long and aligned north to south, running into E316, the junction perhaps being effected by a T-shaped section of piping. Given the depth of these features, they were left undisturbed after examination. Overlying and presumably replacing this pipe, was another pipe trench, E304, which was followed for a distance of 10.2m until it was cut by an archaeological trench, appearing in the eastern section of that feature as a void 250mm below the surviving street surface. It was decided that it would not be practical to follow this feature any further since it seemed to be becoming increasingly deeply buried. The pipe trench was found to have an almost circular cross section 270mm to 300mm in diameter at its widest point and was about 200mm to 250mm deep. Five iron pipe collars were found spaced at intervals of 1.6m, 1.56m, 1.44m, and 1.6m (Fig 162), that is, roughly 5*pM* apart (1.475m). The fill within this pipe trench, E313, showed some evidence of water-sorting (coarse at the base, fine at the top) suggesting that the pipe had silted gradually. Although there may have been some settling of the fill, the collars appeared to have been put at



Fig 162 Two water pipes lying to the north of the stone gutter. The earlier more northerly pipe was not excavated beyond the fourth collar as it ran beneath the remains of the earlier cobble street. The main water pipe of Phase S is probably contemporary with the stone gutter and associated road surface

differing levels suggesting that the water inside the pipe was under pressure. At the western end of the pipe, a curved sheet of lead, E315, 0.46m long and 0.2m wide with a thickness of about 5mm, had been secured to the underlying wooden pipe on all four sides by a single line of nails. Presumably this represented a repair to the pipe, or was a covering for a junction with another pipe, as postulated for the earlier pipe E316/E319 (see above).

The third pipe trench found was the one that appeared to be contemporary with the stone gutter E230. It was found initially as a series of voids or hollows in the remains of the overlying street surface (Fig 163). When this surface was removed, the pipe trench was revealed, buried in the road make-up E317 which was a layer of brown silty sand with inclusions of tile, mortar, and some bone. When this stretch of pipe trench was excavated, it was found that it joined up with two sections further east excavated in earlier seasons (E205, E193, below). Although there was a slight gap between E303 and E205/E193, the alignments certainly agreed, despite the fact that the robbing of section E205 had impinged on the projected line of the guttering, thus appearing to throw doubt on the pipe trench and the gutter being contemporary. The fill of the western section of the pipe trench, E303/E314,



Fig 163 Voids appearing the street surface show the presence of water pipes. To the left a dark line indicates a drainage channel

consisted of unconsolidated, loose sandy silt with pebbles and small water-worn fragments of tile, which was characteristic of nearly all the pipe trench fills. Its cut was traced for 23.1m, and was 0.25m wide and 0.2m deep with a rectangular cross-section. The base of the cut appeared to rest on a crushed sandstone level which may have been equivalent to the road make-up E138. The pipe itself had a circular bore of about 100mm and was joined together by iron flanged pipe collars (Fig 164). A total of 13 collars was found, spaced at intervals of 1.45m, 1.54m, 1.70m, 1.54m, 1.69m, 1.77m, 1.58m, 1.68m, 1.64m, 1.65m, 1.66m, and 1.67m giving an average of 1.630m and a working unit of 5.5*pM* (1.6225m). All were well preserved and often showed traces of mineralised wood. Between the western and eastern sections of the pipe trench there was a gap of about 2m where the excavation of the gravel street had removed all evidence for the pipe, but beyond this E205 started. This ran for about 14m before joining its continuation, E193. Unlike the other sections of pipe trench, E205 was relatively shallow and broad, measuring between 0.2m to 0.35m wide. No pipe collars were found within it. It was noted, however, that 19 curved sections of mortar were found in the trench and these were interpreted as covers for the pipe collars like those found further east in E193 (see below). The curved sections of mortar were presumably derived from tile roofs where they will have held the *imbrices* onto the *tegulae*, especially at the ends of the roof if



Fig 164 Iron flanged pipe collar after excavation showing traces of mineralized wood around the flange and the outer thickness of the pipe



Fig 165 Water pipe trench E193, with iron flanged pipe collars still in situ. *This pipe trench joins one further west (Fig 162). The north portico colonnade wall lies to the left*

there were no *antefices*. It was not possible to gauge the distance between each pipe collar as the mortar covers were disturbed and out of position, which might perhaps suggest that the pipe was robbed out when those excavating the gravel street came across it. It can be established that with an average distance of 1.6m between each pipe collar, a total of about 9 to 10 lengths of piping would have been removed. The suggestion that this section of piping was robbed appeared to be borne out by the fact that the fill of E205 was

more mixed than that of E193 with pieces of sandstone, gravel, and tile within it. Two metres from the eastern end of E205 was E214, a semi-circular feature which appeared to cut or be associated with the pipe trench as it was at the same level and had the same fill. This may have been an inspection or repair hole.

The third, eastern section of the pipe, E193, was detected, as with E303/E314, as voids in the overlying street surface, and was the first examined. Casts of the voids were taken in plaster, especially in grid 34 where there appeared to be a complex series of holes. In some cases, these casts provided useful evidence of the bore of the pipe, which varied between about 100mm and about 150mm, and some of the wood impressions. The pipe was almost completely buried in the road make-up, although at the eastern end it was considerably shallower. It was traced for 24m, and a total of 11 pipe collars was found, all of the usual form, none from the eastern end of the trench (Fig 165). One (G.36, SF 528) was found with a mortar pipe cover still *in situ* (Fig 166). A second form of covering for a pipe collar was also noted, this consisting of a horizontally placed micaceous flagstone slate. The distance between the various collars was 1.71m 1.75m 1.41m, 1.63m, 1.68m, 1.54m, 1.54m, 1.54m, 1.73m, ?1.59m, 1.70m, and 1.76m, giving an average length to each section of 1.621m. This would suggest that the working unit for the pipe trench sections was again 5.5*pM* (1.6225m). The fill of the pipe trench was the usual loose, sandy silt with inclusions of pebbles, gravel, and tile fragments.



Fig 166 Iron pipe collar in pipe trench E193 showing extensive traces of mineralized wood and, to the left, a curved section of mortar used to protect or mark the joint

At the eastern end of the pipe, in grid 34, it was noted that there was a rectangular disturbance, E206, immediately to the north of the pipe trench. In the southern corners of this area were two circular voids, E202 and E203, which were filled with liquid plaster. On excavation these proved to be circular posts 30mm in diameter and about 0.42m long which formed part of a framework around the rectangular pit, E206. A third post, E220 was found in the north-west corner. It appeared as a square hole 50mm by 50mm in size with a loose loam fill and occasional voids. This had replaced an earlier post, E251, which had a dark brown loam fill with tile fragments. A fourth post, E238, was found in the north-east corner as a void. This was also filled with liquid plaster. The fill of pit E206 was excavated in 50mm spits using the quadrant method with each section being drawn before removal. Thus, cumulative sections of the fill were created for north to south and east to west sections. As each spit was removed, a new plan was also drawn and photographed giving a complete sequence (Fig 167). When completely excavated, E206 was 1.6m long (east to west) by 0.7m wide and 0.5m deep.

The lowest level of fill, E247, consisted of a layer of dark brown clay with some light brown sand within which were cobbles between 0.1m to 0.2m in size, tile fragments, and other finds. Associated with this layer were three small stakeholes, E252, E248, and E239. The first two were in the south-east corner near E202 and the last by the north-east corner post, E238. As with E251, these may have been earlier posts replaced by those found as voids. The sides of the pit appeared to have been revetted with planking before E247 was deposited, this planking being held in place by the corner posts or even perhaps by the earlier stakeholes E251, E252, E248, and E239 (Fig 167). The presence of this plank revetment was indicated by a thin line of clay, E253, found on the south-west and part of the north sides. Above E247, the fill of the pit changed considerably and within it the framework of a timber tank became apparent (Fig 167). The framework, E234, survived partly as voids, which had been filled with plaster, and partly as a light brown to dark grey clayey sand strip 3mm to 4mm wide. The planks, which were 200mm to 220mm high, were held together by a single nail at the corners with no obvious signs of jointing, and formed a structure 0.8m east to west by 0.6m north to south internally. Inside this framework was the fill of the tank, E216, which was a very fine silty sand with inclusions of small tile chips. Clear swirl patterns were noted indicating that the tank had filled up with silts quickly (Fig 167). The remainder of the pit was filled with two contexts, E217, a sandy clay with small pebbles, stones, and tile as inclusions which was more compact than E216, and E233, a secondary fill of light brown sandy clay with charcoal, tile fragments, gravel, and stones which was sandwiched between the sides of E206 and E217 in the north-west corner (Fig 167). A final feature, E218, was found in the south-east corner of the pit. This was a rectangular extension to the cut E206 which was 0.2m east to west by 0.45m north to south and 0.2m deep. Its fill of fine sand and grit was similar to that of E216 but it was separated from it by E217, indicating that it was a different structure.

Clearly, E206 was a feature closely related to the water pipe E193 *et seq* and probably represented a timber-lined water trough or roadside fountain, such as was found normally at the sides of Roman streets.

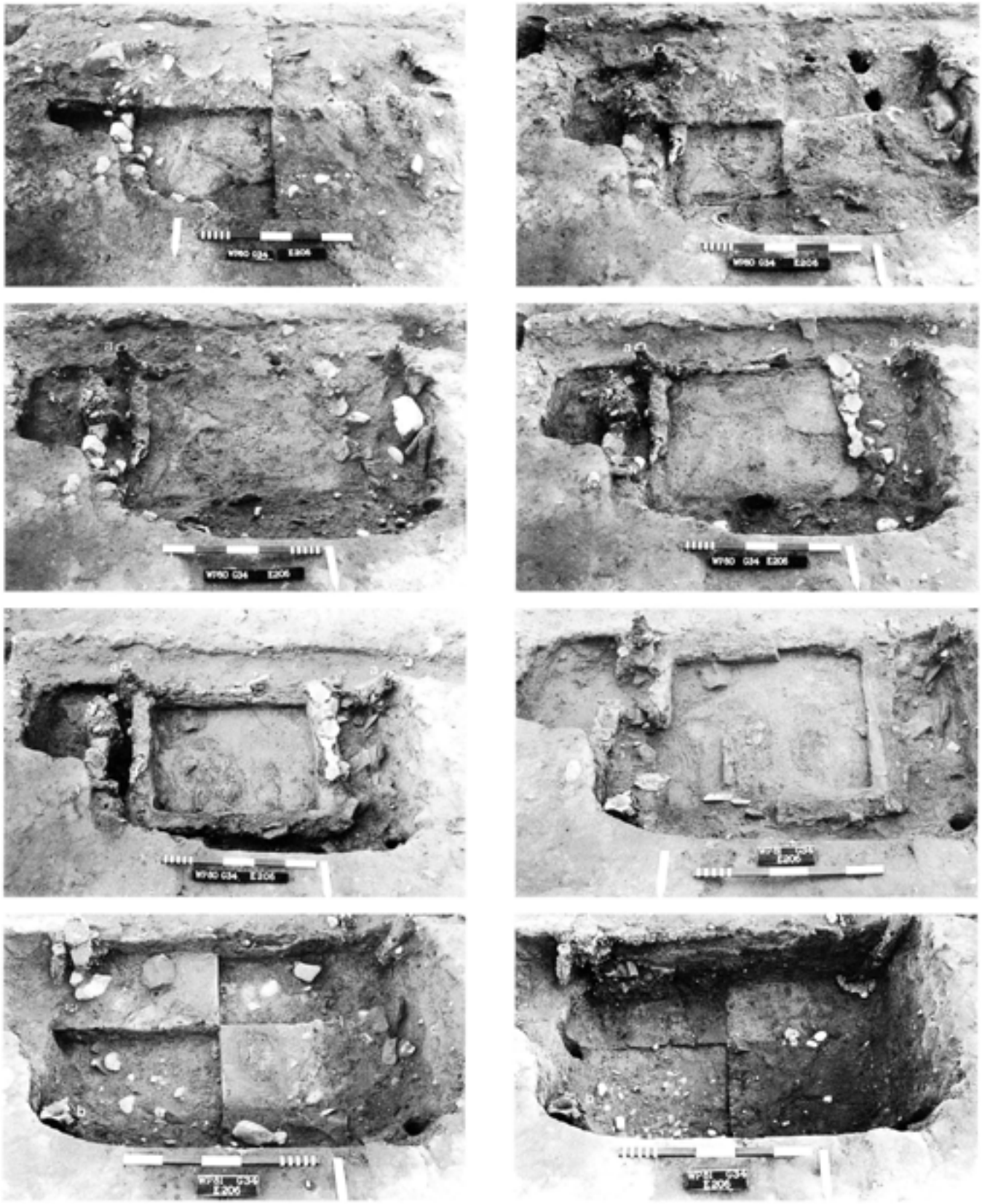


Fig 167 Sequence (left to right, top to bottom) of exavation of pit E206, looking south. Liquid plaster was poured down two vertical voids at the south corners of the feature to preserve their shape. This plaster revealed evidence for a wooden structure which had rotted in situ. The feature was dissected using quadrant method, with the two plaster filled voids labelled a). The bottom left hand quadrant shows swirl patterns, presumably produced by water which continued to flow after the superstructure had been removed. Further excavation revealed a rectangular framework, with a vertical post at b) and a small extension on the eastern (up-flow) side. The feature is perhaps a wooden box or tank connected to the piped water supply, with a stand-pipe at the eastern end, which may have been for a fountain

There is a stone example at *Coria* (Corbridge, Northumberland; Fig 168), and others in Ostia and Pompeii (Fig 168). The rectangular eastern extension, E218, may have been the overflow for it. Presumably, the wooden superstructure had originally been higher but had been truncated by the cutting away of the cobble street for the gravel street.

The next sequence, a total refurbishing of the drainage system, although clearly detectable archaeologically, has proved to be difficult to assign to any particular phase. Due to the radical nature of the operations, however, it has been decided to put it in with Phase W as, within the baths basilica, this phase was the one in which the bulk of maintenance work took place. Nonetheless, it is possible that the sequence could have operated over more than one phase. Three distinct sub-phases appear to be represented: an initial partial robbing of the stone gutter and its replacement by a wooden box pipe, a renewal of this pipe at the western end and finally its total replacement by other pipes.

The first action in the refurbishment of the drainage system appeared to be the robbing of much of the stone gutter of the basilica. It is presumed that this originally ran the full length of the building but had become unserviceable as the road level to the north of it rose





Fig 168 above: Corbridge Roman Fort, Northumberland water tank in road surface;
below: Pompeii, Italy, stone water tank set in street surface



Fig 169 Box-pipe E219 within the spine of road wash to the north of the north portico colonnade. The linear void to the north is the earlier pipe trench E193 (Fig 165)



Fig 170 Outline of a timber junction box, E271, inserted into the robbing hole for one of the drains stones between a timber box-drain and the stone gutter (which had probably become a conduit)

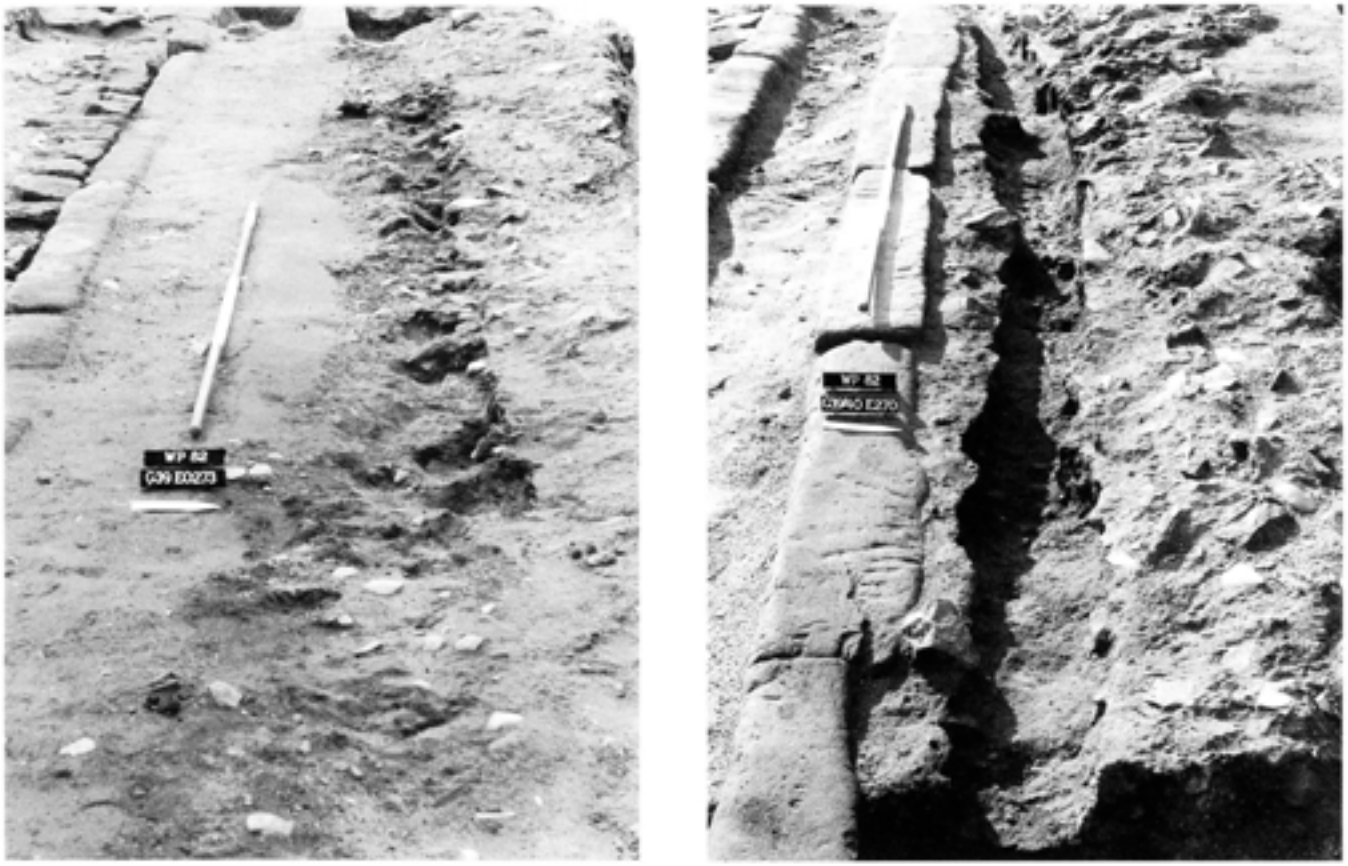


Fig 171 left: Silts E273 before excavation, looking west, the edge of the silted conduit to the left; right: water channel E270 cut through the roadside silts, after excavation

through time, and as parts of it subsided into underlying pits. At some point, although the chronology is unclear, the stones of the gutter were robbed out east of grid 38, 280E, thus removing up to 60m of guttering (Figs A65–A68). There were no traces of the robbing trench except perhaps at the eastern end of the site, where a narrow band of archaeology, 0.8m wide, lay between the northern edge of the stylobates and the southern edge of the cobble street. This area, C458, was a black-brown loam layer with a high proportion of moderately sized river cobbles and small grit. Its surface was worn and compacted. This may well represent the consolidated backfill of the trench for robbing the stone gutter. If so, the robbing must have taken place before Phase X which is when the colonnade stylobates themselves were robbed (see Phase X, above). Within this layer were two areas of probable pipe trench fill, C464 and C448, the latter containing three iron pipe collar fragments. It is possible that C464 was the eastern continuation of E219 (see below) but, sadly, this cannot be proved. C448, however, appeared to be quite late in the sequence and might well be associated with E96 (see below).

The rest of the robber trench for the gutter stones, between grids 34 and 38, was filled with E96, a mixture of road metallings and sandy silts washed from the street surface. Within E96, evidence was found for a new rectangular-sectioned water pipe which was divided into two distinct sections. An eastern half, E219, consisted of parallel ridges of mortar 20mm to 50mm wide and up to 80mm high running for about 11m, and a western section, E231, consisted of a pipe trench 17m in length. It is apparent from photographs of E219 (Fig 169) that the ridges represented two sides of a box-pipe, the base of which was up to 150mm wide. No pipe collars were found associated with it so the method of jointing the sections was not clear, but their lack might suggest that the water was not under pressure. Caulking might therefore have been enough to hold the pipe together. The continuation of this feature, E231, was much less structured, showing as an irregular gully up to 300mm to 400mm wide and with an irregular depth. It is possible that this too had originally been timber-lined but that this lining had been robbed at a later date and that water continuing to run in the trench had eroded its sides. A possible inspection pit or repair hole, E192, was noted within the line of E219. Both E219 and E192 were cut from the same level showing that they were contemporary.

At the western end of E231, the wooden box-drain met the stone gutter. At first there seems to have been no further channelling of the water into the stone conduit and a considerable amount of silt accumulated at the road edge here. A rectangular feature, E271, 2.4m long (east to west) and 0.7m wide (Fig 170) was cut into this, butted up against the conduit. This was probably some sort of junction box to connect the stones and the wooden drain. The join was not an exact match



Fig 172 West facing section of linear feature E96: b) roadwash spine between a) gravel street and d) north portico colonnade; c) box-pipe E188 has been cut away by robber trench

since although the northern edge of the junction box lined up with the northern edge of the conduit channel, to the south it was wider than the channel.

The next phase (Phase W2) was found only at the western end of the drainage system, beyond the junction box E271. It seems that the conduit channel gradually silted up, which led to the water overflowing and cutting new drainage channels to the north of the conduit stones. These showed as light brown sandy areas within the darker silts (Fig 171). The silting in the conduit may have been caused in part by the sudden changes of level where the stones had subsided and in part by the change in the diameter between the box-pipe and the channel, both of which would tend to slow the rate of flow leading to the deposition of silt.

The new drainage channel (E270) which had cut through the roadside silts was quite irregular in shape and size but was roughly 18m long and between 0.2 and 0.4m wide (Fig 171). The water spilled out of the channel at a point about 3.8m west of the east end of the conduit. The new channel showed as two intermingled silts, E272 and E273. E273 was initially thought to be an irregular line of stakeholes 6.5m long and 0.4m wide within silt E272, but these are more likely to be the result of occasional loam pockets.

The evidence for a final phase of pipe trenches (Phase W3) was found within the strip of roadwash, E96, which ran from grid 34 to grid 42. In the area of the gravel street, it survived as a spine of material standing 0.2m to 0.5m high between the cut for the robber trench of the north portico colonnade and the cut for the gravel street (see Fig 158). It consisted of loose, sandy silt with numerous inclusions of pebbles, ceramic tile chips, and other material.

Five iron pipe collars were found scattered randomly in the isolated segment of roadwash (E96A–D). They were at the same general level, leading to the conclusion that they represented a pipe (E229) which had been disturbed at some point. The same segment of spine was also noteable for the large amount of concreted iron found within it (a total of 276.935kg). X-ray analysis showed there were no objects within the concretions, and the processes leading to their formation were not clear. A final fragmentary pipe trench was found at this level. It consisted of possible sections of a box-pipe (E188) which lay on the south side of E96D in grids 37 to 38. It measured about 0.25m wide at its base (Fig 172) and was traceable for about 4m. E208, a linear feature in grid 38 1.6m long and 0.2m wide and 0.2m deep with a number of postholes in its base, may represent another stretch of piping. Too little of either feature remained so it was not possible to be confident about their positive identification as pipe trenches.

After Phase W, there were some difficulties in working out the phasing of events in the remaining areas of the east to west cobble street (Fig A99). The surviving street surface was composed of rounded cobbles and smaller pebbles varying in size between 5mm to 200mm with other inclusions of occasional blocks of sandstone, all of which had been worn. The surface was cambered, but much of the lower sides had been covered by road wash and dumping (see below) which suggests that the street had been in use for some time. Presumably it was laid in Phase X, remained in use throughout Phase Y, and finally ceased to be viable for wheeled traffic when the gravel street was cut in Phase pre-Z. Only one feature, E186, could definitely be associated with the street in this phase. This was a rectangular slot at the western end of the cobble street, clearly truncated by the gravel street (Fig 173). This appeared to relate, albeit at a considerable distance, to the long trench down the centre of the cobble street at the eastern end of the site (C188, Fig 174).

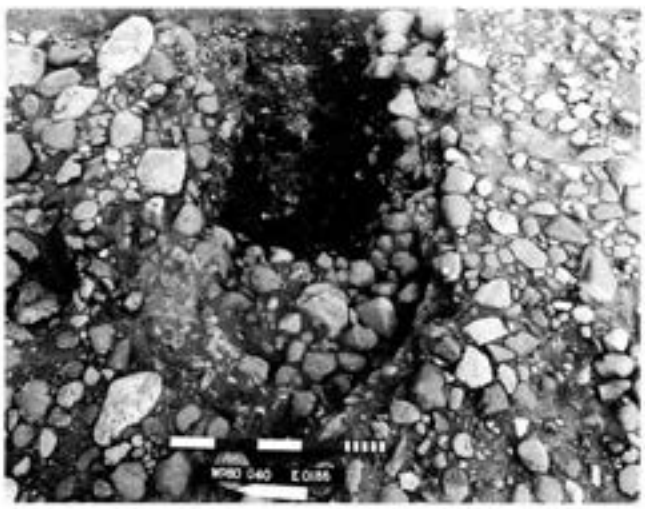


Fig 173 Western end of the central trench cut into the cobble street beyond the west end of the gravel street. Possibly a central road drain, although it stops suddenly instead of linking up with the roadside drains of Watling Street. Perhaps it was unfinished



Fig 174 East–west cobble street, at the east end of the site, showing the robbing trench for the gravel street beyond. The large, square cut trench down the centre of the street is probably a drain, as seen at Silchester and other sites. E186 is its western continuation



Fig 175 Industrial furnace C439 at the east end of the insula 2 frontage after excavation. The associated hearth lies to the west, underneath the edge of excavation

The function of both these sections of trench must remain uncertain. It has been suggested that they represent a central road drain. This seems unlikely since the western, downslope section ends abruptly in the middle of the street and, given the size of the trench, if it had been full of water when it reached the western end, it would have poured over the cobble street surface leaving a deposit of silt, for which there was no evidence. Nonetheless, deep central road drains are known from streets of third-century date at Silchester (Boon 1974, 89) and at Caistor-by-Yarmouth.

The fill of both cuts consisted of dark silts, with rubble in the upper fill of C188. The northern half of the west end of the street was later covered by a fine dump (E177) which formed a path associated with the use of the gravel street in Phase Z. As this path was not removed it is not clear whether its make-up consisted of the accumulated road wash from Phase X, but this seems likely.

Dating

A total of seven coins was found in the contexts of this phase. Within the pipe trench fill E313 (Phase pre-S) were two coins, one of Constantine I (AD 330–35) and the other of Valens (AD 367–75). These may indicate that the silting of the pipe occurred at the beginning of Phase W. A similar date of disuse may be suggested for E311 which produced a coin of Gratian, also of 367–75. The street surface, E291, sealing these water pipes produced two coins, one an unworn *as* of Marcus Aurelius dated 154–5 and the other a coin of Gratian dated 367–75. This would appear to indicate that the street remained in use without resurfacing for over 200 years, which seems improbable given that in the surviving east and west ends of the street there was a substantial build-up of surfaces from this level to the latest street surface preserved. It seems more reasonable to argue that resurfacing was continuous throughout the period and that the later coin was intrusive. An alternative suggestion is that the street surfaces were dug out and relaid to the original height for much of the life of the basilica and that there was then a rapid accumulation as the building gradually fell into decline. A preliminary study of the pottery (Pierpoint and Clarke 1983) suggested that the road-wash E96 which had accumulated above the lowest road surface was in its correct stratigraphical sequence, which would indicate that the earliest street surfaces had not been dug away. Two other coins, both dated AD 273+, were found on E138, the surface beneath the cut for the gravel street and these probably belong with that feature.

Insula 2 frontage sites, Sites C and E

As mentioned earlier (*see chapter 2*), the southern 3m of insula 2 had been detached from the associated stratigraphy further north by the cutting in 1966 of a large east to west archaeological trench. This frontage, which lay to the north of the east to west street, was not excavated to any great depth. The west and central area of the frontage (Site E) was not excavated below Phase Z and earlier phases were only investigated at the eastern end of the site (Site C).

Phases pre-V and V: miscellaneous features (Fig A100)

The earliest feature at the east end of *insula* 2 was a short length of dwarf clay and cobble wall, C425, which had been truncated to the north by an archaeological trench, and to the south by a post-pit, C408, belonging to Phase X (see below). The wall did not appear south of post-pit C408 nor did it appear to turn either to the east or west so its relationship to any other structural element here is unknown. Although it was reused as part of Building 36 (see Fig A101) it appeared at such a deep level in the site that it must have been part of an earlier building (Building 62).

To the south-west of wall C425 lay the remains of a furnace, C439 (Fig 175). The interior of the furnace was 0.2m deep and was lined with clay which had vitrified. No evidence for the superstructure had survived and any associated hearth was probably under the baulk to the west. Its shape and the evidence of intense heat suggest an industrial use.

Phase W: industrial activity (Fig A100)

The next phase began with a levelling layer, C417, found over much of the area. Some parts of this were left *in situ* at the end of the excavation. This layer, which was up to 150mm deep, was composed of clay loam with many inclusions of pieces of ceramic tile, pebbles, stones, and other materials. Into this was cut a pit and gully system very like those found on the eastern side of *insula* 5 (see below), and in the precinct (see below). It consisted of two parallel gullies, C437 and C446, aligned north to south and joined together at the northern end by gully C444 which ran east to west (Fig 176). The fill of the gullies included much pottery with two near-complete Severn Valley bowls. In the lower level of the fill was abundant slag and charcoal. Gully C446 appears to have ended in a soak-away which had been almost completely removed by a later post-pit. Gully C437 drained into another gully, C320, and then a soakaway C278. The western end of the linking gully, C444, connected with a very large pit, C440, which seems to have been a carefully constructed soakaway filled with numerous tips of material, most containing building debris (Fig 177). When the pit had been partly backfilled, reducing it to a diameter of 1.4m, it had been lined with a layer of complete or near-complete micaceous flagstone slates (Fig 177). Finds of slag, charcoal, and galena from pit C440 suggest that metal working and particularly lead working was being carried out nearby. There is a possible source for this lead a few miles to the south of Wroxeter in Roman lead mines at Shelve and Linley (Webster 1991, 113–17).



Fig 176 Series of interconnecting gullies at the east end of the insula 2 frontage. Gully C444 drained eastwards from pit C440), and gullies C446 and C437 drain southwards into sumps. The linear cut to the left is an archaeological trench

Two other features may be associated with this metal working, perhaps as settling or quenching tanks. These were two rectangular clay-lined pits, C407 and C404-1, 0.15m deep and filled with black loam and clay lumps. When this industrial working was abandoned the whole area was covered with a dumped layer of dark earth, C394, including sandstone, pebbles, and tile. Its surface became worn by trampling.

Phase X: Building 36 (Fig A101)

During this phase almost the entire area was taken up by a very substantial building (Building 36), of which only part of the south and west walls were uncovered, the rest being under the adjacent modern road outside the excavated area (Fig 178 overleaf).

The south wall showed as a line of very distinctive clay and cobble post-settings, C193–1, C304, C305, (C390/400), C398, C399, and perhaps C392, with centres spaced at about 1.8m (*c* 6*pM*). Each post-setting showed the same construction of alternate layers of clay (keuper marl) and cobbles in pits averaging 0.3m deep (Fig 178). The layers of clay were generally about 100mm thick and the layers of cobbles between 50mm to 300mm thick. It was clear that the clay had been wet and plastic when laid and that the cobbles had been pressed into it. Each pit had then been capped with a layer of clay on which posts rested.

The west wall of the building was of similar construction in that it was post-built and the posts were spaced at about the same interval, but there was only



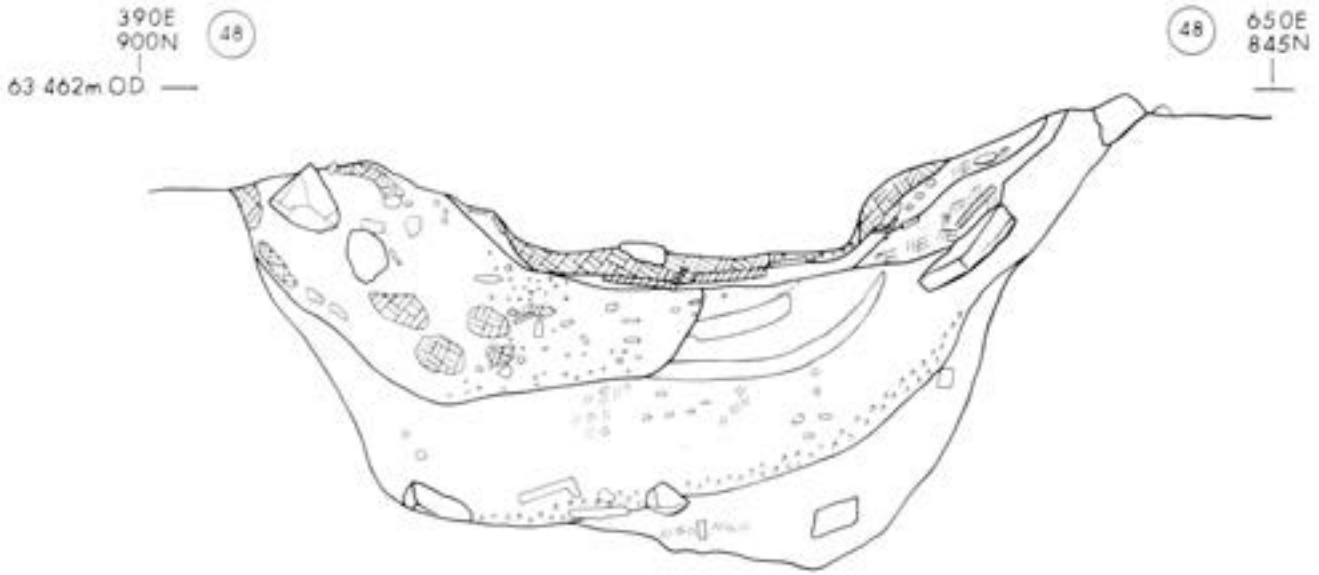


Fig 177 above: large pit C440 partly excavated to show its internal lining of micaceous roofing slates;
below: south-facing section of pit

one clay and cobble foundation, C236–2. North of this was a posthole C419, 1.1m deep with a loam and clay fill. The bottom of the posthole was roughly square, probably reflecting the size and shape of the post which stood in it. North of C419 was another posthole, C408, shallower but of greater diameter. Again, the base of the hole preserved the imprint of the post. C408 cut the southern end of the earlier dwarf wall C425, and it seems probable that the top of C425 was supported on a sill-beam tenoned into the post standing in C408.

Between postholes C419 and C408 and slightly to the west was a layer of sandstone, tile fragments, and mortar (C420) which may have been rough paving in front of an entrance. Within the area of the west and south walls there was no sign of interior floors, fittings, or wear patterns.

Building 36 was, therefore, a large building with regularly spaced posts set on very substantial pads capable of supporting great weight, so presumably it was two or even three-storeyed. The massive posts may have been part of the framing of the walls, or they may have stood round the edge of an internal portico or verandah round the building. A parallel for this can be seen in the Old Post House at Kiev, in the Ukraine, photographed in 1852 (Fig 179; *see discussion in chapter 5*). The interior is assumed to have had a planked floor supported on joists.

To the west of Building 36 was a pit (C412) whose fill produced animal bone, many fish bones, and carbonised grains. Whatever its original purpose, it had clearly ended as a rubbish pit and may be associated with the occupation of the building.

Phase Y: pathway (Figs A102 and A103)

After Building 36 was demolished, presumably with some care since no debris was recovered, the cleared site seems to have been left open for an unknown period.

At least one rubbish pit, C418, was dug. Another, C409, was cut close by slightly later. The surrounding area was then sealed by a layer of yellow clay, C270, which also partially covered rubbish pit C418 and some of the post-pads relating to Building 36. Into the surface of this clay spread was set a path of smashed *amphora* and tile running north to south.



Fig 179 The Post House, Kiev, Ukraine, 1852 (Photo: Roger Fenton, Neg PH1985:0693, reproduced by permission of the Canadian Centre for Architecture, Montreal, Canada)

Further west along the *insula* 2 frontage, although the levels before Phase Z were not excavated, some earlier features were visible, though their strict phasing was very uncertain. They included a clay and stone terrace wall, E139 (see *insula* 2 frontage, below), sections of a pipe trench similar to those found on the southern side of the street (E145, E151, E215), and a cobbled surface E210 exposed in the base of an archaeological trench in the north-west corner of the site. The camber on this cobbled surface led to the suggestion that it was part of an earlier, wider street but this hypothesis remained untested.

Dating

In many ways this part of the site provided some of the most important dating material since it showed an extended sequence of late dating comparable to that found in the baths basilica itself. For Phase V, principal dating evidence came from the construction levels of the furnace which produced a coin of Constans dated 346–8. This date is backed up by the appearance of small amounts of Oxford, Nene Valley, and Calcite-gritted pottery in this phase. In Phase W, 38 coins were found, of which three dated to 364–75. Substantial amounts of Calcite-gritted, Oxford, and Nene Valley wares support this late date. Finally, within the backfill above the settling tanks C404–1 and C407 were sherds of Palestinian *amphora* which may be dated to the late fourth to seventh centuries (Peacock and Williams 1986, 185–7; *see appendix 4*).

The baths precinct, Site B (Figs A104–A107)

Interpretation of this area was complicated by the fact that the excavation was stopped before a logical horizon was reached. It was apparent, however, that underneath the numerous buildings of Phase Z, there were at least two distinct phases represented by an earlier pebble surface with levelling dumps above. It is worth recording that at the western end of the site in particular the material composing the dumps was so soft that the feet sank into it, making it very difficult to excavate.

Phase X: pebble surface

The earliest surface found within the precinct was B84, an extensive spread of fine pebbles with an apparently contemporary piped water system set into its make-up. It remained visible in the centre of the site at least until Phase Z2 (see below). Other areas of pebble surface were found in the north-east corner of the precinct (B218) and in the bases of some of the pits to the south-west, near the edge of excavation. This suggests that the pebble floor had subsided badly leaving a high ridge running north-east to south-west across the centre of the precinct. The areas on either side were buried beneath the later dumps of Phase Y, which were not removed. An area of worn, crushed sandstone, B237, just to the west of the east precinct wall may have been part of the same surface.

Running diagonally across this ridge and parallel with each other were two depressions, both of which were sealed by the pebble surface. These are assumed to be gullies into which the pebble floor had subsided. Gully B87 (labelled subsidence on Fig A104) was left undisturbed. A section of pebble floor was removed from above the parallel gully, B86, which was then emptied. It proved to have contained a wooden water-pipe with iron collars, six of which were discovered in a distance of 8.5m (Fig 180). The northern part of B86 was left *in situ*. The collars were spaced at varying intervals along the pipe, from 1.76m to 1.295m apart, averaging 1.5m, the variation probably depending on the lengths of suitable timber available. The collars show that the bore of the pipe was 100mm and it is presumed that it was for water under pressure rather than a drain. As the pebble surface continued unbroken across the line of the pipe trench, and as no cut was visible in the make-up beneath the floor, it is assumed that the pipe was laid within the make-up dump and the surface subsequently laid across it.



Fig 180 Water pipe B86 after excavation with iron flanged pipe collars still in situ. *Although apparently cut through the surrounding pebble surface, the pipe was actually put down in the make-up before the pebble floor was laid*

It was assumed that the pipe continued north into the north portico through the hole, C389, in the precinct wall, presumably joining up with the pipe trenches along the edge of the cobble street (see Phase S, above). Presumably the water ran across the precinct from north to south, deriving ultimately from the aqueduct to the north-east of the town. Its destination is unknown, but the pipe may have turned west to supply the baths.

Phase Y: dumping

An extensive dump of material was laid over the whole of the precinct as a prelude to the construction of the buildings of Phase Z. In the south this dump was numbered B79, B83, and B102; to the north, it was given one overall number, B120. It seems to have been laid to level up the very uneven Phase X pebble surface and was therefore deepest to the east and west where the floor had sunk most.

The dumped material was a very hard mixture of mottled sandy clay, with inclusions of ceramic tile, *tesserae*, *opus signinum*, sandstone rubble and pebbles. These were distributed evenly throughout the layer and it is likely that the dump was laid as a wet mass comparable to ready-mix concrete, as with the overlying B136/B137 (see Phase Z, below).

Dating: Phase Y

Phase Y produced 11 coins, mostly from dump B120, three of which were of the House of Valentinian (AD 367–75). Only one coin was found beneath the Phase X pebble floor, within pipe trench B86. This was a coin issued in the name of Constantine I (341–6) but it was not clear if the find came from the silts within the pipe or from the fill of the trench. If the latter, the floor and its make-up would have a *terminus post quem* of the mid fourth century and thus might link with the Phase W reflooring in the basilica though there must be considerable uncertainty about this equation. The pottery appears to indicate a slightly earlier date, with no Oxford or Calcite-gritted wares and only occasional Nene Valley sherds.

The north to south street and its frontages, Site A

As is explained above (*chapter 1*), this part of the site was the first to be excavated, in the exploratory work of 1966–7. Coincidentally and perhaps ironically, it proved to be anomalous compared with the rest of the subsequent excavation, although the justification for the extension of the work to include the whole of the basilica rested in part on what was found here. This part of the site was bounded on the east by the eastern edge of the north to south street, and on the west by the eastern wall of the baths precinct which ran parallel to the street. To the north-east the site is bounded by the hedge line of the B4380 Shrewsbury to Ironbridge road, constructed by Thomas Telford in the late eighteenth century and widened in 1964 (Barker 1968).

The southern edge of the excavated area was chosen to allow as much as possible of the emerging Building 1 to be excavated. There is no evidence here for a portico facing the street and, in fact, the distance between the precinct wall and the north-south street is some 12m, twice the width of the western portico at the other end of the site and too broad to be roofed as a single span. In addition, there is no stylobate foundation trench along the edge of the road nor any evidence for posts or columns between the road and the wall so that it seems certain that this strip of land along the back of the baths was never roofed and that the monumental portico lay along three sides only of the baths complex.

Phase W: pebble floors (Fig A108)

The earliest identifiable feature on this site was a pebble surface, A435, which was fully exposed only in the north-west corner of the area, though patches of what is probably the same surface were seen elsewhere,



Fig 181 Early pebble floor A435, looking north-west. The precinct wall remains visible in the middle distance

but not fully excavated (Fig 181). The surface was very even and compact, made of small pebbles, and had not, unlike many other pebble surfaces discovered in the excavation, sunk into underlying features. Its function and full extent remain unknown, since the excavation was stopped at this level due to the need to concentrate time and resources on the basilican area.

Phase X: dumping and levelling (Fig A108)

This phase began with the levelling up of the area with a series of dumps, perhaps made necessary because of the continual resurfacing and raising of the level of the north to south street.

The earliest dump consisted of an extensive spread of crushed red and yellow sandstone with angular edges which showed that this had not become a worn surface (A428). Much of this layer had been sealed by a dump of heavily mottled clayey sand (A142/A407), which, it is suggested, was formed naturally from the intermixing of the crushed sandstone layer and the overlying dumps by worm action.

The subsequent levelling seemed to have been laid as linear dumps aligned north to south and laid progressively from the precinct wall eastwards giving the site a 'banded' appearance. The dumps were made of very mixed materials: keuper marl, pebbles, silty sand, and sandy clay with some inclusions of ceramic tile and some mortar, which included crushed pink mortar with broken ceramic tile fragments, ie shattered *opus signinum*. The relative cleanness of these layers and the inclusion of tile and *opus signinum* suggests that they came from the digging of pits into the undisturbed subsoil and from building debris, such as aggregates, rather than the stripping of top-soil.

Phase Y: Industrial phase and buildings (Figs A109 and A110)

Phase Y1 can be divided into three elements, the cutting and use of a series of interlinked pits and gullies, their recutting and backfilling, and, the construction



Fig 182 Pit and gully system lying between the precinct wall and the north–south street on the eastern side of insula *5. The earlier system, A332-1 a), and the later one, A332 b), with two large soakaways, A345 (foreground) and A318 (middle distance)*

of two successive buildings, Buildings 2 and 3. Unfortunately there were insufficient stratigraphic links to determine the precise relationships between the buildings, and the pits and gullies.

In Phase Y1 the pit and gully systems were complex and impressive, filling the western part of the site and lying at an angle of some 30° to the precinct wall (Fig 182). They appear to represent two, and perhaps three, parallel systems of gullies, almost certainly wooden-lined, which emptied into and overflowed from widely-spaced pits or tanks. Since the ground in which they were cut was soft and permeable they would all have had to have been lined, with the exception of the terminal pits, which were soakaways. The main system (Fig A111) consisted of two pits, A196 and A252, on the northern edge of the site, A196 perhaps being earlier then A252. The primary fill of A252 was a layer of shattered micaceous flagstone slates (Fig 183), pebbles, and *opus signinum* fragments overlain by a second layer of more finely crushed micaceous flagstone slates; this suggests that the pit was a shallow soakaway. Pit A196 was filled with undifferentiated loam with some tile, pebble, and sandstone inclusions and a gully A253/A337 led from it to a large pit, A318. A second part of the system, also draining into A318 and perhaps contemporary with the first part consisted of a gully A333/A336 and pit A241.

These pits discharged into A332, a continuation of gully A337, which was itself of two phases, with evidence of timber-lining. Gully A332 led into a soakaway A345 (Fig 184). Gully A332–1 seems to have bypassed the soakaway and continued southwards out of the excavated area, perhaps to drain into the large pit A451 which lay mostly beneath the edge of excavation.

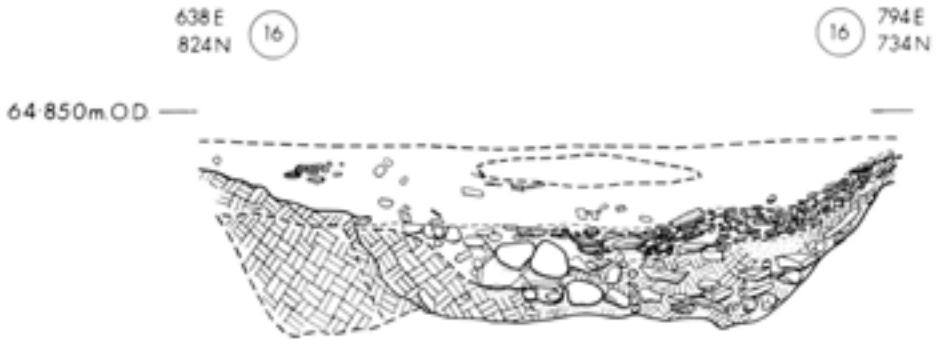


Fig 183 South-west facing section of pit A252

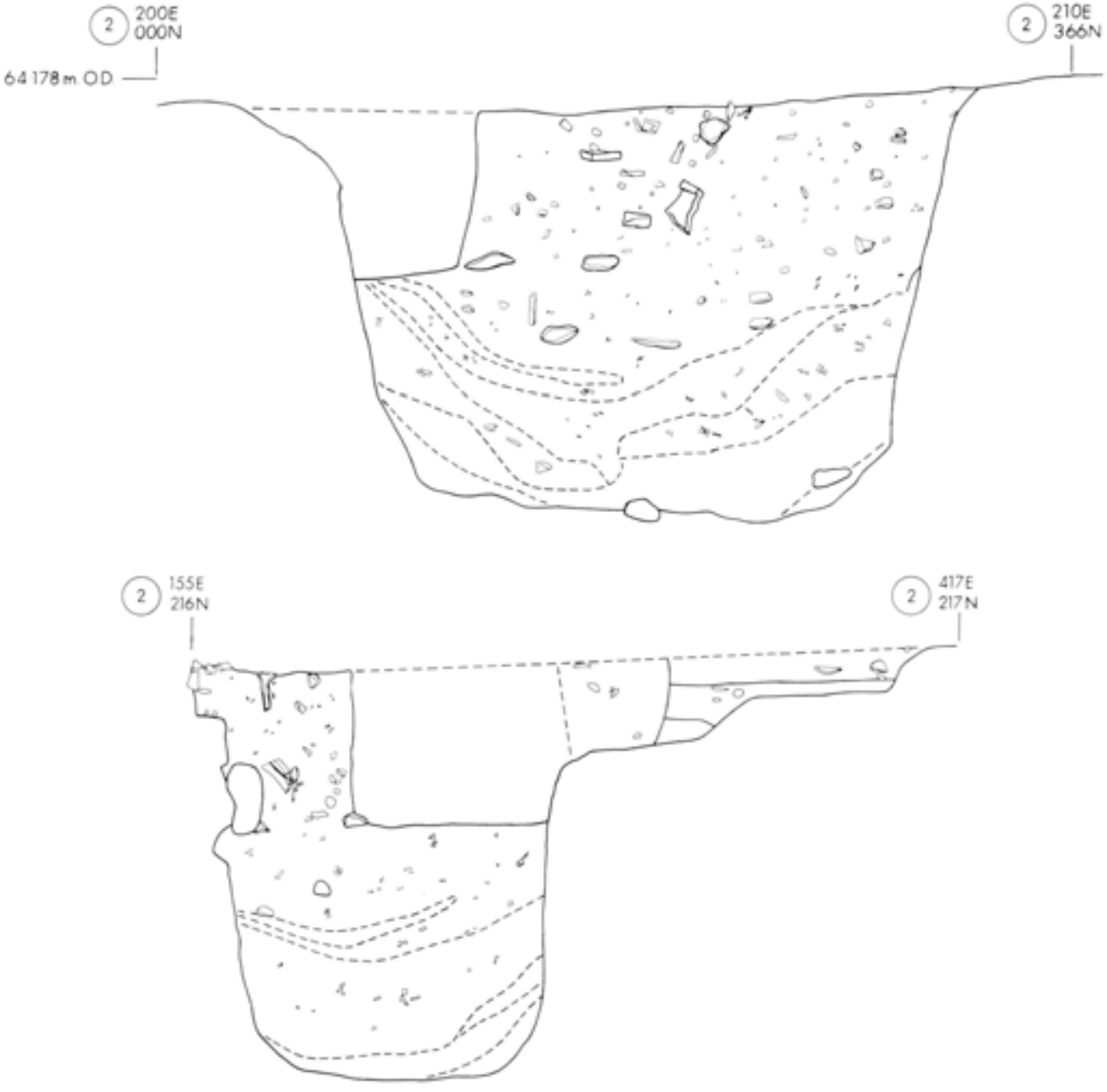


Fig 184 upper: east-facing section of pit A 345; lower: north-facing section of pit A345 with the southern end of gully A332

The rectangular section of gullies A332 and A332–1 suggests strongly that they were timber-lined and the blocks of stone in their sides may well have formed packing pieces holding the timbers in place.

The large central soakaway, A318, showed a complex sequence of development (Fig 185). Initially a large rectangular cut was made which bottomed onto the natural clay. The southern side of this pit became badly undercut, presumably eroded by the water carried by the gully which discharged into the north-east corner (Fig 186). The pit was then half backfilled and a square pit, A347, constructed in the corner from keuper marl and tile (Fig 186). This was presumably associated with the second phase of the gully system. Finally, the whole pit went out of use and the pit was backfilled, first with rubble and then with clay and tile.

The fill of soakaway A345 contained a dog coprolite and fragments of comminuted bone which suggest that the system had been used for tanning, since dog excreta, among other things, was used for the removal of hair from hides. In the base of the pit were two complete pottery vessels, one inverted over the other, the lower pierced by a hole. Their function is not clear.

Further north still, pit A244 may be a soakaway for a system outside the excavated area, to the north.

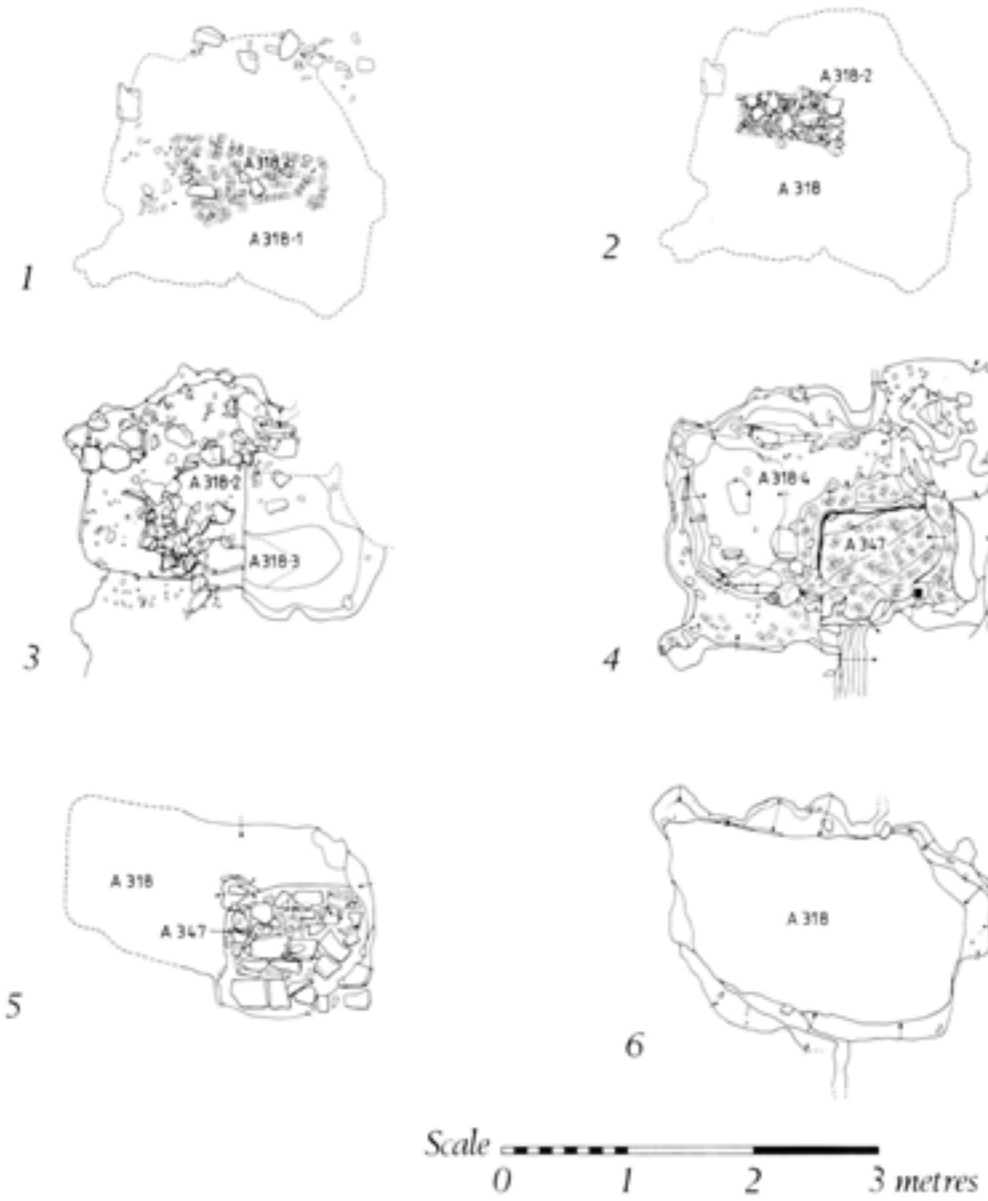


Fig 185 Pit A318 a large soakaway, lined with clay, into which gully A332 drained. The force of the water eroded the southern side which was then backfilled. Another pit, A347 with a floor of alternate layers of tile and clay, and clay walls, was constructed in the south-west corner. Its purpose is unclear. Finally both pits were backfilled and further tile layers, of perhaps an unused hearth, were constructed in the upper fill

Although there is some hint from the fill of soakaway A345 that the tank and gully system was at some time used for tanning, it clearly had more than one phase, and it may have had other uses, such as dyeing or fulling, which would leave no easily recoverable trace. Similar clay-lined pits excavated at Wilderspool, Cheshire have been tentatively identified as dyeing pits (Hinchliffe 1992, 113–6). Certainly, the hearths or furnaces in the adjoining buildings (below) may well have been used for the boiling of liquids such as those used in dyeing.

The area between the gully system and the street was a complex of thinly stratified layers which could not be positively related to the gully system. It contained within a shallow depth evidence for three successive buildings, one of them belonging to a later subphase. Of Building 3, the earliest, only the west wall had survived, the rest having been destroyed by the successive construction of Buildings 1 and 2.

The evidence for this west wall consisted of a posthole, A364, at the northern extremity, a line of pebbles joining it to postholes A37 and A111, a line of pebbles and stakeholes, A361, a double posthole, A359, close to a line of pebbles, and a line of burning, A358, leading to a more or less square area of rubble, A331, which may be an internal hard-standing. This was bordered on the south by a slot, A250, which may have formed the southern end of the building. Within the building were two possible postholes, A363 and A362, a patch of ?burnt clay, A161, which may mark the site of a hearth and two dark areas, A162 and A166, which probably represent the positions of partitions. In all, the evidence points to a bow-sided building divided into three, with a possible central hearth. There is no positive entrance, though the gap west of postholes A363 and A362 may mark its position, or alternatively the square area of rubble, A331, on the south side of the building may be external and laid in front of a doorway.

The evidence for Building 2 is even more fragmentary. It consists of a long curving line of burning, A357, which is possibly the line of its east wall, the only trace of the building which was left after it had burnt down.

Between the site of Building 3 and Building 2 was a multi-phase furnace which may have been used in conjunction with the pit and gully systems (Fig 187). It certainly lay outside Building 3 but presumably lay within Building 2. The earliest phase consisted of a furnace aligned north to south with clay walls and a tile hearth (A323). The exact relationship between the hearth and furnace was destroyed by the cutting of a pit to take a remanent magnetic date for a later phase of the furnace. The base of the furnace included large angular stones and terracotta tile fragments.

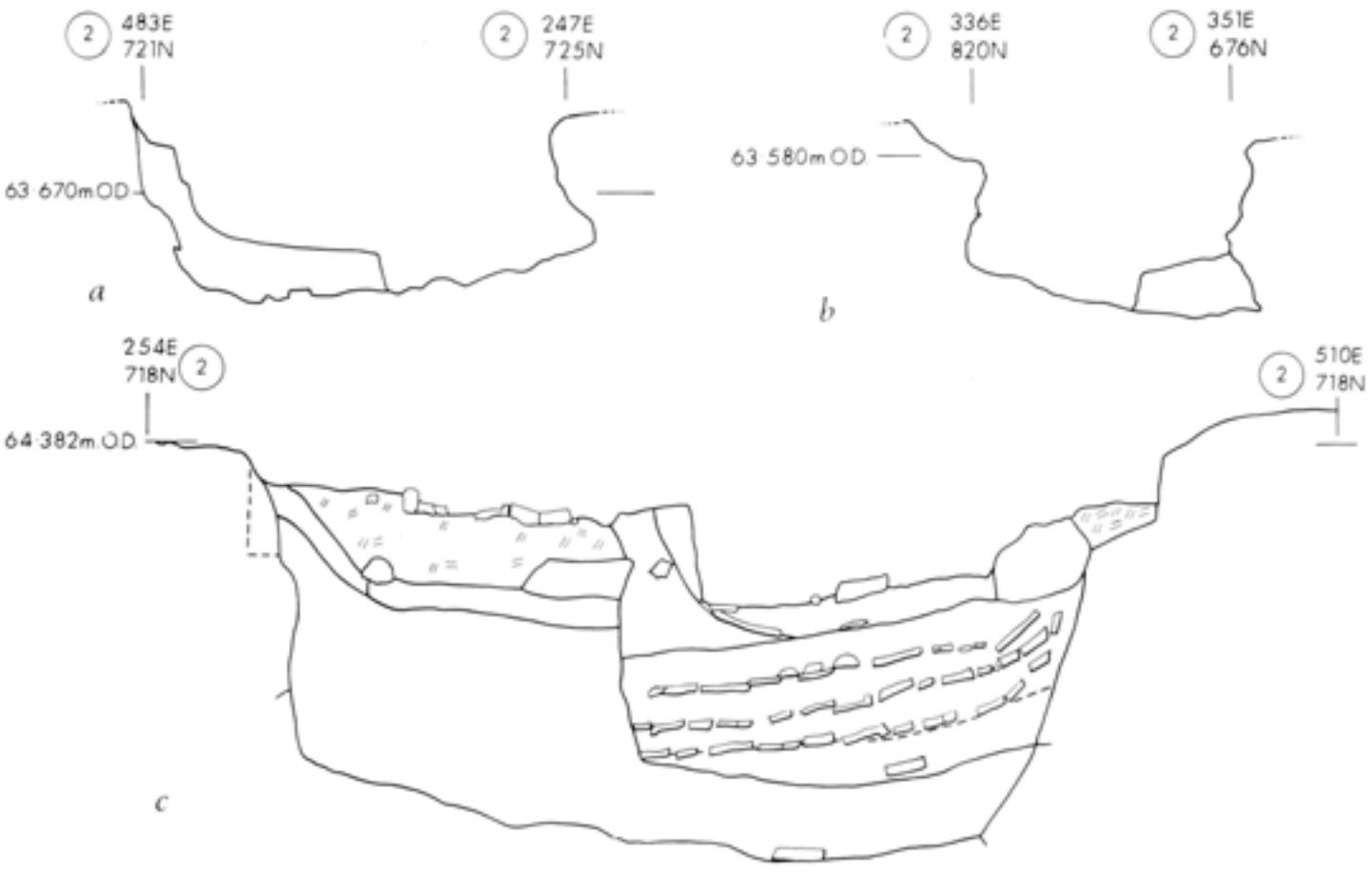


Fig 186 a: west–east profile of A318; b: north–south profile of A318; c: east–west section through A318 and A347



Fig 187 Furnaces and hearths on site A: tile hearth A323, and an associated furnace A249. This was filled in by a dump of stone, A150, then replaced by A50, a substantial furnace placed at right angles to A249. A50 also had a four tile hearth, A18. Finally, the whole complex was backfilled and the baked clay of the earlier furnace used as a hearth A14 in Building 1



Fig 188 Furnace A50, looking west. The sandstone walls and vitrified clay lining are clear



Fig 189 A stake-hole fence, A258–A317, standing between the buildings on insula 5 to the west and the north–south cobble street to the east

The form of its superstructure remained unclear. Finally, it was demolished and an area of stones (A150) filled its vitrified flue. A second furnace, A50, was then constructed. This had a similar form but was aligned east to west. The interior of the furnace was again vitrified (Fig 188) and at the west end was a four-tile hearth (A18). The walls of the furnace were built of roughly squared slabs (A211) but again the roof structure was missing. Lastly, the second furnace was levelled and a small hearth constructed on the remains (A14). This hearth may have been used inside Building 1.

To the east of the site of the furnaces and the surviving wall of Building 2 were two fence lines which acted as a boundary between the activities in this area and the north to south street. The first fence line consisted of a short run of postholes (A324, A325, A330, A326, and A328). The second, and more impressive line, consisted of 65 closely-spaced stakeholes (A258–A317) running along the edge of the street (Fig 189). Towards the southern end of the street, these were interrupted by a rectangular pit, A77, whose purpose was not clear. Other features grouped at the southern end of the site remained obscure as most extended beneath the edge of the excavation.

Phase Y2 is separated out from the rest of Phase Y because it was clear that the pit and gully systems, and the industrial furnaces, had gone out of use. There was also some evidence of general levelling before Building 1 was constructed (Figs A112 and A113).

The best preserved of the structures by the side of the north to south street was Building 1, the evidence for which was encountered immediately under the topsoil (Fig 190). It can be demonstrated that this is the last building on the site, since the postholes and stakeholes of the hard-standing A6 were packed round with tile fragments which stood upright, projecting above the surface of the hard-standing (Fig 190). They had been protected during the life of the building by the fact that they were very close to the standing posts, and perhaps later by the stumps left protruding. If the plough had run over them only once, it would have knocked them down, and, in fact, the building gave everywhere the appearance of being undisturbed. None of the postholes had had rubble pushed into them, they had simply silted up with top soil.

The plan of all the features revealed by the removal of the topsoil is reproduced in Figure A112 and it is worth recalling that this was the first time that the uppermost archaeological layers at Wroxeter had been examined in detail, and that the subsequent excavation of the basilican area followed from the discovery of this building.

The most conspicuous feature was an L-shaped area of roof tile fragments, A6, with some pottery, including large sherds of samian ware, packed in rows on edge, with the spaces between the rows filled with mortar fragments.



b

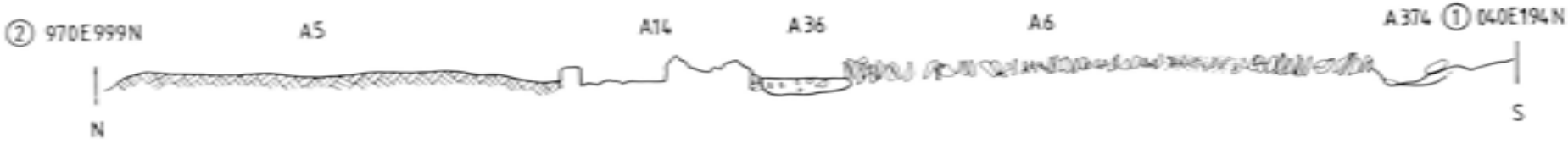


Fig 190 top: Building 1 under excavation, looking south. The clay floor A5 and the hard-standing beyond, A6, can been seen, while the curving sides of the building are very apparent. The structure is very close to the surface; bottom: west-facing section of Building 1

This tiled area was bounded by postholes and stakeholes (A24, A370, A365, and A366), and divided by narrow slots and stakeholes into three compartments. A possible fourth compartment may have been destroyed by later activity. Separating the three, or four, areas of tiling were narrow silt-filled lines (A25, A367) which either represented partitions or planks between the tiled areas. Postholes A369 and A374, which lay along the ridge line may also be evidence for a partition aligned north to south. North of this tiled area, and separated from it by a narrow earthen space (A36, bounded by small stakeholes A372, A373, and A353), was a clay floor, A5, with a distinctly rounded northern end. Within the floor was the remains of an earlier hearth, A14 (see above). The floor's eastern edge was bounded by a line of small stakeholes, A53, A371, culminating in a post-pad A55. The western edge of the clay floor had cut into it a curving slot, which itself contained a small group of stakeholes. Beyond this were two postholes A38 and A39 which together with those which formed the edge of the tiled area, and a southern posthole A376, marked the curving west wall of the building. The eastern wall which also curved was extended south of the tiled area by postholes A208, A368 and A377, with an area of mortar rubble A19 lying centrally within the building south of the tiled area. Beyond this the evidence for the building had been destroyed in Phase Z by the digging of cistern A17 and its adjacent pit A16 but the building is likely to have extended further south.

The whole complex of features appears to be the foundation and floors of a bow-sided building with a carefully laid hard-standing separated by an entrance passage from a clay-floored room. The form of the southern end of the building is unclear.

The building bears a remarkable resemblance to the long houses familiar from many excavations of deserted medieval village sites and is at present unparalleled in Roman Britain but is not unlike a structure excavated at Tatton Park, Cheshire (Higham 1992, 107, fig 4.11). This was similarly bow-sided and measured 24m by 5m. Interestingly, it too had only stood upon the ground rather than having earth-fast posts. The Tatton Park building, apparently the main element of a small enclosed farmstead, produced no artefactual dating material but was given a broad radiocarbon date of 190 BC to AD 445. However, pollen analysis of the nearby Meres indicated that settlement in the area occurred within the period between AD 430 to 670.

Between the building and the precinct wall were a number of very slight rectangular platforms, particularly A57 and A54, surfaced with a scattering of pebbles, which perhaps represent the sites of outhouses or even tanks or other structures which were simply placed on the ground. There was also an uninterpretable scatter of postholes and stakeholes, A58, and a square pit A21 whose function is also unknown. Leading to the pit, across the backfilled gully system, was a worn path, A100. Closer to Building 1 was another pit, A103.

Dating

Few coins were found in this area of the site and none from Phases W or X. Phase Y produced a total of 20 coins, the latest of which were of the House of Constantine indicating a general date in the second quarter of the fourth century, or later. No pottery was recovered from Phase W but that from Phase X includes small amounts of Calcite-gritted, Nene Valley, and Oxford wares. In Phase Y the amounts of these late wares remains low, perhaps indicating that the two phases were closely related in time. On balance, it seems likely that this area of the site was taken over for industrial use in the first half of the fourth century. A very late iron penannular brooch, possibly of fifth century date, was recovered from a pit belonging to Phase Y1 (A430 Fig 309, no 13). This might be taken as evidence that the buildings here may have had a long lifespan, despite their apparent flimsiness.

THE GREAT REBUILDING

This section discusses the complete redevelopment of the site in the sixth century. It is divided into three separate parts, the first dealing with the preparatory work, the second with the buildings themselves, and the last with activity after the major buildings had been dismantled.

Phase pre-Z: preparatory work

(Fig 191)

This phase involved demolishing and digging out the walls and colonnades of the baths basilica, dismantling any buildings surviving within the walls, and robbing a large part of the east to west street, then replacing it with a street made of sifted gravel and soil. The site was cleared as part of an organised programme of redevelopment and a large number of hearths constructed at the east end of the north portico seem to be associated with this work.

The robbing

Only one wall, the north wall of the basilica, was robbed to below ground level in this phase (see Fig 30). This can be demonstrated by the fact that the robber trench was sealed beneath the large rubble platforms associated with Buildings 10 and 11 (see below and Figs A127–A132). The fill of this trench, in contrast with the colonnade trenches, was very variable but comprised mainly loose mortar and rubble with some dark earth. The depth of robbing also varied; in places the wall was only demolished to ground level whereas in other areas, notably a section

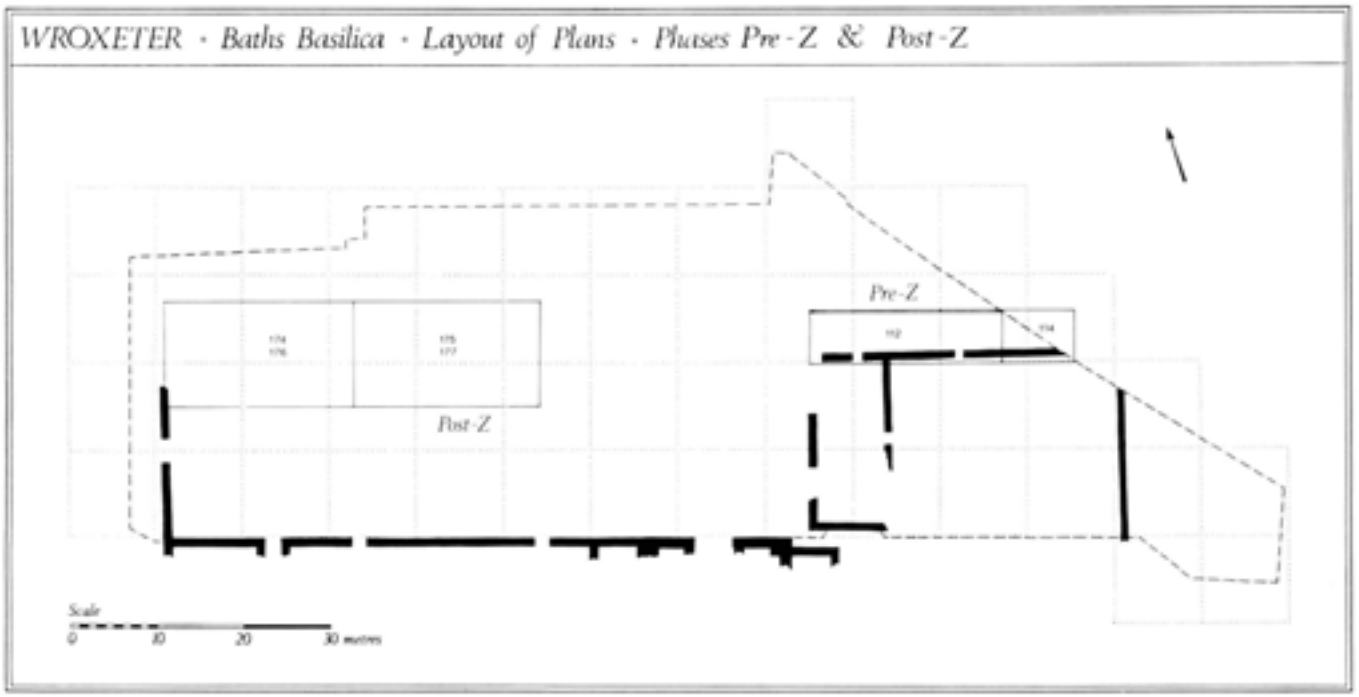


Fig 191 Layout of loose-leaf plans, Phases pre-Z and post-Z

14m long in grids 21–23, it was dug out over 1.1m deep. Small areas of modern robbing were found along the trench but in general it was undisturbed. The south and west walls of the basilica were not robbed. Lean-to buildings here were put up against them in Phase Z showing that they must have been left standing at least 3m to 4m high. Parts of the east wall of the basilica had been robbed but dating is complicated by later archaeological trenches. The direction of a path in the north part of the annexe in Phase Z, heading south-west towards the east wall of the basilica, suggests that some of the wall had been removed, widening the northern doorway between the basilica and the annexe. The east wall of the annexe seems also to have been partially demolished since surfaces laid in the precinct in Phase Z1 overlay the line of the southern part of the wall.

The colonnade stylobates may also have been robbed at this time. As already noted, the north portico colonnade had been at least partly robbed in Phase X (see above) but at the west end some Phase Y surfaces had apparently been cut by the robber trench (Fig 192). The west portico colonnade similarly had been robbed of its stylobates in this phase, as indicated by a rubble path laid across the backfill of the robber trench in Phase Z1 (see west portico, below). The robber trenches of the north and south aisle colonnades were so badly disturbed by later trenching that it was impossible to tell whether they had been robbed in this phase, and the small fragments of untouched fill that remained were in areas not overlain by rubble platforms. Nonetheless, given the thorough robbing of the other colonnades, it is quite likely that the stylobates along these colonnades were also robbed.



Fig 192 East-facing section across robber trench D81 showing the beam slot E207 a) of Building 33 cut into the backfill of the north portico colonnade robber trench D81 b). The latter has sunk considerably after consolidation. The stone gutter c) lies next to the north portico colonnade wall



Fig 193 Gravel street, looking east, after the gravel fill had been removed, revealing the foundation layers of the original cobble street



Fig 194 Gravel street under excavation, looking east. After attempting to dig the street stratigraphically, and on finding that there were many thousands of separate tip layers representing the contents of baskets, it was decided to excavate the street horizontally using the planum method but leaving baulks as standing, visible sections

The purpose of the robbing was two-fold; it opened up the *insula*, creating more space, and it provided valuable hardcore. The large stylobate blocks were probably removed for reuse elsewhere. Fragments of badly worn examples remained in some trenches, but most have completely vanished from the site and do not appear to have been reused in the major rebuilding phase. The north wall, which was composed of bonding tile, small brick-sized ashlar masonry, and rubble, was almost certainly demolished to provide the material for the rubble platforms of the next phase which are composed chiefly of sandstone rubble and mortar.

This hypothesis can be tested by calculating the amount of rubble needed for the platforms. The north wall was robbed from just east of the north-west corner of the wall to a point about 3m west of the annexe, a distance of roughly 70m. The original height of the north wall would have been the height of the Old Work, which is standing almost to its full height of 8m. The width of the wall was 0.9m including facing stones. If these three figures, 70m, 8m, and 0.9m are multiplied, then the total amount of building material extracted would be 504m^3. If the facing stones and bonding tile were removed separately, this would give a core width for the wall of 0.5m and would bring the total amount of material recoverable from demolition down to 280m^3. The sizes of the building platforms of Phase Z are set out in Table 3 below, using a notional depth of 0.3m to allow for variation in the depth of the platforms (see Building 10, below).

Table 3 Estimate of hard-core used in Phase Z platforms

south aisle platforms	57m	×	3m	×	0.3m	= 51.3m^3
Building 10	35m	×	15m	×	0.3m	= 157.5m^3
Building 11	23m	×	5m	×	0.3m	= 34.5m^3
Building 31	7m	×	3m	×	0.3m	= 6.3m^3
Total						249.6m^3

This suggests that the core of the north wall alone would have provided enough material for all the building platforms laid in Phase Z. However, there were other possible sources. More rubble would have been available if the gable ends of the basilica's west and east walls had been left standing through Phase Y. Even if they had already been substantially dismantled the other walls of the basilica might have been reduced in height at this stage. Some of the material for the platforms might also have been derived from the robbing of the cobble street. It is even possible that parts of the baths were demolished and provided some material, since some of the plaster packing the platform of Building 10 has been identified as coming from a vaulted building.

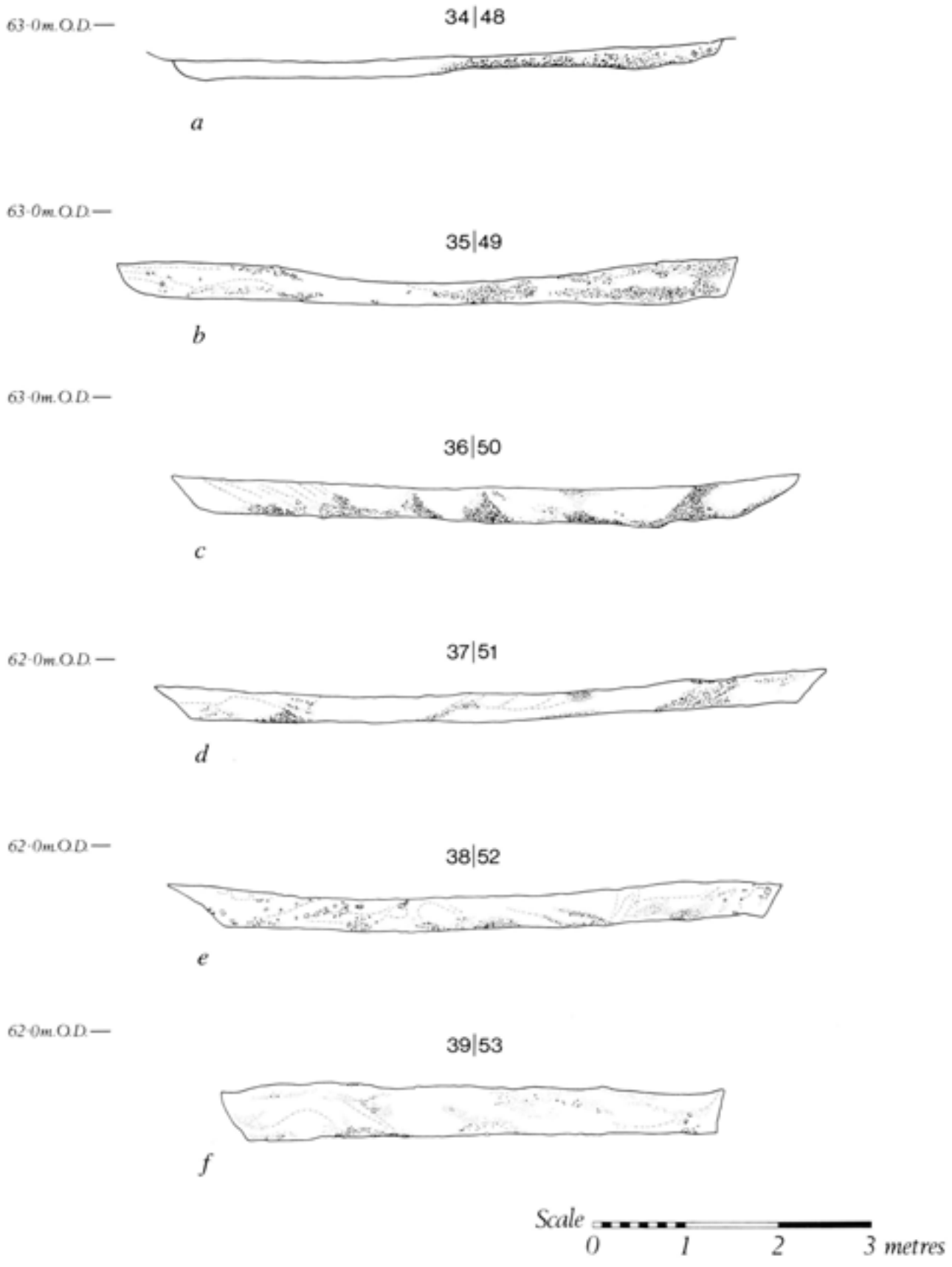


Fig 195 West-facing sections across gravel street. The stone-free nature of the matrix is apparent, as is the concave surface

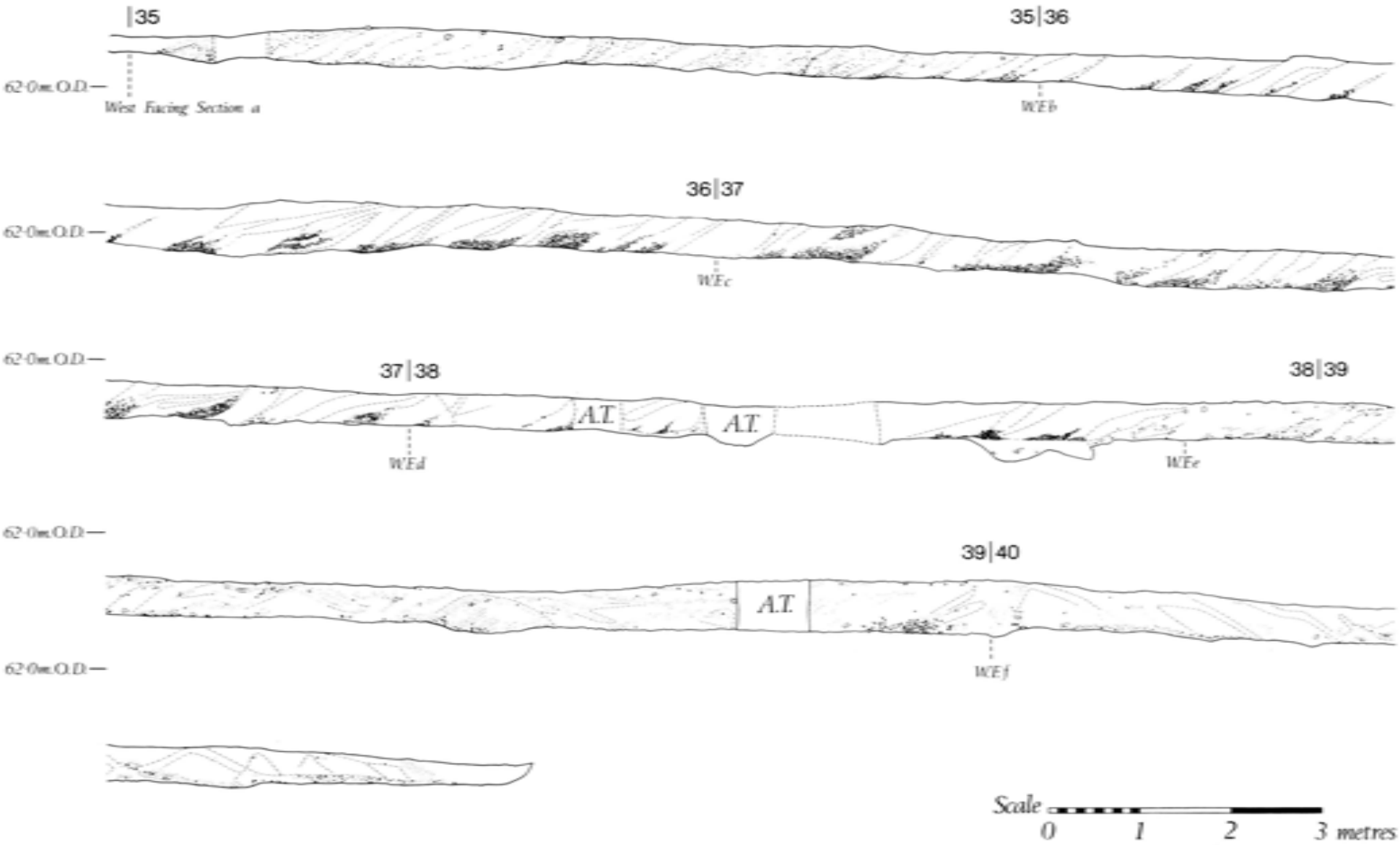


Fig 196 North facing section along gravel street showing very clearly the tip lines with which it was made

The gravel street

Perhaps one of the most unusual and striking features found in the excavation was the so-called gravel street (E74), a feature 63.4m long (east to west) by 5.6m wide (north to south) cut into the east to west street on the north side of *insula* 5. The manpower needed to carry out this transformation must have been considerable; one of the diggers remembered that when an archaeological section was cut across the cobble street in 1964, pickaxes were bent and broken because the street was so concreted.

Building the gravel street involved removing over 60m of cobble street metalling to a depth of up to 0.5m generating 177.52 cubic metres of spoil. The cobble street was left *in situ* to the east and west. The long sides of this large trench-like cut ran along the edge of the *insula* 2 frontage to the north and through the gravelly, sandy roadwash (E96) to the south. The sides of the cut were almost vertical, though the line of cutting was irregular. The base of the cut was roughly flat and sloped from east to west with the slope of the site (Fig 193).

Beneath the uniform surface layer (E74–1), the gravel street was composed of many overlying tip levels. An attempt was made to excavate these individually but was not completely successful as the tip layers were inextricably interleaved and a new strategy was devised designed principally to look at the method of constructing the street. The six grid lines that ran north to south across the street were used as the line for baulks 0.4m wide to provide transverse sections of the fill of the cut (Fig 194). Two longitudinal sections were provided by leaving baulks standing 0.5m and 1m from the north and south edges of the street (Figs 195 and 196). The street material was dug in 50mm spits inside the boxes defined by the baulks. The first 20mm were considered unstratified.

The composition of the street varied considerably once the homogenised gravel-flecked surface layer had been removed. Large stones were rare below the surface. Generally, the matrix was of a non-humic silty sand with abraded tile, pottery, and bone inclusions. There were numerous localised patches of pebbles up to 20mm in size and some areas, for example in grid 50, were more humic in content. Overall these variations were of little importance.

Though it was clear that material forming the gravel street differed markedly from that in the cobble street, it seems likely that the cobble street was the source of at least some of the material. The later surfaces of the cobble street had been made of cobbles between 0.1m to 0.3m in size but earlier surfaces were of much finer quality, as was observed in a section cut by Graham Webster through the north to south street (Webster and Daniels 1973). These surfaces were generally bedded in layers of crushed sandstone or other matrices to provide a firmer foundation. Once this metalling and its bedding had been dug out, it was apparently sifted and the small material retained for reuse in the gravel street. The larger stones may have been incorporated in the platforms for Phase Z or discarded elsewhere (see above). This loss of bulk was compensated for by the addition of humic and other material presumably from the town rubbish dumps, and this additional material was also sifted to eliminate large inclusions.



Fig 197 The tip lines of varied material which made up the gravel street and which can clearly be seen to have been tipped from alternate directions

The gravel street was then constructed from the dumps of spoil, which presumably lay in heaps close to the site on either side of the cut. The material was tipped into the cut alternately from the north and south sides of the street, a fact clearly shown by the interleaving lines of swirling tip patterns visible as the material was excavated (Fig 197). The tips had also apparently been raked or shovelled level once laid, as some mixing was detected. East of grid 50, the lower tips showed a clear change of direction, running east to west instead of north to south.

Several experiments were carried out to see if it was possible to duplicate the patterning observed during excavation. One mirrored the effect quite closely and from this, it was concluded that the street had been constructed from bucket/basket loads of material, dumped and then spread flat. A single tip was isolated and excavated to determine the weight of an individual load. The spoil filled three modern buckets and weighed approximately 1cwt (*c*50kg). This would suggest that the material was not carried any great distance, and that piles of sifted debris were probably dotted along the edges of the cut. Since the Romans did not have wheelbarrows, all the loads must have been carried onto the site in baskets. Clearly, the tipping from both sides must have occurred before the construction of the buildings on *insula* 2 and on the basilica site since these would have hindered access.

The cut was not filled to the level of the surrounding surface. The drop was deepest at the east end of the site, 0.3m compared to 0.1m to the west, since the gravel street was laid more nearly horizontal than the cobble street. The surface of the street was slightly dished, probably due to later wear.

The north portico hearths

At the eastern end of the north portico a complex series of deposits was uncovered which showed many successive hearths lying on extensive ashy dumps. Several series of hearths were identified and recorded and it was apparent that these did not represent breaks in activity but rather a continuous succession of hearths, repeatedly levelled, covered over by dumping and renewed. In spite of careful search, there was no evidence for structures surrounding or enclosing the hearths and all appear to have operated in the open air. The significance of this will be discussed further below.

In Phase Y (see above) the portico pebble floor had been partially covered by dumping but remained largely open, though unroofed. A fine wind-blown soil began to accumulate against the base of the wall and this was augmented by the dumping of an extensive area of silty soil which incorporated much ash and burnt clay together with some rubble, mortar lumps, micaceous flagstone slate fragments, and painted plaster (C267, C271, C231–3, C168). The northern edge of this dump formed an irregular cliff just south of the edge of the portico: Phase pre-Z 1 (Fig A114).

The earliest of the hearths built on this surface included C162, a heavily burnt and fractured micaceous flagstone slate 0.5m square and 0.1m thick. Close to it on the north-west was a second hearth C138, formed of a heavily burnt bonding tile 0.58m square (Fig 198). The surface of the tile was extensively crazed by the heat of the fires placed on it and it had partially disintegrated. Mike Corbishley has shown by experiment that such crazing and fracturing occurs very quickly on such tiles used as hearths and that they therefore could not have survived very long in use. This probably accounts for the remarkable number of hearths found here.



Fig 198 East end of the north portico, looking south, the bank against the precinct wall and the remains of Phase pre-Z2 hearths a) on them. Tile hearth C138, (also lettered a)), lies on the portico pebble floor. Stake-hole building 57 b) lies beneath the dumps and the robber trench of the colonnade c) lies south of it

Another possible hearth of micaceous flagstone slate (C174) lay north-west of C138 but was not heavily fire-damaged and may have been part of the dump layer C168. C169 was a dump of burnt clay to the west, probably composed of rakings from these or earlier hearth areas.

The areas of the dump to the east and west of the hearths were largely devoid of features, though there was a high concentration of nails which, it is suggested, may have been derived from the burning of salvaged structural timbers with nails in them. The burning of similar timbers can be seen on any demolition site today and supports the view (expanded below) that these hearths were used by the workmen engaged on the demolition and rebuilding project.

Further east the ashy dump continued and contained a more elaborate hearth, C268. Its base was constructed of clay on which lay a hearth surface built in ceramic tile with a large bonding tile lying flat at its northern end. Running south from this were a sandstone block and four square tiles with one rectangular tile offset to the east. All showed discolouration from burning. This may be a setting for a larger fire. Close to this was an extensive series of small mounds of white ash which presumably came from the periodic cleaning of the hearth. There was another possible hearth, C150, north-east of C268, although since the slates of which it was made had not been burnt this is not a definite hearth.

East of this dump with its hearths, was an area of the Phase W2 pebble floor which remained exposed during this phase, but further east still, in the triangular limit of the excavation, was another dump 0.3m deep with another possible hearth, C142, comprising an area of burning and a block of sandstone set on to its surface. Close to the precinct wall was a single posthole, C123, of unknown function. In the extreme corner of the excavation was a dump or collapse of painted wall plaster whose decoration was mainly white with black lines together with one red fragment. On the western edge of this dump there was a deposit of sandstone and tile, C144, which formed a sloping ramp down to the pebble floor. This was perhaps laid to make access possible on to and across the dump.

In Phase pre-Z2 (Fig A115) the hearths of Phase Z1 were covered with a second, narrower dump, C246, of similar material: mixed burnt clay, ash, earth, and building rubble. East of C246 was an area of dumping, C231–2, of similar material but containing little rubble, on which three hearths had been built, C241, C242, and C243. C241 was a hearth made of bonding tile fragments with angular

fragments of sandstone abutting them to the south. C242 was an area of eight bonding tile fragments and a piece of sandstone, all the tiles showing signs of extreme fire-fracturing. C243 was a large micaceous flagstone slate also cracked by fire. It measured 0.4m by 0.5m and was the usual rhomboid roof-tile shape. The sequence of construction and use of these hearths was unclear though it seems unlikely that they were in use simultaneously, rather that they were renewed as each disintegrated through fire-cracking.

Further east there was a second group of hearths. Again it was unclear in what sequence they were laid. They lay on an extensive dump of ash and burnt earth with patches of building rubble, C258. Included within it was a mass of burnt stones and burnt clay, C158, which may have been a hearth, but it is possible that the stones were the setting for a fire beneath a cauldron (Fig 199). A metre east of C158 was a hearth, C247, formed of box-flue tile fragments, all showing heat discolouration and fracturing, and set in a burnt clay base. When this hearth went out of use it was sealed by C244, a dump of soil with charcoal and ash, which served as the base for the next series of hearths. Contemporary with this sealing dump was C245, a micaceous flagstone slate hearth which overlapped, and was thus clearly slightly later than, C247.

To the north of these hearths, lay a detached area of the dump C258. Set on its surface were two hearths, C157 and C156, and a possible third, C150, whose use may have extended into the next phase. C157 was a tile and sandstone hearth set in burnt clay, while C156 was a larger hearth composed entirely of at least eight broken box-flue tiles, many of which had been heat-shattered. C150 was a scatter of micaceous flagstone slates on the northern edge of the dump which may represent a damaged hearth.

Phase pre-Z3 (Fig A115) was limited to a renewal of the existing hearths in their same relative positions on a thin dump level, C231–1 and C190, on both sides of the north to south archaeological trench. Six hearths were identified. The western four comprised C559, a large hearth of burnt clay with sandstone fragments, hearth C560 of burnt clay and sandstone which lay close to the precinct wall and was roughly square in shape, C561 which lay close by and consisted of an area of burnt clay, and C562 which was a small patch of burnt clay with ash and charcoal around it.

Further east the eastern complex of hearths already described above in Phase Z2 was refurbished. Hearth C158 went on in use while hearths C247 and C245 were replaced by a more structured hearth, C230, 0.9m square, composed of five or six tiles, some of them box-flue tiles and all fire-fractured. The hearths were surrounded by ash and burnt soil, perhaps the remains of their last firing.

In Phase pre-Z4 (Fig A116) the portico area was covered with thick dumps of ashy soil and demolition debris on which further hearths were found. The dumps contained large blocks of sandstone, tiles and mortar.



Fig 199 Hearth C158 with its vertical stones and fire-damaged stone floor suggesting that it was constructed to hold a cauldron or something similar



Fig 200 Fragment of the precinct wall, C109, which had fallen onto the north portico. In the foreground are some of the masonry courses which overly the reused tegulae forming a bonding course.



Fig 201 Some of the open air hearths at the east end of the north portico. The two hearths, C555 and C556, are of Phase pre-Z4, and are built of flat ceramic tiles shattered by the heat. Surrounding the hearths are worn stones

One deposit of particular importance was C213 because it appeared to be plaster which had fallen from the precinct wall itself, rather than being brought in from elsewhere with the rubble dumps. Much of the plaster was painted white but some red lines were found which indicated a pattern of panels framed with paired red vertical lines. This pattern was found *in situ* on the precinct wall to the east (see Phase S, above). Extensive graffiti were noted on the surface of the plaster.

On top of this layer of plaster was a spread of rubble, mortar, and plaster, C187 and C160, also interpreted as tumble from the wall. This context was closely linked to a massive fragment of wall, C109, which had collapsed on to the portico in one piece and been left where it fell (Fig 200). This fragment, which was the same thickness, 0.75m, as the precinct wall, was composed of mortared sandstone blocks with the plaster still attached, the latter facing the wall, showing that the fragment had turned completely over as it fell. Beneath this was a layer of bonding tiles composed of reused *tegulae*. All had been fractured by the force of the fall.

Overlying the dumps was a group of hearths which were the replacements of the previous hearths in the same area. Hearth C558, to the west, was a patch of burnt clay surrounded by pieces of sandstone and mortar lumps. To the south-east of C558 lay hearth C557, which also consisted of an area of burnt clay with sandstone fragments. Another adjacent hearth, C556, was much slighter in construction. It showed as a patch of burnt clay with one angular sandstone fragment. North of C556, hearth C555 showed as an extensive area of burnt clay, ceramic and micaceous flagstone slates, angular sandstone rubble, and mortar lumps (Fig 201). Clearly this was the main hearth in operation in this phase; a conclusion reinforced by the appearance of the surrounding area, which seemed to have been worn smooth by the feet of those using the hearth. Further east some of the sandstone blocks in dump C214 had also become worn around hearth C158, which still continued in use, and C185, an area of burnt clay.

Between the precinct wall and the east to west street perhaps as many as 26 hearths and certainly a minimum of 20 were successively built in what was probably a short period of intense activity. Given that no structural evidence was found in association, it seems highly probable that they were used by the work gangs engaged on the demolition of the basilica and construction of Building 10 and its ancillary buildings. Clearly this area of the portico did not feature in the planned redevelopment.

Since the hearths were on banked-up dumps of rubble it would have been possible, at least in some cases, to stand and cook at knee-level if not waist-height, like a barbecue (Fig 202). It is suggested that the tiles were made very hot, the fire withdrawn, and leavened or unleavened bread cooked

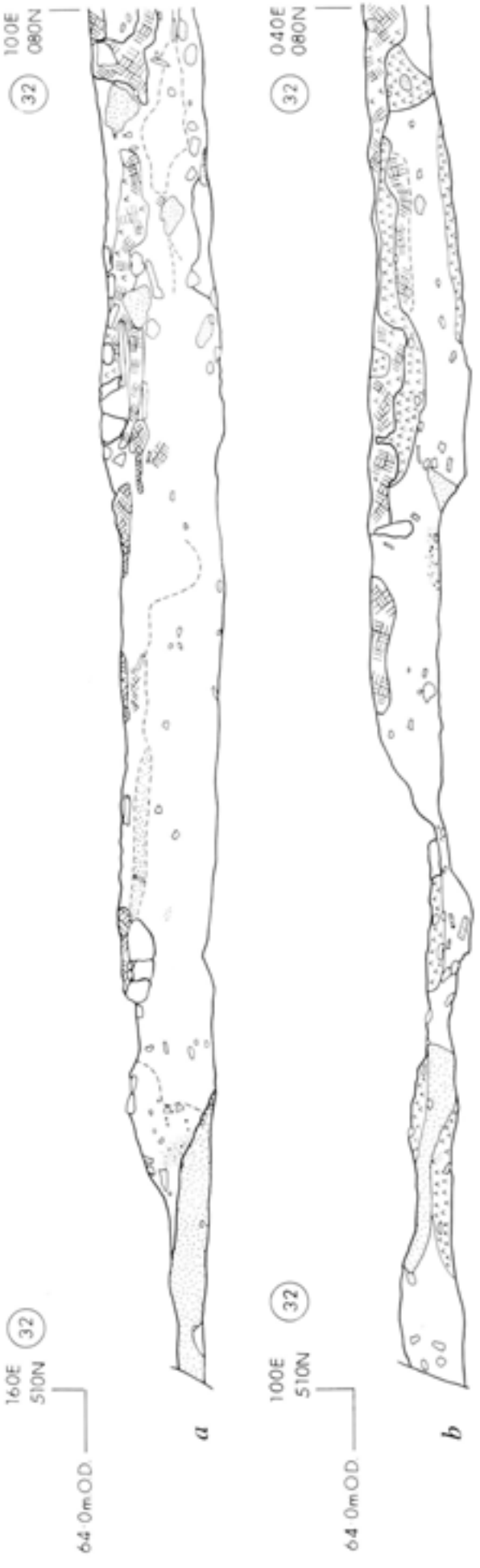


Fig 202 top: west facing section; bottom: east-facing section of north–south archaeological trench across north portico showing numerous hearths of Phase pre-Z scattered through the dumps

on them, resulting in flat loaves like chapattis or naans. Environmental analysis of the carbonised plant remains from this area shows, uniquely, a preponderance of rye grains over other cereals. This might be taken as evidence that the workers here were given a lower-status diet in comparison with the people cooking on hearths found on the west portico in Phase Z who were using high-quality bread wheats (*see appendix 6*). With the exception of C268 and C158, there was no indication of supports for cauldrons or cooking pots though these could have been stood straight on the embers of the fires. However, as the hearths seem to have been abandoned and replaced once the flat surfaces were destroyed it suggests very strongly that the surface was all important, rather than the fire which was built on it.

After the work had been finished the piled up bank of dumps became grassed over and remained so, as indicated by the faunal evidence (*see appendix 8*).

Phase Z: the great rebuilding (Fig 203)

This is perhaps the most well-known, and important, phase in the site's history. Interim reports such as Barker 1979a, Barker 1981, and White 1990 have made much of this information familiar but it is nonetheless worth emphasising that the construction of the platforms and the buildings upon them was not a haphazard operation. Clear evidence was found of a planned layout using Roman measurements (*see chapter 5*) and this, together with the preparatory work argues for a strong co-ordinating influence (*see chapter 7*). This was also the only phase in which it was possible to demonstrate stratigraphic links across the entire site.

The south aisle (Figs A117, A120)

As the first phase of the excavation proceeded from east to west, on removing the topsoil down to the first recognisable archaeological layers it became apparent that there was a more or less level strip of rubble between three and four metres wide lying against the south wall of the former basilica. It became clear that the rubble was not random but had been laid in platforms of regular size each of obviously differing materials (Fig 204). Such platforms suggested the foundations for structures leaning against the still standing south wall. This suggestion was confirmed as the excavation proceeded westwards and structural elements such as beam-slots (D230), floors (D106 and D307), and postholes (D28 and D319C) were revealed. Within all but one of the platforms a scarp 2m to 3m from the south wall marked the line of the north wall of the overlying structure. All the platforms measured roughly 8m long, a remarkably consistent measurement (*see chapter 5*).

Between the Old Work and the west wall there were seven platforms, one sub-divided, and in the very disturbed space to the east of the doorway in the Old Work there was space for another. The *frigidarium* doorway may have been partially blocked, as with the basilica's west doorway (see below), as Wright (1872, 110) refers to 'a large capital of a column, ornamented with a plain band...on the original ground level [and] in a reversed position' in the doorway, which presumably was part of a blocking wall. The survival of the Old Work itself strongly suggests also that at least the *frigidarium* of the baths remained standing and probably with its vault intact (*chapter 7*).

The easternmost surviving platform was D103 which lay just to the west of the *frigidarium* doorway

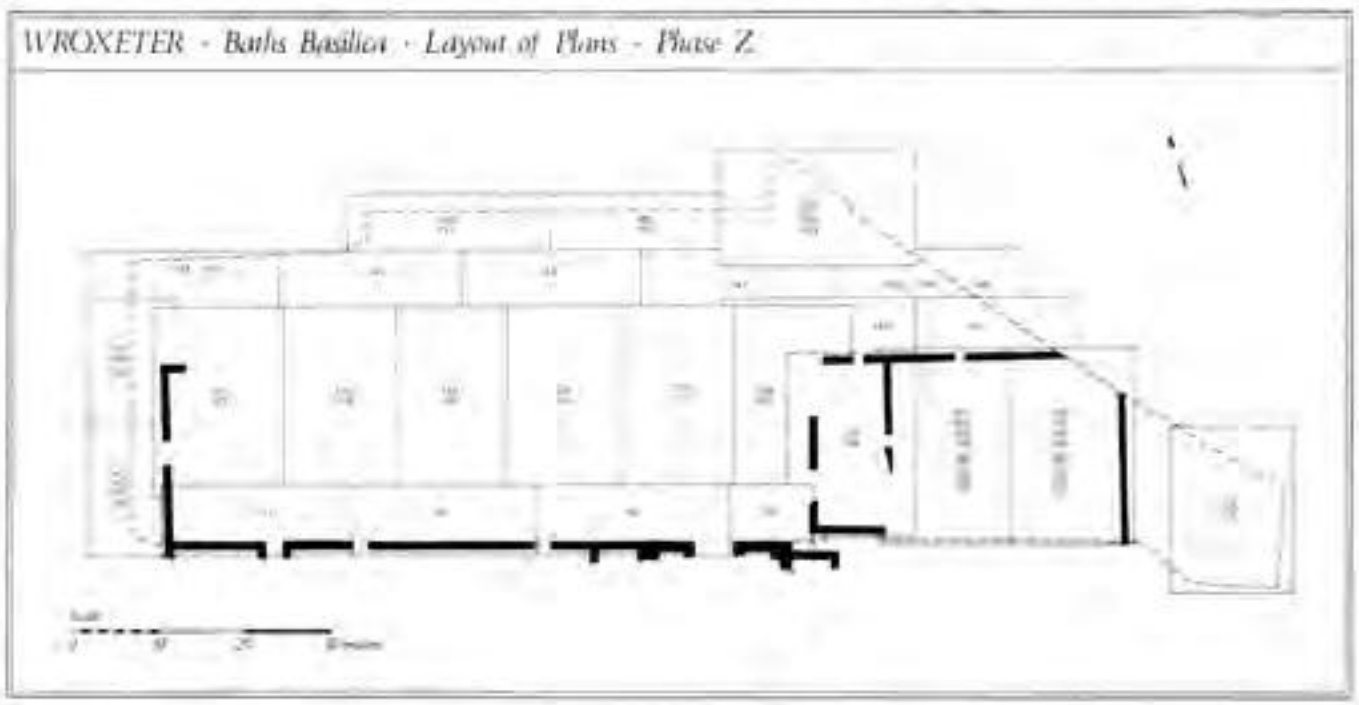


Fig 203 Layout of laws-leaf plans, Phase Z



Fig 204 View looking west of the south aisle, Phase Z. Showing the regular platforms of the lean-to buildings

and consisted of an area of large stones and broken fragments of ceramic and micaceous flagstone slate. D103 was assumed (retrospectively) to be a foundation for Building 16, though unlike all the other buildings on the south aisle, it did not have a well-defined northern edge, so though the platform was laid, the building may never have been built, leaving an open area in front of the still-standing *frigidarium*. The evidence remains ambiguous.

The next platform, D104, was composed of sandstone rubble and ceramic tile with an area of much heavier sandstone rubble to the east. Although the surface of the platform was of varied construction, it appeared as one unit when observed with the whole length of the aisle and is postulated as the foundation for a framed lean-to, Building 17.

The next platform westward was D105 which was separated from D104 by a gap 2.4m wide leading to the central door in the south wall of the former basilica. Platform D105 consisted of a hard compact mixture of silt with tile, sandstone, and bone inclusions. This platform showed some structural evidence. There were two stakeholes, D12 and D14, at its north-east corner and a group of stakeholes and postholes, D18 and D22, on its western edge, though these were part of a party wall. A marked though irregular scarp 2m from the south wall showed the position of the north wall of this lean-to, Building 18.

The next platform, D106, was of rubble packed with plaster. The surface was of hard brown earth with inclusions of mortar, pebbles, tile, and large worn stones. It is thought to be the site of another framed lean-to building. The line of the northern edge of Building 19 was a marked scarp, south of which lay D230, a narrow slightly sunken linear feature 6.6m long apparently caused by compression. This is thought to be the position of a horizontal beam marking the facade of the building. Internally there was a scatter of stakeholes as well as the two postholes D19 and D18 already noted, which formed the eastern wall, and a larger double posthole D28 just to the south of the north wall. No structural evidence survived for the west wall, though the junction with the next platform showed clearly as a change of level.

The next platform, D107 for Building 20, was an area of compact silt with underlying sandstone rubble packed with mortar. The northern edge of the building was again marked by a distinct scarp, along which had been cut a double line of postholes collectively labelled D260. These were presumably the supports for a solid timber wall. There was a 4m gap in the line of postholes coinciding with the westernmost door in the south wall of the former basilica here.

The platform for Building 21, D108, consisted of an area of dense sandstone rubble packed with mortar. The east to west length was 8.3m, which is consistent with the other platforms along the south wall, though platform D108 was up to 1m wider than the platforms further to the east. This platform was more substantially constructed than those to the east and contained lines of heavy stones packed with mortar reminiscent of the platform of Building 10, but since there was no structural evidence found it is assumed to have been of framed construction. There is no evidence to show whether or not the doorway cut in the basilica wall here in Phase Y (see above) was in use.

Between the western edge of platform D108 and the former basilica's west wall was space for another 8.3m wide platform, but this seems to have been divided into two unequal parts. Like D108 these were wider north to south than the eastern platforms. The eastern part, the site of Building 27, was constructed of sandstone rubble with other material (D306). A large posthole, D319–C, lay on the west side of this floor and may have been a roof support. The western part of the platform was covered with black loam with a surface of clay and decayed sandstone 3m square which had been worn smooth (D307). This was the most obvious and convincing floor in the sequence, belonging to Building 28. D357 and D358 within the floor may also have supported roof timbers.





Fig 205 Above: rubble platforms of Buildings 10 and 11 seen from the north-west. The platforms show as pale areas against the dark rubble; below: rubble platform of Building 10 from the south-west. The corners of the building are lettered a), b), c), and d), the two porch padstones e), and the nearer, western wing f), c), g), and h)

The nave, north aisle, and north portico
(Figs A121–A132)

In this phase a single huge platform of rubble hardcore was constructed across the sites of the former nave, north aisle, and north portico, and they are therefore dealt with here as one area. At first the whole platform was given one context number, D100, but as the work progressed it became more logical to divide this into seven discrete blocks labelled D100A to D100G (*see chapter 1*).

The rubble platform was revealed by the meticulous cleaning of the uppermost archaeological layers lying immediately under the ploughsoil (Fig 205). It soon became apparent that the rubble was not the ruins of the collapsed basilica but that much of it was made up of selected or freshly broken lumps of more or less equal size. As the excavation progressed from east to west the part of the platform now numbered D100B became particularly apparent, being composed of more of less uniform lumps of freshly broken stone laid in roughly diagonal rows and packed with mortar and wall plaster (Fig 206). The use of plaster and mortar to pack the platform gave it a pink colour which strongly contrasted with the dark soil around it making the platform more visible. Some of the plaster proved to be reconstructable and was found to be a 'wallpaper pattern' (*Tapetenmuster*) design of rows of laurel wreaths enclosing concentric rings of colour with stylised flowers in their centre and foliage sprays on either side of the wreaths. A red dado lay beneath this design. Significantly, the plaster had been derived from a vault suggesting a source in the baths rather than the baths basilica (see Shaw 1987, unpublished). This graphically demonstrates the deliberate demolition of earlier buildings to construct the platforms. The platform was, when first recognised, thought to be the foundation for a small rectangular building (Barker 1971). It was only when the whole basilican area was cleaned and examined closely that D100B was seen to be part of a much larger series of rubble areas forming the foundation of a building with a floor area half as large as the basilica itself.

Thus recognition of Building 10 depended first on the stripping of the whole area of the basilica. Earlier excavators had, understandably, interpreted this rubble spread as the ruins of the basilica because they had only seen it in the sides of trenches, where there was no chance of understanding its true nature. Inevitably, as a result it had been assumed that the basilica's collapse was the last event on the site (*see chapter 2*), this being dated to sometime close to AD 300 (Kenyon 1940, 192–3) and so at least three centuries of subsequent occupation and development went undetected. The second factor which helped in the understanding of the nature of these uppermost layers was that as their excavation took a number of seasons, and the site was, necessarily, left open between seasons the rubble layers were washed by the



Fig 206 Rubble raft forming the east wing of Building 10, D100B, from the west. Structured lines of rubble show clearly, broken into more or less uniform sizes and packed with painted plaster, thus not just a random spread

winter rains which made them cleaner than could trowelling and brushing, however careful, and brought up their colours so that the platforms were revealed more clearly than when first trowelled. The third factor which helped very considerably in the recognition of the unitary nature of the rubble platform was the fact that the area was observed as a whole, before any archaeological or robber trenches were emptied. Few were visible on the surface of the rubble because most, whether robber trenches or early archaeological trenches, had been emptied and backfilled more or less immediately, with the layers put back roughly in their right order, so the rubble platforms looked more homogeneous and complete than they really were (Fig 205a and b). As has been explained in chapter 1, all these earlier robber and archaeological trenches had to be found by trowelling. When these are subtracted from the rubble platform of Building 10 the evidence becomes discontinuous and fragmented (Figs A127–A132) though happily enough is left to make the interpretation certain.

The key to the interpretation here offered lies in the two architectural fragments D201 and D202 (Fig 207). These two column fragments were unique in their size and recognisable shape within the sea of rubble covering the basilican area. The eastern fragment, D201, consisted of part of a large unfinished Corinthian



Fig 207 Architectural fragments reused as porch pad-stones of Building 10, from the south. D202 on the left, a column drum, D201 on the right, an abacus from a capital

capital of grey sandstone placed upside down. When the stone was turned right way up in 1985 the top was seen to have a shallow channel parallel to the long sides with a lewis-hole in the centre and a pecked surface. The timber architrave of the basilica's clerestory would have fitted into the channel. The base of the stone was also pecked, but had no lewis-hole. Part of one side was missing but enough remains to allow an estimate of the diameter of the shaft as 0.8m. The western fragment, D202, was a section of column shaft also with a diameter of 0.8m. As with D201 the lower and upper surfaces were pecked. It was also clear that this stone had been struck and tilted to the west by the plough which had scored a number of deep east-west grooves in it. This was one of the few contexts demonstrably damaged by ploughing.

These two architectural fragments had been placed symmetrically due north of the central doorway in the south wall with their centres 3.24m (11*pM*) apart in line with the southern edge of the rubble platform. By the time that these fragments were found the facade of Building 7 (see below) with its two sandstone post-pads had been excavated, and the late Mr A H A Hogg of the Royal Commission on Historical Monuments for Wales, visiting the site, suggested that these two column fragments might have performed the same function as the post-pads of Building 7, in other words supporting the columns of a porch. It immediately became apparent that the two fragments lay symmetrically in the middle of the south side of a very large rectangular platform of rubble with the more compact rubble platform, D100B, at its south-eastern corner and a similar platform, D100 F–1, at the south-western corner. On the northern side of the site corners could be seen in platforms D100A on the east, and D100D on the west.

Although the platform or platforms were quite clearly to be seen on the ground due to a combination of colour and texture, they are extremely difficult to demonstrate on plans, since the surrounding rubble is in many ways similar, and on the oblique photographs one can only see a small area at any one time. At this stage of the excavation photography from a balloon or other high-level vantage point was unfortunately not available. However, wherever parts of the platform survived between the archaeological trenches or other disturbances they were easily identifiable and are described below. In addition, it became clear that the entire platform was laid out using a Roman standard measure (*see chapter 5*).

D100A covered the robber trench of the north wall of the basilica and the area from grid 35 to grid 38 and grid 21 to grid 24, and thus formed the north-east corner of the platform. It may be described from the plans and photographs as an area of both mortar-packed rubble and rubble without mortar. The mortar-packed rubble is particularly concentrated on the line of the north wall robber trench where the fill of the trench would have been less compact than surfaces of the portico or aisle on either side. It is particularly noticeable from the plans that the north-east corner of this platform has little or no mortar-packed rubble but that further west, the mortar platform becomes more obvious. This appears to be due to the natural slope of the site which falls 1:70 from east to west. Thus the north-east corner of the platform is in effect the highest corner and it is assumed that those constructing the platform used the level in this area as a guide to the overall height of the platform. Indeed, it became clear that much of the 'platform' seen in this area was the underlying Phase Y layer D151 with a thin scattering of rubble on the surface so that D100A petered out before the true corner of Building 10 was reached. Much of this area of the platform had been severely cut by archaeological disturbances which define the southern and western edges of D100A. The north edge of D100A was ancient, and this appeared to coincide with the southern edge of the robber trench for the stylobates of the north colonnade. This junction was clearer further west (see D100D, below).

D100B lay to the south in grids 7 to 8 and 21 to 23. It formed the east projecting wing of the platform, and part of the facade. Figure 206 shows that the rubble here was laid down in diagonal rows and packed with plaster. When extracted, this plaster was reconstructed as the rendering of a vaulted ceiling decorated with wreaths above a red frieze (see above). The context covered two main areas divided by an archaeological trench. The larger, southern, half consisted mainly of the east wing of the platform. The western limit was defined by a line of red sandstone blocks running in a north to south direction at grid 22, 590E. The southern edge was less well defined and appeared to have been somewhat disturbed as though the platform edge had tumbled to the south. A line of sandstone rubble at grid 7 to 8, 960N may mark the true facade of the wing.

D100C lay between D100A and D100B. This number was used to cover all areas of the platform within the north aisle. The best constructed area of the platform in grids 23 and 22 showed as linear areas of pitched rubble packed with plaster. Included within the platform in this area was a fragment of the basilica north wall (D234; see Fig 154). In grids 24 and 25 the areas of packed pitched rubble became less clear as there was more archaeological disturbance.



Fig 208 The rubble raft fragment D100E, looking east. Pitched lines of rubble packed with plaster which carried the facade of the building. The rubble to the south beneath the verandah of Building 10 (D100G) is not mortar packed and incorporates porch pad-stones D202



Fig 209 Southern facade of Building 10, looking west. South the porch pad-stones, then a narrow strip of levelled rubble without mortar beneath the verandah (D100G). To the north the mortar packed rubble raft of the facade (D100E)

D100D was confined to the north-west corner of the platform and the adjoining robber trench. It was, therefore, localised to grids 24 to 25 and 38 to 39 on the north portico. The western part of D100D can be described as a mixed area of mortar-packed rubble with large numbers of ceramic tile inclusions. These were particularly concentrated at grid 39, 760E 360N, where they formed the north-west corner of the platform. Elsewhere, D100D shows on field plans as a mortar area packed with stone inclusions of up to 0.2m in size. An extension of the packed rubble platform was noted to the west side of the context. This was the floor of Building 11. The northern edge of the platform and the darker fill of the robbing trench for the north colonnade stylobates contrasted very clearly.

D100E lay to the north of the post-pads D201 and D202. The context was defined as a length of pitched sandstone blocks packed with wall plaster. At least four rows of rubble were identified with three rows of mortar between (Fig 208). This figure also clearly demonstrates the change in character between D100E and D100G which abuts it to the south. It was assumed that the heavy character of this rubble related to its function as the foundation of the main facade of Building 10.

D100F–1 was the western projecting wing of the platform and lay immediately to the west of D100E. It was described a 'a squarish block of rubble packed with plaster'. The north-east corner of the context was a line of sandstone rubble which extended in an easterly direction and aligned with D100E and the facade. Its southern edge had probably been lost in a large archaeological trench.

D100G, the last area of the platform, was completely different in character to the other parts. It lay between the two wings, D100B and D100F–1, south of the foundations of the facade, D100E. It was an area of red and yellow sandstone, micaceous flagstone and ceramic tile fragments set in a brown loam matrix. The micaceous flagstone tiles were probably part of the underlying Phase Y surface D100F–2 (see above) onto which the sandstone rubble had merely been laid, some of it pitched almost vertically. Included within the matrix of the context was D110 which was described as a line of plaster standing vertically in a compact mass. Presumably this was the remains of a timber beam included in the rubble. The levelled character of the context is shown very well in Figure 209 which shows D100G lying on the left-hand side of the photograph with D100E in the background. On the extreme left are the post-pads D201 and D202. This area is interpreted as the surface underlying a planked verandah on the south side of Building 10.

The platform for Building 10 may thus be summed up as areas of rubble packed on the surface with plaster and mortar. The rubble had been freshly broken into pieces of more or less uniform size, not much bigger than a fist, many packed in oblique lines.



Fig 210 Building 11, from the west, after the removal of surrounding rubble and floor areas. The ranging poles indicate the wide southern doorway leading into the area west and south of Building 10. The north wall of Building 11 is particularly clear, including the north-west corner and, beyond it, the wide worn rubble threshold D317



Fig 211 West end of basilica, Phase Z, west portico, showing the diagonal path D239 leading to the threshold stones of the west door. a)–a) is a fence line between the path and the unworn rubble D283. The threshold was probably buried under rubble but the path appears to lead to the site of the door implying that the west wall was still standing

This is in complete contrast to the random heaps of rubble that would have resulted from the collapse of the basilica. The depth of the platform, as has been indicated already (see D100A) varied considerably. D100F–I varied between 0.2m to 0.3m thick and D100C was about 0.1m thick, while D100G varied between 0.1m and 0.4m in thickness (see Figs A3 and A5).

The form of the building which sat upon the platform is more problematic. It is assumed that the whole building was timber-framed given that there were no earth-fast posts, or other clues to the type of structure. The ground plan implied by the platform was that of a rectangular building with symmetrical projecting wings on the south side linked by a verandah which also had a central porch of some considerable size given the large post-pads that were used to support it. From this, it is assumed to be two-storeyed. The position of the north edge of Building 10 may have been given by D868 which was a east-west linear feature 9.4m long and up to 0.14m wide. This ran from the north-west corner of D100D into D100A and petered out into the backfill of the north colonnade robber trench. It may be interpreted as an eaves drip and if so, allowing for the overhang of the roof, it shows that Building 10 stopped short of the very northern edge of the platform. However it is not parallel to the assumed edge of Building 10 and may have been an abnormally deep plough rut since it did not appear to relate either to the post-Phase Z building in this area (Building 4). The wing foundations were of particularly heavy construction and it is argued that they may have carried towers, as with the villa reconstructed on the Trier fresco (Wightman 1970, pl 6b) and on North African mosaics (Dorigo 1971, pl 146). In essence, this ground plan is also very similar to the 'winged-corridor villa' so familiar from Roman Britain. Although in the past there has been a tendency to reconstruct these as single-storey structures, it is now thought that many were more substantial, even when built in timber. Building 10 thus fits firmly within an existing tradition of Roman and Romano-British architecture.

Several other features were associated with the platform but their role, if any, in Building 10 was not clear. Principal among these were two large cuts on the southern edge of the platform. D159 was located on the south-west corner of the east wing of the platform centred on grid 8, 056E 978N. It was described as a circular pit cut down through the basilica floor which in its turn cut through an earlier pit, D164. This feature showed as a 'cone of collapse' cutting the platform for the wing of the building (D100B). It is possible that this represents a post which stood at the corner of the building. However, given that D164 was 1m wide it might be better interpreted as holding a pad-stone to support a post. A second possible posthole, D199, was identified 3.2m west of post-pad D202. Again, this shows as a 'cone of collapse' on the first plans of the area. The diameter of the context was 1.2m, again making it capable of taking a pad-stone. The function of these two features was not clear. Clearly they postdate the construction of the platform for Building 10 but how much later they are is uncertain. It is possible that they held supports for uprights at the edge of the verandah, but there is no similar evidence for other posts in the sequence. On balance therefore, they are likely to be later disturbances, although still potentially structural and may perhaps represent repair work.

Extending from the north-west corner of the platform for Building 10 and aligned east to west was a thinner platform, D251, which had clearly been laid down at the same time as D100 (see Fig 205a). This represented part of the evidence for Building 11. The mortar-packed floor areas survived only as islands in a sea of later disturbance (D251C, D251D, D2481) but these united the otherwise disparate elements of the building.

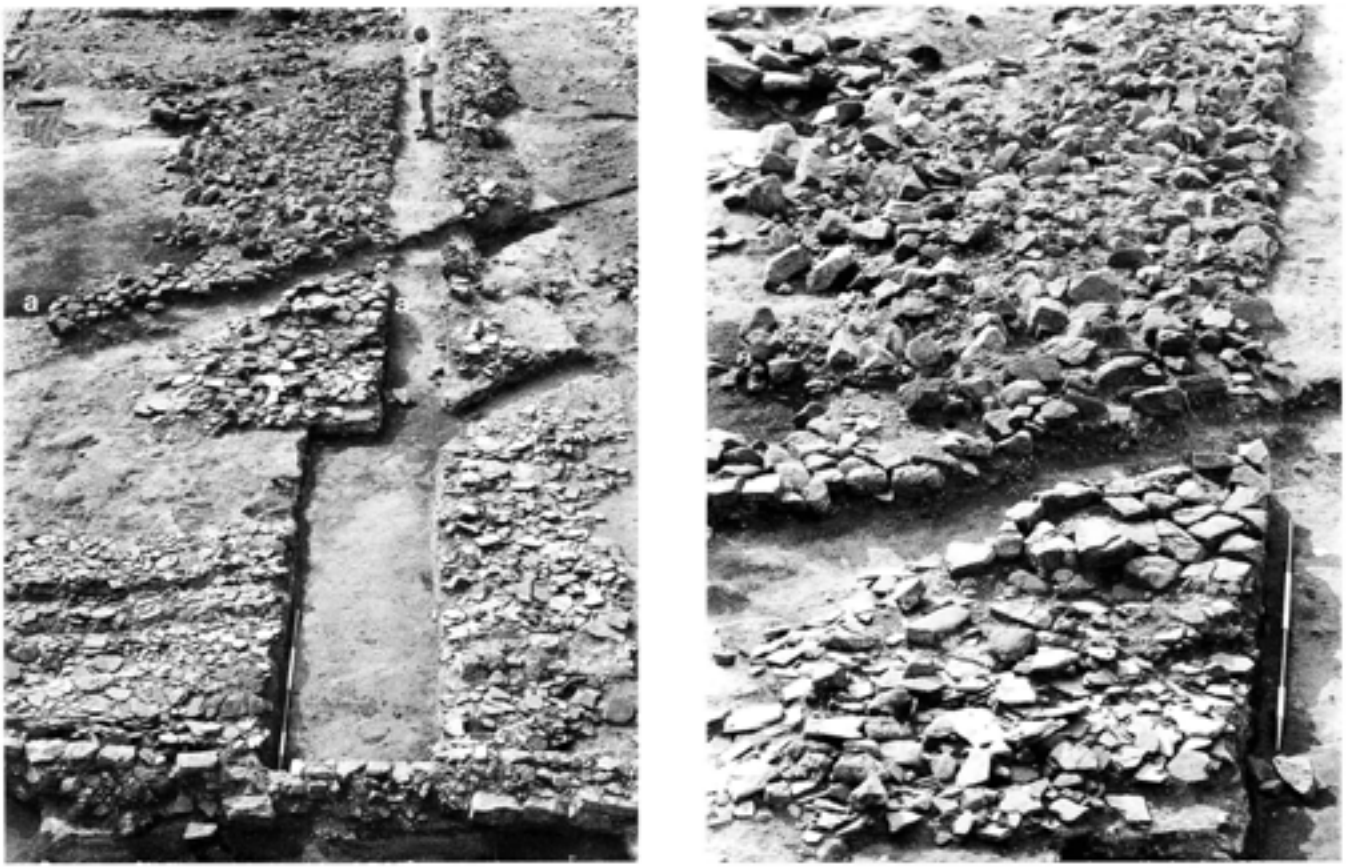


Fig 212 Left: east end of nave, looking west. Archaeological trenches have been lowered, emphasising the micaceous flagstone surface of Phase Y, damaged by the collapse of wall D75 of Building 31, whose lowest course is visible. In the middle distance, between a)–a), worn rubble path D132 with, beyond it, the unworn rubble platform of Building 10;
Right: worn path D132 showing clearly the contrast with the unworn rubble of Building 10's platform beyond

Building 11 was essentially constructed in two halves. The western half, which is assumed to have been timber-framed, was based on a dry-stone, presumably dwarf, wall which survived patchily (Fig 210). The wall can be traced eastwards from the north-west corner, D356, along part of the north wall, D2504, to the north-east corner, D2500, then south and along part of the south wall, D251N. There was a wide worn rubble threshold, D317, in the centre of the north wall, and there may have been a doorway in the eastern wall linking the two halves of the building, where the mortar platform continues unchanged across the wall line. The eastern half was less well defined with the north wall continuing as a broad band of rubble (a continuation of D2504) cut by postholes which then apparently vanishes. The south wall was marked by two postholes (D257 and D248), which may have framed a wide doorway, and a pad-stone (D258). Further possible pad-stones were noted in the western half of the south wall (D259, D280, D281) and these suggest that the uprights may have been socketed into the dwarf wall. It is possible that the eastern side of Building 11 was built as a loggia as there was no evidence for a wall between the uprights. The building fills the gap between the west wall of Building 10 and the north-west corner of the former basilica, deliberately left as a buttress to the still-standing west wall.

To the south of Building 11, the surviving rubble was given the overall number D283. This did not appear to be worn or have any structural features in it. A mortar-packed path (D251Y and D900) which lay south of the doorway in the south wall of the east bay of Building 11, ran on into the building and then turned east, crossing the wall line of Building 10, suggesting that there may have been a side entrance linking the two structures. Another path, D239, made of sandstone rubble was found just east of the doorway in the still-standing west wall of the basilica (Fig 211). This path was aligned north-east to south-west and was delimited on its southern edge by a possible fence. This prevented traffic from going south, angling it instead towards Building 11.

To the east of Building 10 the area up to the east wall of the former basilica had been deeply disturbed, mainly by mosaic hunters and trenches dug in 1936–7. Some elements of the Phase Z levels remained, however. Immediately to the east of Building 10 there was an area of laid and worn sandstone blocks, D132, which formed a path measuring 5m by 1.6m. The character of this surface may be best judged by the photographs of it (Fig 212). In Figure 212, a high level shot, D132 appears in the centre of the photograph with the micaceous-flagstone slate layer D77 (see Phase T, above) in the foreground and the angular rubble platform

D100B in the background. Figure 212, shot from a lower level, contrasts the angularity of the platform rubble with the smoothness of the surface of D132. The field drawings make it clear that the path was also packed with mortar. The trend of the path was roughly north to south but its ends had been removed by other archaeologists so its ultimate destination was unclear. Nonetheless, it was plain that it existed outside the area of Building 10 and it is this path which really delimits the eastern extent of the platform for the building. It may ultimately have turned west and linked up with the remains of a possible path which lay to the south of Building 10 (D13 and D50). Equally it could have headed south-west to the central doorway in the south wall of the basilica between Buildings 17 and 18, or due south to the door into the *frigidarium*. The northern destination of the path was not clear but it is possible that it kept close to the east wall of Building 10 and passed onto the portico. Alternatively it could have turned to the north-east and into the former annexe.

To the east of the worn path D132, elements of another building, Building 31, were identified. They consisted of a mortared stone wall footing, D75, a worn path, D86, and a small area of the internal floor surface, D120. The wall footing D75 was unusual in this phase in that it was built from mortared blocks of yellow sandstone. It is of interest that the stones used were not the usual squared blocks used as facing stones elsewhere on the site but rather consisted of what appeared to be freshly quarried, more roughly dressed stone (see Fig 212). The surviving wall was 5.4m long and 0.5m wide, the whole lying 4.3m from the remains of the east wall of the basilica and parallel to them. Because of the removal of a very great deal of the evidence here by robber and archaeological trenches, the original length of the wall is not known but the addition of the wall collapse gives a minimum length for the west wall of at least 7.5m. It is possible that it extended further north, perhaps to the remains of the north wall of the former basilica, thus virtually filling the basilica's east end. Unfortunately this will remain unknown as will the purpose of this anomalous though apparently important structure.

The full height of the wall, D75, was given by its collapse, D101 and D131, which lay to the west of the wall footing (Fig 213). The largest area of the collapse was D101 which measured 3.2m east to west by 3.4m north to south. D131 to the north measured 2.7m east to west by about 3.5m giving a total height of about 2.5m to 3m, allowing for the expansion of the wall as it collapsed. The surviving portion of collapsed wall was not of uniform character, however. D101 had a rubble-free patch in the extreme north-east corner. This area measured 0.9m east to west by 1m north to south forming a rough square and lay 0.8m from the west face of the wall footing D75. This may be evidence for a small window within the wall, just over 1m above the floor level of the building and measuring just



Fig 213 West wall of Building 31 a), from the south, with its collapse b), to the left. To the right, most of the floor had been cleared away by Kathleen Kenyon's workers but in the right foreground is a worn path, D86, which marks the doorway and in the top right corner is the only surviving fragment of the mortar-packed rubble floor, D120

under 1m square. The only other way to account for this gap is the suggestion that the rubble here was robbed at a date after the wall had collapsed. It is presumed that the building was constructed leaning against the eastern basilica wall B82 which must, therefore, have been surviving to a substantial height. In addition the worn rubble surface D86 is presumptive evidence for an adjacent door in the southern wall of the building. The roofing material remains unknown, but as it has left no trace at all it may be assumed that it was organic or that it was completely reused elsewhere.

The annexe (Figs A133 and A134)

Little is known of the archaeology of the annexe in this phase, chiefly because all that was left intact was a block 4.6m north to south by 5.8m east to west in the northern half of the north room (see Fig 214) and the only links which could positively be made with the adjacent areas were with the north portico and the baths precinct to the east. The whole of this island of intact archaeology was covered with a single homogeneous dump, B277, of black loam 0.2m to 0.3m thick containing much rubble. The finds from this uppermost layer included 29 coins ranging in date from Geta as Caesar (AD 198–209) to the House of Valentinian (AD 364–83).

On the surface of layer B277 were three discrete paths (B294, B144, and B145), made of sandstone and ceramic tile packed with crushed mortar. All converged on a gap, C93, in the north wall and so connected with the paths C94 and C465 on the north portico and the former street surface (see below). Paths B294 and B145 led towards gaps in the west and east walls of the annexe respectively. In this phase, therefore, the only

evidence that survives is of paths to other parts of the site. Clearly, the walls still stood to an appreciable height, though the roof had long since gone. The general air of abandonment is confirmed by the faunal evidence for this area (*see appendix 8*).



Fig 214 View east, of the dark earth dump B277 in the north room of the annexe. Three mortar-packed rubble paths fan out from a gap in the north wall below the ranging pole and lead to other doorways



Fig 215 Building 38, Phase Z1 on west portico, looking south. The platform shows as a square block of rubble a), with ill-defined beam positions. At the north-west corner b), is a rubble path, D2539, across the backfilled robber trench of the west portico colonnade

The west portico

Unusually for this phase, three successive groups of small buildings were detected on the west portico, with a fourth and last phase localised at the southern end of the site. This sequence is unequivocal evidence for the overall longevity of the great rebuilding phase.

In common with all the subsequent sub-phases in the west portico, the previous surface was levelled with dark earth and rubble into which the buildings were set. In this case, the dumps were, from south to north, D466, D71, D463, and D473/D1185. The building platforms within these dumps were often difficult to define. In the southern half of the portico, an area of pitched, unworn rubble and mortar, D465, formed a clear 5m^2 patch immediately outside the west door of the former basilica. This was interpreted as the foundation for a timber-framed building, Building 38. The western edge of the rubble platform lay parallel to the robber trench for the portico stylobates and some 600mm to 800mm from it. The southern edge was clearly defined but had been broken into by the digging of an archaeological trench. The eastern edge was well defined, though it too had been partly destroyed by another small archaeological trench. The northern edge was not so definite, though, as can be seen on Figure 215, there is a clear distinction between the rubble platform and the comparatively rubble-free area to the north. At the north-western corner of the platform, and overlying the backfilled portico robber trench was an area of rubble, D2539, which appeared to be a path over the recently backfilled trench, leading into Building 38. There were also other patches of rubble in the portico robber trench which may have been laid where they would be useful for crossing the soft and unconsolidated fill of the trench.

Nine metres further north, and close to the abandoned and collapsing Phase X oven, D371, there was evidence of another structure, Building 39. The evidence in this instance consisted of features cut into the mortar and rubble dump D473. These were a slot, D475, lying east to west which formed the south wall of the building, three postholes D731 and D736 forming the west wall, and D720, part of the east wall. The remainder of the east wall and the north wall had been lost in an archaeological trench crossing the whole width of the portico at this point. A patch of micaceous flagstone tile, D733, west of Building 39 shows that traffic was still using the original entrance to the north-west corner of the portico.

In this phase, Phase Z1 (Figs A135 and A136), there is corroborative evidence for the narrowing of the doorway into the basilican area by the blocking of its southern half. It can be assumed that the west wall of the former basilica was still standing since none of the buildings on the west portico encroached on its line, but rather seem to respect it or were built up against it. Inside the west door, a single path, D239, approached the site of the door (see Fig 211), heading towards the northern

half of the door gap. Since there was unworn rubble immediately to the south of the path, the southern half of the doorway must have been blocked in antiquity. A record of this was fortunately made by Wright who wrote in the site guide that he had found here:

> a large squared stone [the original threshold], and...two similarly squared stones placed one upon another. One of these was bevelled off at the outer edge into a plain moulding, and their general appearance led to the belief that they formed the bases of something: perhaps of large columns. [These stones cannot now be identified]
>
> *(Wright, 1859, 37)*

It will be seen that Building 38 had been sited so that it blocked the southern half of the doorway, but left the northern half open. The robbing of the northern jamb of the door took place at this time since its robbing hole, D727, was clearly cut from this level. The aim of this was probably two-fold. First, it widened the partially blocked entrance, and second, the robbing would have produced a large ashlar stone for reuse elsewhere. The width and position of the new doorway thus created match that of path D239 east of the wall.

An extension of the area of excavation to the south in Phase Z2 (Figs A137 and A138) uncovered part of a possible structure, Building 37. The evidence consisted of a beam-slot, D722, close to an area of laid sandstone rubble D480 (Fig 216). Nearby was a hearth, D370, formed of a group of sandstone blocks arranged in a rectangle around ceramic tiles which had been heavily burnt, while underneath the ceramic tiles was a burnt micaceous flagstone slate bedded in clay. The area around this hearth, and a second hearth, D369, to the north, was a dark humic dump layer, D393, with comparatively little rubble but containing much charred grain which was derived from the hearths (*see appendix 6*).

The northern hearth, D369, was similar in construction to hearth D370, but was more substantial with the surrounding sandstone blocks forming a rim or low wall which would have retained the embers of the fire and perhaps supported a cauldron or cooking pot (Fig 217). The hearth's substructure was a layer of mottled clay and silt with much charred grain.

Just north of hearth D369 was an extensive rubble spread, D368, containing a number of features interpreted as evidence for Building 34. They consisted of three linear gaps in the rubble, D424, D428, and D427, which are presumed to be positions for sill-beams along the south, west, and north walls. There was no structural evidence for the line of the east wall. In the south-west corner of the square thus formed was a group of well-laid rubble blocks, D481. As this area was more level than the rest of the rubble platform it has been tentatively interpreted as a threshold area inside a doorway. There was a corresponding gap at the southern end of D428, the sill-beam for the west wall, which may represent another entrance.



Fig 216 Laid rubble surface D480 outside Building 37, looking west. In foreground a beam-slot, D722; arrow and label in it mark north wall of Building 37



Fig 217 Terracotta-tile hearth D369 with surrounding sandstone wall. The tiles have turned grey and shattered. Charred grain and gorse charcoal was found perhaps indicating use for baking. Perhaps used by occupants of Building 34 to the north



Fig 218 South end of Building 33, Phase Z2, looking east. D336 (centre) and D367 (right) worn rubble spreads outside doors to building. Position of a beam d), the south wall defined by north edge of D367



Fig 219 North end of Building 33, looking west. E207 a substantial beam-slot for north wall (see Fig 192) cut into backfill of robber trench for north portico colonnade (the construction differs from the south wall). Worn rubble surface, E204, lies to the north on the cobble street



Fig 220 Disused oven, Phase Z2 showing filled flue and rubble spread to the west piled against the south-east corner of Building 33

On the other hand, there were two substantial postholes, D377 and D410, lying south of and parallel to the south wall which may be interpreted as a porch for Building 34. Alternatively they could be the corner posts of a small lean-to store. The question must remain open.

It will be seen that Building 34 obstructs the western entrance to the former basilica leaving only a 1m gap between its east wall and the basilica's doorway. It seems likely therefore that this doorway into the basilica was no longer the main door since access to it was so severely restricted. It is possible that Building 34, being deliberately sited in front of the doorway, was built to control access into the basilican area, ensuring its privacy.

Further north, at the junction of the west and north porticoes, there was evidence of a further building, Building 33 (Figs 218 and 219). The evidence consisted of a rectangular area with little rubble, D372, bounded on the south by a broad area of worn sandstone rubble, D367, perhaps a threshold before a door, with an apparent timber-slot, D386, separating the two areas. In the centre of the eastern side of the rubble-free area another broad patch of worn rubble, D366, may also have marked the site of an entrance. Close to it, inside Building 33, was a possible beam-slot, D383, which may indicate the site of a partition or may mark the position of a joist supporting a planked floor. The northern end of the building was marked by a substantial slot, E207 (Figs 192 and 219), which had been cut into the backfilled robber trench for the north portico stylobates, with a smaller patch of worn rubble, E204, beyond it marking the site of yet another entrance. Building 33 may thus be restored as a long, narrow, and timber-framed building lying on the edge of Watling Street and parallel to it. None of the three entrances to the building gives on to Watling Street.

One other circumstance should be noted which may be more than a coincidence. The rectangular rubble platform D366 fits neatly within the postholes and timber-slot of Building 39 of Phase Z1 (see Fig A136). Although a levelling dump, D372, lies between the two buildings the coincidence is strong enough to suggest that the compacted floor of Building 39 may have been deliberately reused as the foundation for the threshold of Building 33.

This phase saw the final stages of the demolition or collapse of the large oven, D371. The field drawings seem to show that what remained of the oven collapsed against the corner of Building 33 showing that this occurred after the building had been erected (Fig 220).

In Phase Z3 (Figs A139–A140) the last complete redevelopment of the portico also produced three buildings. At the southern end of the excavated area, but partly hidden by the baulk and partly destroyed by an archaeological trench, was a rectilinear area of silt with small rubble inclusions, D388, bounded on the west by an area of much heavier rubble, D387. This platform of silty material, which was slightly higher than the rest of the portico surface, is interpreted as the floor of a small structure, Building 32, leaning-to against the west wall of the former basilica. As most of it lay beyond the area of the excavation little more can be said about it.

Further north was more substantial evidence for a posthole structure, Building 29. This consisted of a sub-rectangular pattern of postholes, D58B, D58A, D59, D60, and D61 formed the south wall, D62, slot D63, D64A, D64B, and D65, mark the line of the west wall, and D66, D67, and D363 formed the north wall. All these posts were closely spaced; the only gap broad enough for a doorway lay in the north wall, between D66 and D67. The building was divided into two more or less equal halves separated by a shallow step edged with flat-topped pieces of rubble which may have been a partition base. A single posthole, D365, marked the west end of this wall line. All of these features were set within a level mass of rubble in loam (D331) which had probably been packed round the posts.

As can be seen from Figure A139 the southern wall of the building abutted the northern end of the blocking wall in the basilica doorway, and it is clear that it would have been impossible to get from the west portico into the basilican area without going through Building 29, which therefore, like Buildings 38 and 34 before it, may have acted as a sort of guardroom.

Running north from the north-western corner of Building 29 was a line of four postholes, D2508, which appear to form a fence line. Close to the northern end of this line is a possible further structure, Building 25, formed of slot D347 and a posthole D69 cut into the overall dump D332. Once again most of the evidence for this building was probably destroyed by archaeological trenches.

Evidence for Phase Z4 (Fig A141) was confined to the southern end of the site. On the site of Building 32 there was evidence for a later building, Building 14, consisting of a platform of rubble packed with loam and crushed mortar (D54/D313/D344) and, as can clearly be seen on Figure 221, this platform stood above the general level of the portico. The form and construction of the walls of this building are not at all clear: they may have been made of timbers resting on the ground, or of turves, or of clay.



Fig 221 West portico, Phase Z, from the north showing raised platform of Building 14 at southern limit of the site at the same level as the south aisle platforms shown in the top left-hand corner

The chronological relationship between Building 14 and the buildings to the north is uncertain and it is possible that Buildings 29 and 26 were standing at the same time as Building 14. It was also noted that the platform for Building 14 was at the same height as those in the south aisle, although this is presumably coincidental since the south-west corner of the basilica still stood to a substantial height.

The north portico (east end)

(Figs A142 and A143)

After the construction of Building 10 and its associated structures in the great rebuilding, the hearths at the eastern end of the north portico went out of use and a thick layer of black loam containing much building rubble was dumped on them (C4, C76, C78, C89, and C112). It was apparent from the subsequent robbing of the northern precinct wall down to the top of the dumps that these had been laid first and the robbing only taken down to their level.

In two places more rubble had been laid on this dump to fill earlier breaches in the wall and to form paths C92 and C77. Thus, the implication is that in these two places one could walk through the ruins of the wall into the former annexe and into Building 6 in the precinct. The path into the precinct, C77, only operated in Phase Z4 and in earlier sub-phases access was gained via another gap to the west of the later doorway. This was probably filled with shuttering in Phase Z4 (see below).

Gradually the dump of rubble and topsoil must have become overgrown with grass and weeds and it remained like this during the subsequent history of the city, gradually building up with soil washed down the slope from the north-east, until the site was ploughed, probably from the eighteenth century on (*see chapter 7*). Faunal evidence showed that, as with the annexe, this part of the site had many small mammals and predatory birds showing that this area was deserted (*see appendix 8*).

The east to west street

This feature can be divided into three distinct sections: the two areas of cobble street at the west and east ends of the site, and between them, the gravel street.

The construction of the gravel street (Figs A144–A147) has been described above. It is probable that when first constructed its surface was cambered to allow for the run-off of surface water, though it also sloped longitudinally from east to west at an incline of about 1:70. It was noticed during excavation that the material from which it was constructed was hard and compact when dry but became very soft when wet. When first excavated, however, the centre of the street was concave in profile and the surface was smooth and markedly silky in texture. There was no sign of water damaging the surface, nor of erosion channels down the centre of the street, though these formed immediately there was heavy rain (Fig 222).

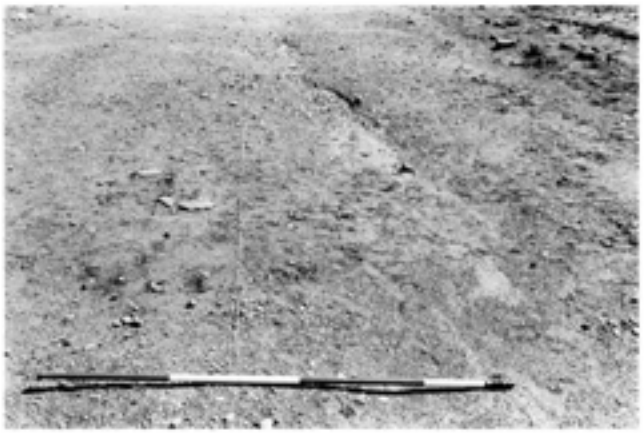


Fig 222 Modern water channel eroded into surface of gravel street, after exposure. There are signs of water-sorting of the stones on the surface. When first uncovered, there was no trace of such damage and the street must have been kept swept until its abandonment



Fig 223 West end of gravel street, looking south. Two access points are visible, a ramp a) leading across the north portico colonnade robber trench from the north door in Building 11, and another ramp, E170 d), leading from a path c) onto the cobble street. The latter ramp is presumed to have replaced a timber step which revetted the face of the cobble street. The rest of the cobble street is covered in unworn rubble b). Beyond E170 are a few stones e) which have been left on columns of earth to contrast with the stone-covered ramp

Rain also destroyed the smooth silky appearance and washed the finest silt away from the larger pebbles and fragments of tile and etc, producing a rough surface. The smooth surface could, however, be restored simply by walking on it. Furthermore, there was almost no accumulation of the gravelly material at the lower end of the street which would have been the case in the event of erosion by water. This combination of observations is difficult to explain. If the street surface was not eroded by water, what had removed enough of it to cause it to become concave? The most likely explanation seems to be that it was disturbed and eroded by feet and by being kept clean by constant sweeping. The smooth concave surface suggested,

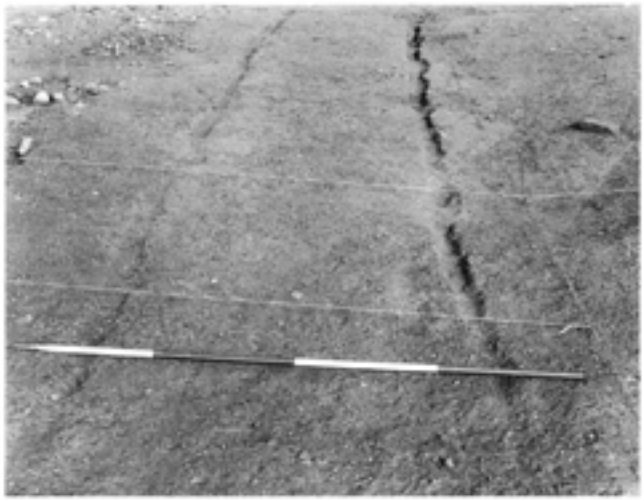


Fig 224 North-east part of gravel street, looking east, showing two parallel joists, E83 and E98, for a boardwalk

in fact, that it was protected from the weather by a roof which covered the whole length of the street, as shown in earlier reconstructions (Barker 1981, fig 5), though this interpretation has been disputed in the course of the discussions of the implications of the evidence, and another solution is proposed below. Another puzzling feature of this construction is that it had remained smooth and concave: in other words it had not been eroded by being exposed to the weather after abandonment.

Access to the gravel street was from three points. At the east end, the former cobble street was cut abruptly to form a cliff edge, except at the southern end of the cliff where there was a rectangular extension, E131, projecting eastwards into the remaining solid mass of the cobble street. Driven into the recess thus formed were some stakeholes, C19, C25, C18, C17, C16, and C26. It is probable that these stakes supported timber steps down on to the gravel street surface here. North of these postulated steps was a timber revetment which supported the vertical face of the cobble street.

The two other points of access were found towards the west of the street (Fig 223). One, E276/D251B, a ramp of gravel street material lying over the backfilled robber trench of the north portico colonnade, brought traffic off the street close to the north wall of Building 11 (see above). The second lay at the west end of the gravel street, where a flight of steps is assumed to have revetted the cut end of the cobble street because otherwise the sheer face of the cobble street would have collapsed. Subsequently, these presumed steps seem to have been replaced by a much narrower ramp of earth covered with pebbles, E170, perhaps when Building 26 was constructed (see below).

It is clear from the low vertical cliffs at each end of the gravel street that there was no longer access for vehicles here, and the gravel street had become a pedestrianised area reached either by the three access points just described or from the buildings which flanked it on either side.

It is impossible to understand the reasons for this extraordinary construction. It effectively cut off Building 10 and the buildings which surrounded it from vehicular access, making them part of an enclosed precinct or demesne, where before there had been a public building with a street on its northern side.

Two longitudinal grooves, E83 and E98, were observed in the northern half of the surface of the gravel street (Fig 224). At first these were thought to be cart ruts, perhaps from the last cart to be driven up the street at the end of the site's occupation. These romantic notions were soon abandoned when it was realised that the 'ruts' were not parallel, stopped abruptly, and could not have been made by a cart as it could not have got onto the street. These features are now interpreted as joists for a boardwalk similar to that on the northern portico (see Phase X, above), though the need for a boardwalk here is not immediately apparent unless it was constructed during a particularly wet season.

More significantly, when the surface of the gravel street was closely observed, it was seen that in its southern half there were slightly raised platforms of the same material as the gravel street itself, but apparently left standing proud while the rest of the street had been worn lower, presumably around some structures such as sheds or booths which had encroached on to the street in a secondary phase.

The easternmost of these structures, Building 40, would have stood on a platform, E45, which had a narrower extension to the west, assumed to be the site of an adjoining structure, Building 41. Approximately 1m west of Building 41 was another platform representing the site of a third structure, Building 42. This, unusually, was composed of two elements: gravel street material, E46, to the north and shattered micaceous flagstone slate fragments and mortar, D2473, to the south (Fig 225). Significantly this more substantial southern component of Building 42 lay over the less compacted backfill of the north portico colonnade robber trench, and thus was demonstrably later than it.

Between Building 42 and the next structure to its west, Building 43, was a gap of almost 7m. The evidence for Building 43 was another rectangular platform of gravel street material raised above the level of the street. On its northern side was a broad shallow gully E49 which may have been the result of water erosion but is more likely be the result of foot traffic along the front of the building. West of Building 43 was a small group of stakeholes E52, E53, E54, E56, and E57. The purpose of these is unknown.

The next structure to the west, Building 12, was quite different in construction from those further east. It consisted of a raised curving platform, E16 (again probably left as the result of wear) but with a mass of postholes and stakeholes, some in slots (Fig 226) cut into it. These structural elements are difficult to make sense of as continuous walls but a possible reconstruction is that the north wall consisted of posts in a trench (E19, E20, E21, E22) and the south wall lay behind the scarp slope E335 (probably caused by erosion) and was continued westwards by line of postholes E332, E334, E62, E63, E64, and E69. To the north of E69 was E68, which might mark the line of the west wall. E23 and E61 seem to be internal partitions and the other postholes might have had the same function. Alternatively these various lines of stakeholes may represent a series of wattle partitions renewed and moved as needed, forming pens rather than the sub-divisions of a structure. South-west of the main building was another group of various slots and postholes. These defy interpretation as a building but must have been reasonably permanent for a platform to have been created around them.

West of Building 12 was a further structure, Building 44, composed of four main elements, two slots E343 and E339 aligned east to west, with E339 having stakeholes cut in its base, one aligned north to south (E342), and a single large posthole E341. Within slot E342 was a large posthole which was in line with E344, a posthole of similar size to the west, outside the building. These various elements seem too discontinuous to reconstruct as a walled building. Between these Buildings 12 and 44 lay a group of lesser stakeholes centred on two lines E34, E36, and E37. South of these was a smaller group E38, E30, E36, and E29. The function of these two small complexes of features is unknown.

The buildings constructed on the gravel street all lay on the southern half of the street with the exception of Building 12 which took up almost three-quarters of the street's width. Those parts of the street which were not covered by buildings contained a number of linear features, grooves of varying length and depth along the line of the street. The two most pronounced of these, E83 and E98, have been described above but there was a considerable number of linear grooves of a different character further west. They varied in length from a few centimetres to as much as 7m or 8m, and were often slightly curved or even, apparently, branched. At first they were interpreted as plough marks, until it was realised that they lay in the concave part of the street, and that none of them cut into the building platforms, which were all higher than the general street surface. It can be seen on Figs A146 to 147, for instance, that the linear grooves east of Building 42 head straight for the building platform yet do not continue over it, which they surely must have done if they had been caused by the plough. In addition, as can be seen from Fig A3, the topsoil is deepest of all over the dished centre of the street where the grooves are found. Since all the evidence seems to point to a date in the eighteenth century for the beginning of ploughing in this area of the city, and it can be demonstrated that the plough has barely touched any of the uppermost layers, except at the highest points (where, for instance, stones protrude above the general archaeological surface) it seems extremely unlikely that these grooves are plough marks. While it is impossible to be sure, the most likely explanation seems to be that they were



Fig 225 Southern half of Building 42 on the gravel street, looking east. The platform shows as a rectangular area of rubble and flagstone pieces surrounded by unconsolidated dark earth filling the north portico robber trench



Fig 226 West end of gravel street, Phase Z, looking south-west, Building 12 in the middle distance

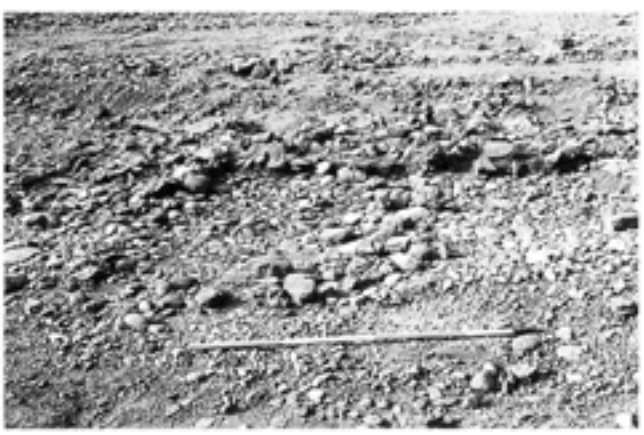


Fig 227 Building 26, on the western end of the cobble street, looking south. The west, south, and east walls are very clear and internally there is a north–south partition. There is no obvious north wall, suggesting it was open-fronted

formed by poles lying on the street surface, north of and between the buildings. We have seen that timber boardwalks were used on the north portico and, probably, on the gravel street at its eastern end. It is suggested, therefore, that these poles acted as rough joists for hurdles laid across the street in wet weather, like flexible duck-boards. No other explanation better fits the observed evidence, and leaving such a feature *in situ* might help to explain why the street surface did not erode after it was abandoned (see above).

All the buildings described above, which lay on the surface of the gravel street must, with very little doubt, be part of a secondary use of the street. Its primary use is difficult to imagine, but it is surely inconceivable such a feature was constructed merely to carry a group of buildings little bigger than sheds. The labour of removing the original street was very considerable and the creation of the gravel street, whatever its object, was very determined and must be seen as part of the transformation of the city centre, of which Building 10 was the focus.

Buildings 40, 41, 42, 43, 12, and 44 seem, therefore, to be later encroachments on the street when its original use had, for some reason, been abandoned or modified. The strong impression is that of a series of booths or stalls, familiar from the *souks* of north Africa. If this is so, then the pedestrianised precinct had become a market, much as the porticos of the baths basilica and forum were also, with access chiefly from Watling Street, past Building 26, which may have been a guard house, tariff barrier, or other form of control over goods entering or leaving (see below). It is also significant that comparatively little rubbish was found on the street surface, supporting the view that the area was under tight public or private control.

After the construction of the gravel street, described above, the 20m length of cobble street remaining between Watling Street and the western end of the gravel street itself (Figs A99 and A144) became pedestrianised and began to be encroached on by buildings such as Building 33 (see west portico, Phase Z2). Further east two short runs of postholes, E180, E181, E182, and E191, E190, and E189 may indicate the position of a fence, though they are not in line and there is a gap between the two groups. This gap lay north of the entrance into Building 11 and was the same width as it, showing that at this stage it was possible to walk directly into Building 11 from the street.

In the next phase, Z3, a dump of sandstone rubble with broken ceramic and micaceous-flagstone tiles, E172, was laid over the southern half of the cobble street. Into this, immediately north of the entrance to Building 11, was cut Building 26 (Fig 227). The evidence for the east wall of this building consisted of a beam-slot, E198, constructed of raised sandstone facing stones with a flat base and with other stones forming the sides (Fig 228). It had an extension to the south, E354. Adjacent to E354 was a complete, though

shattered, micaceous flagstone slate, E266, which was initially interpreted as a post setting but may have been a threshold stone connected with a possible line of shallow steps E173, E174, and E175 which led down to the old street surface. The south wall of Building 26 was recessed into the rubble layer E172 as was the east wall. It is presumed that timbers lay along all these edges. Within the floor area of the building thus defined was an irregular spread of rubble, E350, which appeared to divide the building into two rooms. Though it is somewhat incoherent this rubble spread appeared to mark the line of some sort of partition and may have been a foundation for a sleeper beam, later disturbed. The north face of the building seems to be represented by the junction between the rubble layer E176 and the path E177, a linear area of silty sand with tile and pebbles much worn by traffic which lay on the north side of the street. It is possible that Building 26 was open to the north, or had some form of removable shuttering or counter which has left no trace.

At the extreme west end of the excavated area, in the centre of the cobble street, was a large rectangular slot, E184, 0.2m deep. The feature runs into the western baulk so that its complete length is unknown; its purpose is also uncertain. It seems too narrow to have been an archaeological trench; it ends abruptly so it could hardly have been a drain. It has been suggested that it might have contained a wooden trough; it is also possible that it held a massive beam, part perhaps of a gateway from Watling Street. Further excavation in this area may one day solve this problem.

The stub of the east to west cobble street at the east end of the site (Figs A148–A150) also fell out of use for vehicles after the construction of the gravel street, but was presumably still used by pedestrians approaching the buildings on the *insula* 2 frontage. It also gave access to the gravel street itself which seems to have had a flight of wooden steps at its eastern end (see above).

In Phase Z1 (Fig A148) for a reason which is not clear, a series of linear dumps C191, C212, and C226, was laid along the southern side of the street (Fig 229). C212 was a dump of cobbles in dark earth and C226 was a layer of dark earth mottled with sand and gravel. This may be silt cleared out and dumped from an earlier ?backfilled drain, C188, which lay in the centre of the road (see Peripheral areas, above). Dump C191 may, in fact, be wash-down from dump C212, a suggestion reinforced by the number of small finds in it, including 25 coins, which are generally common in drain fills.

A number of features had been cut into the still exposed northern half of the cobble street. Principal among these were a slot C211 and a possible posthole C217. As they were both on the same line as post-pad C199 and beam-slot C189 of Building 35 (see below) it is tempting to see them as structural features related to the buildings to the north. They could not be positively assigned to any of those buildings, however, though they might belong to an undetected building earlier than Building 8 whose porch they underlie. Their function otherwise remains obscure. South of C217 was a square pit C225 whose function is equally obscure, while further east lay a small area of worn sandstone blocks, C216, which may have been part of a path leading to Building 35. Another more regular area of worn cobbling, C205, was more likely to have been part of the facade of Building 35 (see below), showing that buildings were already encroaching onto the east end of the cobble street.

In Phase Z2 (Fig A149) the dumps on the street surface were buried beneath further dumps into which various features were cut and onto which the facades of Buildings 8 and 22 encroached. Apart from the building facades there was a path of sandstone rubble C94/C466 which led towards the porch of Building 22 but had been partly cut away by a shallow pit, C84, of unknown purpose. On the southern edge of the street were two, presumably successive, fence lines, the one to the north made up of postholes C5, C6, C23, C12, C10, C8, and C28, and that to the south of postholes C13, C14, C11, and C9. There was a possible gate between postholes C10 and C8, and between postholes C11 and C9.



Fig 228 East wall of Building 26 showing the beam positions a) and a) and flagstone threshold stone b)



Fig 229 East end of cobble street, looking north, showing east-west dumps on street surface

West of the path C94 was a group of stakeholes C22, whose function is unknown. At the eastern edge of the excavation was another group of stakeholes (C288, *et al*) whose structural significance is uncertain.

In Phase Z3 (Fig A150) more rubble was dumped on the old street surface and the irregular cliff edge east of Building 22 became more marked, suggesting that there was little or no pedestrian access from further east, and that access was gained from the gravel street. Path C94 continued in use.

The frontages on the southern edge of *insula* 2

The narrow strip of *insula* 2 bounded by the east to west street on the south and by a recent archaeological trench on the north (Fig 230) was relatively undisturbed by earlier excavations and provided crucial evidence not only for the nature of the building frontages, but for the understanding of structural evidence elsewhere on the site. In particular, the evidence for Building 7 illuminated the excavation of Building 10 (see above).

The excavation of this strip was only partial, recovering evidence for three sub-phases of the last period of occupation, Phase Z. In the earliest sub-phase, Phase Z1 (Figs A102, A103, A151 and A152), the south side of *insula* 2 was levelled, creating separate terraces east and west of a clay wall E139. The western terrace was levelled up with a dump of silt, E250/E348, up to 0.5m thick. Buildings 48, 49, 50, and 51 were constructed on this dump.

Building 51 lay at the west end of the site. The evidence consisted of a rectangular area of laid rubble, E221, including part of a column shaft (Fig 231). The southern edge of the rubble was bounded by a narrow beam-slot, E237, 0.14m deep. Five nails found in the filling of the slot suggested that the beam had rotted *in situ* and was perhaps reused from elsewhere. The other three sides of this structure became visible on a succession of early mornings as damp marks, E240, which disappeared as the ground dried. The east to west part of the damp mark E240 lay parallel to slot E237 on the northern edge of the rubble E221 and was bounded by a line of pebbles on its north side. The damp mark ran along the eastern side of the rubble and projected northwards until it met the large east to west archaeological trench defining the northern edge of the site. The structure thus defined measured some 3.7m east to west and 3m from north to south but the damp mark on the east, cut off by the archaeological trench, hinted at an extension to the north and this, therefore, may not be the whole building but merely part of a larger structure, much of which has been lost.

The three buildings east of Building 51 showed principally as variations within the dumps underlying them allied with some structural features. The line of all three frontages was marked by a dump of dark loam (E348) within the overall dump level (E250).



Fig 230 Phase Z1 frontages of insula 2, looking west. On the right, the archaeological trench dividing the frontage from the rest of insula 2 and forming the northern limit of the excavation



Fig 231 Building 51 at west end of insula 2 frontage, looking east. Wall positions are marked by darker patches

The evidence for Building 50, lying immediately east of Building 51, consisted of a beam-slot, E256, lying parallel to the edge of the street. It contained a line of eight angular sandstone blocks, E235, with flat upper surfaces which could have supported the postulated beam. The western edge of the building was marked by E246, a small area of red clay bounded by sandstone blocks. This feature had been truncated by a north to south archaeological trench, but enough remained to be certain of its function. The eastern end of the building was lost in two adjoining archaeological trenches, but the deposits east of these, belonging to Building 49, changed significantly, so that the eastern side of Building 50 almost certainly lay within the area of the eastern archaeological trench. There is no indication of the depth of Building 50 from the street frontage and it could either be quite a small timber-framed structure or the front of a longer building lying at right angles to the street.

Building 49, to the east, was represented by a change in the dump material, which now showed amorphous patches of orange and yellow clay. The function of these patches of clay is very uncertain, as is the construction of the building. At the time the excavator interpreted E243, a group of stones with a large sandstone block at its centre, as a post-setting, in line with post-settings E254 and E245 to the east thus probably marking the facade. An alternative and more likely suggestion would be that the facade ran from E241 at the west end along the dark dump E348 where some large stones could have been the support for a sill-beam. Nonetheless, the evidence for the whole of this building must be considered uncertain and inconclusive.

The evidence for Building 48? is even more inconclusive, consisting merely of a plot-sized gap between Buildings 49 and 47, though at the eastern end of the area there was a double stone post-setting, E244. Again the dark earth dump E348 might define the line of the frontage, as in Building 49. Three lines of nails were plotted, one going south from E244 and the other west, and a third dense line of nails was observed just to the west of E244 aligned north to south. These nails may be all that remained from beams lying on the ground surface. Although the evidence for this building is extremely slight and chiefly negative it is worth remarking that the measurements of the postulated building (*c* 6m by 2m) match those of the buildings discovered on each side (*see chapter 5*).

It was noticeable that the buildings west of the clay wall E139 (see below) became progressively easier to identify as one moved westwards. This is thought to be because of a thick dump, E200, which sealed these buildings before the next phase, Z2. This dump eradicated the terracing and was therefore thickest close to the wall E139 and tapered out westwards. Since the dump was excavated in spits, and was never totally removed, the western end of this part of the frontage became more clearly defined earlier than the eastern end.



Fig 232 Building 47, looking south-west. The east wall in the foreground curves to meet the facade running parallel to the gravel street. West wall E139 p), cut away by an archaeological trench, is also the terrace wall which divides the insula frontage



Fig 233 Facade of Building 46, looking south-east. The east wall lies in front of the catwalk, the west wall continues to the white stone on the right. In front of the building is a dense area of shattered tile, two parallel lines of stone mark steps to the gravel street to the south

The boundary between the upper and lower terrace was a clay wall, E139, faced on its western side with a line of sandstone blocks. The depth of the clay is uncertain as it was not excavated, but photographs show that the dump to the east, E347, is about 0.3m higher, and it appears that this clay and stone feature forms a slight revetment to an upper terrace on which Buildings 45 to 47 were constructed (Fig 232).

The evidence for the west wall of Building 47 consisted of the clay and stone feature E139, while on the eastern side of the building lay a matching curving strip of large river cobbles and pebbles up to 0.3m in diameter, E223 (Fig 232). Between these two features, which, it can be seen, are roughly symmetrical, was a rectangular area of densely packed worn pebbles, E222, set in

black loam with significant amounts of shattered ceramic tile and *amphorae*. The pebble and tile layer thinned out westward, toward E139, but there was enough shattered tile to show that the layer had been continuous. It will be noticed that the central part of the southern edge of the putative building was slightly recessed and edged by a short row of larger stones. This may mark the site of an entrance. The northern limits of the building are unknown, and it is very likely that we have here only the frontage of a clay-walled building rather than a timber-framed structure, which almost by definition has to have square corners. However, there is little other evidence for the nature of the superstructure.

East of Building 47 there was evidence of a further structure, Building 46 (Fig 233). This evidence differed markedly from that for Building 47 as the internal area of Building 46 was almost stone-free by comparison, though the stone-free area was distinctly rectangular. The site of the west wall was marked by a pad of red clay, E226, perhaps a post-pad, and a rounded granite boulder, E123, which may mark the site of a corner post. The boulder projected 0.3m above the ground surface but the clay pad was flush with it. The east wall line of the building was marked by a clay and cobble pad, E224, which had a narrow setting on its south side for a sill-beam, E225, formed by upright micaceous tile fragments which created a slot 1.6m long and 0.15m wide. Any support for a post at the south-east corner will have been removed by the archaeological trench here. The south wall of the building must have been on the junction between the stone-free area and the stony and pebbly area to the south. Within this latter area were three equidistant stone rows, E158/E141, E111, and E227, which almost certainly represent foundations for a shallow flight of wooden steps. Again the northern limit of the building is unknown, being cut off by the northern edge of the excavation. Building 46 is interpreted as a framed structure with horizontal members tenoned into uprights resting on the ground.

The next structure to the east was Building 45. This consisted of a southern facade of four clay and stone post-settings and one posthole (E129, E148, E147, and E99) placed symmetrically about a central doorway. A further post-setting, E142, lay north of E99 and marked the line of the east wall. A line of pebbles north of the rectangular archaeological trench which had destroyed the south-west corner of the building marked the line of the west wall. There were a number of possible internal features including a line of stones (E155) which might represent the position of a floor joist. Like Building 46, Building 45 is thought to have been framed, with the main uprights set on the ground.

Between Building 45 and the next structure eastward, Building 35, there seems to have been a gap of some 7m which presumably represented an unused building plot (see Figs A103 and A153).

East of this gap the excavation was cut off diagonally by the line of the modern road but seven features, C202, C321, C206, C199, C189, C218, and C205 formed a convincing pattern suggesting they formed part of the frontage of the next building in the sequence, Building 35. The south-western corner of the building is represented by a large shallow posthole C202 which was cut into the top of disused clay pad C399 (see Phase X). C321 in the south-west corner of C202 was a smaller square cut posthole whose relationship with C202 is uncertain. Posthole C206, on the south wall, lay 2m to the east, and immediately south of this was a square sandstone block C199, 0.4m square and 0.22m high, which may be the pad-stone for a timber porch (Fig 234). It had been inserted into a pit, C210, 0.7m in diameter, with a packing of sandstone fragments. East of pad-stone C199, beyond an archaeological trench, was a beam-slot, C189, in the base of which lay two small post-holes, C294 and C218, which together represented evidence for the front edge of the porch. In front of these features, on the street surface, was laid a regular area of worn cobbling, C205, which formed a threshold area for the porch (see cobble street, east end, above). Although little of Building 35 was available for excavation it appears to be an example of a porched facade similar to the slightly later frontages at the east end of *insula* 2 discussed below.

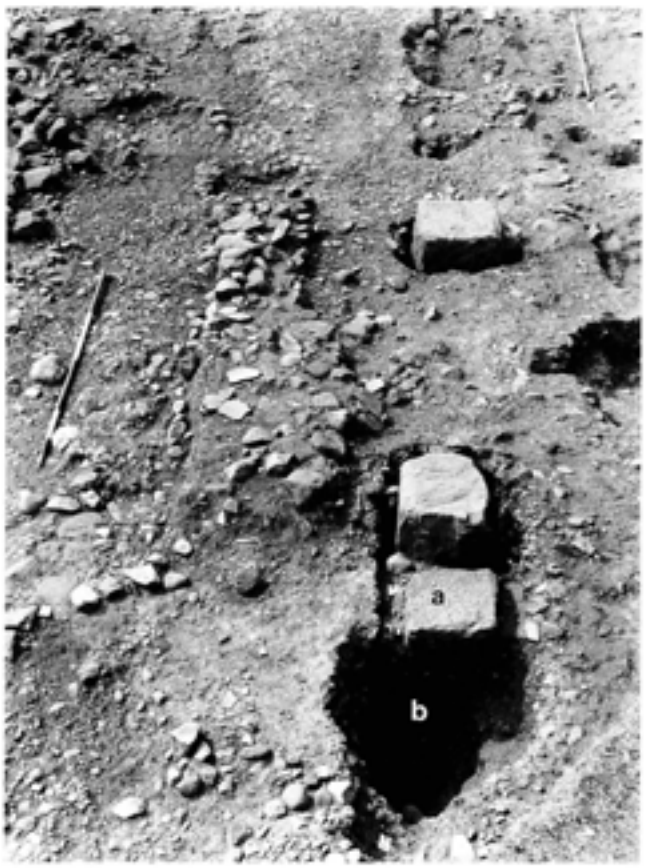


Fig 234 Porches of Buildings 35 and 22 looking west. Padstone for Building 35 at (a). Hole (b) is an archaeological disturbance. To the west of the pad-stone and at a higher level are C96 and C97, marking the porch of Building 22, step foundations, C101 and C208, lie to the south

Phase Z2 (Figs A153–A157) marked a redevelopment of the frontages described above. All the buildings of Phase Z1 were demolished, and the terraces were levelled with a dump of dark earth with tile, etc. E200, giving the southern edge of *insula* 2 a continuous gentle slope westwards. Again, this long strip of archaeology may be conveniently divided into two halves by the clay and cobble wall line E139 whose top surface was still visible. Five or perhaps six buildings replaced the earlier eight. The three buildings east of E139 had distinctive porched facades.

The evidence for Building 15 at the west end of the site consisted of a compact surface, E13, formed of cobble and pebbles. It measured approximately 5.8m long and 1.4m wide, and formed the internal surface of the western half of the building. It was roughly rectangular, though the corner is slightly curved, lying parallel to the street with a small extension to the south thought to be a porch. In front of it along the edge of the street was a narrow slot, E15, which may mark the edge of a step in front of an entrance set slightly off-centre. A line of stones, E236, to its west was probably no more than the former kerb of the street. The eastern half of the building was of an entirely different construction, although the structural details had been severely damaged in archaeological disturbances. All that survived were five postholes E355A, E355B, E356, E357, and E358, forming the south-east corner of the building which again was slightly curved. Internally, there was a patch of earth with stone, E12, which was differentiated from the surface outside the building by the smaller amount of stone. The curved corners make this building rather difficult to reconstruct; possibly the walls were of clay braced internally with a timber framework.

The evidence for Building 13, reading from west to east, consisted of a group of three blocks of quartzite, E213, a further group of stones, E258, a dark stone-free area bounded by large stones and fragments of ceramic tile, E4, with a group of micaceous flagstone slates, E2, to its south. These last two features may have been all that was left of a threshold, cut through by the end of an archaeological trench. East of this group of features was a setting of sandstone fragments with mortar fragments on its eastern side, E3, and E1/E212, a pad of clay with stones beneath marking the south-east corner of the building. A group of stones, E9, running north to south is presumed to mark the east wall while the line of the eastern part of the facade was marked by a shallow beam-slot E359 running between E4 and E1. Building 13 is thus assumed to have been a timber-framed structure with the horizontal members tenoned into uprights standing on post-pads. There was a gap of some 3m between Building 13 and the next structure to the east, Building 9.

The interpretation of the evidence for Building 9 depends on the evidence for Building 7 to its east since two archaeological trenches have mutilated crucial



Fig 235 Facade of Building 7, from the north-west. Two blocks of stone, a) and a), are pad-stones for the porch, shallow cuts by the ranging poles show the line of the south wall.

areas of Building 9, whereas Building 7, which follows roughly the same layout, was almost undamaged. In the light of the better survival of Building 7, it may be helpful to describe this first. The evidence consisted of two rectangular sandstone blocks, E78 and E79, which lay parallel to the street and in front of two large postholes (or perhaps stoneholes) E77 and E105 (Figs 8 and 235). On either side of these were two smaller postholes, E90 and E102, of slightly different sizes and shapes but whose centre lines lay parallel to the street. E102 was set within a shallow clay-lined gully, E103, which gave every appearance of having been the setting for a horizontal timber. West of E102 the clay slot continued, but had stakeholes cut in its base. The corresponding clay layer on the east, E130, also contained a number of stakeholes which presumably had been driven into it while it was malleable. At the eastern end of this strip of clay was a larger posthole, E132. A thin line of yellow clay, E171, forming a rounded corner lay to the south-east of posthole E132.

It will be seen that the whole complex is symmetrical about a central north to south line (see Fig A157) and there seems little doubt that we have here the remains of a porched facade, with the posts of the porch resting on the two sandstone blocks E78 and E79, and with four uprights in the four post-settings E102, E77, E105, and E90. The very great size of post-settings E77 and E105 has led to the suggestion that these may have



Fig 236 East end of insula 2 looking east, area of Building 8 (around the nearer ranging pole) and the porch of Building 22

held stone blocks, since robbed out, rather than massive posts. It has also been suggested that here, as elsewhere on the site where large posts have been postulated, stone columns may have been reused. There is no way of resolving this question. However, the two clay-based post-settings in question, E77 and E105, show no signs of stone blocks having been dug or levered out off them, a process which would almost certainly have left traces. At any event, the four post-settings suggests posts of very large size which, in turn, may imply a building of at least two storeys.

The walls seem to have been made partly of timber and partly of clay (rounded corners being typical of such buildings). An important observation for the implications of the evidence for Building 7 was that the stone and rubble layers south of the post-settings were clearly untrodden and unworn. The implication was that the whole surface had been protected, presumably by planking or other wooden floors, very soon after it had been laid. The distinction between worn and unworn surfaces became increasingly important elsewhere as the excavation developed, and proved eventually to be a crucial observation.

Although there is little doubt that this was the porched facade of a substantial, probably two-storeyed structure, the depth of the building behind the facade is unknown because, as with most of the other buildings on the *insula* 2 frontage, it has been truncated by the large east to west archaeological trench and the area further north remains unexcavated.

Returning now to Building 9, the evidence for this consisted of a wide band of clay, the top of the earlier terrace wall E139, with a narrow beam-slot, E360, on its western edge. Further east, on a line with the south edge of E139, was a line of features: a clay pad, E361, a pad-stone E125 with an adjoining hollow which was perhaps structural, a rectangular cut, E257, and a large circular granite boulder E123, which like E139 was reused from the previous phase.

South of E257 was a rectangular area of sandstone fragments and shattered micaceous-flagstone slates, E120, which stood proud of the surrounding surface, and a further rectangular slab of sandstone, E122. Due west of E122 was a short line of stones, E362. Since these features seem to form part of a facade similar to that of Building 7 (above) it has been assumed that the two archaeological trenches here have removed the stone settings corresponding to E122 and E123. If these are restored it will be seen that the whole complex forms a convincing symmetrical facade like that of Building 7 suggesting a timber-framed structure with a shallow porch on its southern side.

East of Building 7 there was a gap of some 5m and then a number of large features which, though cut across by the diagonal edge of the excavation, formed convincing evidence for a large elaborately porched structure, Building 22, founded on massive post-settings. The main body of Building 22, of which only the extreme south-west corner was located, was constructed on clay pads C423, C198, and C263, and posthole C227. Stone C434 might also form part of the west wall. The entrance to the building, which must have been quite imposing, consisted of a projecting vestibule founded on postholes C102 and C206 which enclosed an unworn, and thus planked-over, spread of angular stone, C100. It was fronted to the south by a porch built on pad-stones C97 and C96. Inside the porch was a spread of stony loam with pebbles, mortar, and sandstone pieces, C106. In front of the two sandstone blocks C96 and C97 was a narrow platform of laid rubble, C101, with a marked scarp along its south edge (Fig 236). The ends and southern face of this feature were marked by stakeholes, C296, C298, and C297 which are thought to have held revetting timbers in place. In front of this platform was a band of compressed mortar, C208. These features are interpreted as the foundations of a two-tread step leading up to the porch.

The large number of structural features at the eastern end of the *insula* 2 frontage, and the uncertainties as to how they ought to be combined into building plans, means that there are other possible interpretations which may be offered for the form of some of the buildings here. It could be argued that the west wall of Building 22 was indicated by C263, a feature which had been half-sectioned by the north to south archaeological trench dug across the site. This would exclude pads C198 and C423, and stone C434 from the building. If this reconstruction is accepted, then there is space in Phase Z2 for a narrow version of Building 8 (see below).

The strongest evidence for Building 8 consisted of the evidence for a flight of steps and/or a porch, C30, which had lain on the surface of the street and thus protected the area beneath it from wear while the street surface went on being used (Fig 237). As a result, the pebbles which made up the street surface were worn and compressed more than those which



Fig 237 Porch of Building 8 marked out in string on the cobble street

were under the steps/porch. Although this was perfectly clear on the ground, it will be appreciated that it was impossible to draw, or to photograph adequately. Evidence such as this is significant with regard to the life of such buildings since it must have taken many years to wear the surrounding cobble and pebble surface differentially.

The narrow form of Building 8, which might have stood between Building 7 and the narrow version of Building 22 consisted largely of small postholes cut into the Phase Y clay surface C270, which was reused as the foundation for Building 8. These postholes comprise C285, C283, and C284 as the facade, and C279 and C31 as the west wall. Slot C263 is the only evidence for the east wall (any other features would have been lost in the archaeological trench here). The building may have extended further northwards, but if so little evidence was found; perhaps stone C434 was placed centrally in the line of a possible north wall. An alternative north wall consisted of posthole C31, clay and cobble pad C198, cut C265, and clay-filled cut C263. Any other possible reconstructions of Building 8 would impinge on Building 22 and are therefore discussed in Phase Z3 (below).

The only building definitely assigned to Phase Z3 (Figs A156 and A158) is the broader version of Building 8, although it is possible that Buildings 9, 13, and 15 were all still in use at the same time. Two possible reconstructions may be suggested. Both share a common east wall line, with the south-east corner at posthole C102 and three further postholes to the north (C300, C301/C98, and C260). The west wall may have followed one of two different lines. The first would run along C285, C279, and C31, as in the narrow version of Building 8, while the alternative would follow the line formed by the substantial postholes C193, E162, and a large post-pad, C430, which would be one possible north-west corner. Two possible north walls may also be suggested. The first consists of pad-stones C430 and C434 and presumably a third feature forming a north-east corner which lay under the baulk. A second and perhaps more convincing line consists of postholes E162, C31, clay pad C198, and cuts C265 and C98/C301. However, it is possible that neither of these suggested lines is correct, and that the north wall was removed by the broad archaeological trench running east to west just to the north of C198 (see evidence drawing, Fig A156). The south wall would be the same as in the narrow version of Building 8 though obviously it would extend further east and west to join the alternative side walls. A possible post-setting, C287, may link the south wall to the more westerly west wall. However, the awkward angle formed by C285, C287, and C193 would make the building difficult to roof, suggesting that the wider west wall line might not be correct. Whichever version is opted for, Building 8 can be interpreted as a post-built structure, perhaps framed between the uprights, with a slightly off-centre porch.

The broader reconstructions of Building 8 leave a number of postholes as internal features. Perhaps they might be seen as evidence for a suspended timber floor. A more problematic internal element was C198, a square pad of alternate layers of keuper marl and cobbles in all respects identical to those excavated in Phase X (see Peripheral areas, above). This feature, however, clearly cut through the Phase Y clay platform C270 and its tile and *amphorae* path, and thus must be later. Quite what its function was in any of the versions of Building 8 remains unclear. If it was part of the north wall line why was it alone so large and strongly built? The same question arises if it is seen as part of an internal division. Might it have been the setting for an internal fixture or post, or the foundation for a brazier of hearth? If so, it was never used as there was no sign of burning. This feature remains one of the more puzzling elements of a building that was in any case difficult to understand.

The baths precinct

Within the area of the precinct available for excavation, at least three and perhaps four successive buildings were found, all apparently barns or storerooms, and all built along the precinct walls.

The earliest evidence of a building to be detected in Phase Z1 (Figs A104–A107) consisted of three linear features lying parallel to the north wall of the precinct in its north-eastern corner, and some 4m from it (Fig 238). They were B248, a rectangular area of limestone filling a shallow cut, B247, a patch of mottled soil and pebbles filling a shallow depression, and B246, a linear stone-free area, which however, was not fully excavated. To these may perhaps be added two postholes, B178 and B191 which were detected at a higher level but which seem superfluous as part of the overlying Building 23 (see below). Together these features appear to form a wall line presumably part of a building, Building 68, leaning-to against the northern wall, and perhaps attached to the return wall on the east.



Fig 238 Building 68, baths precinct, looking west, wall line showing as pale area in foreground

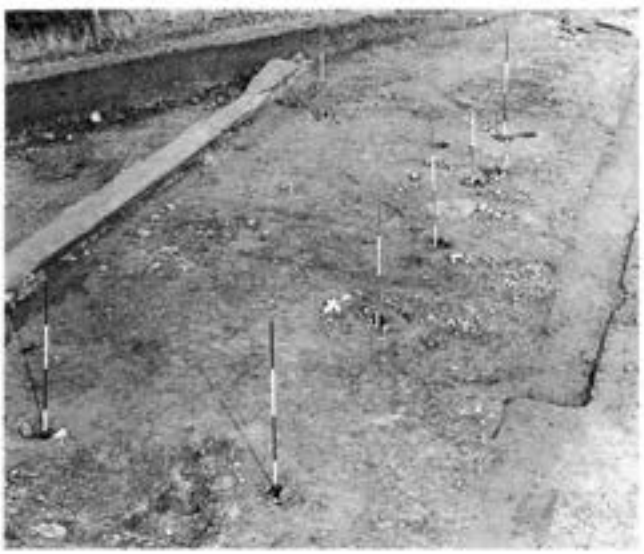


Fig 239 Building 23, baths precinct, looking north-east, with postholes indicated by ranging poles

In the opposite, south-western corner of the excavated area was a complex of pits and a gully. They extended north-east to south-west across the site from a point some 5m south of the north wall of the precinct to the corner of the basilican annexe where they disappeared beneath the edge of the excavation.

The gully, B205/B153, had nearly vertical sides and was in many ways similar to the gullies found on Site A, so it was probably also timber-lined. Since it was cut into very soft sandy material it would have had to have been lined if it were to carry water, and, moreover, its sides would quickly have collapsed if they had not been revetted. It is also possible that pit B150, at the gully's southern end, acted as a soakaway, like those on Site A. All this suggests an industrial use for this part of the precinct, though the relationship of the gully to its presumed soakaway and the mass of pits which surround it is not known, and some at least may simply be rubbish pits. Two of the pits, B194 and B196, were cut into the fill of the gully and were therefore later than its use as a channel. The phasing of the other pits in relation to the gully, and to the buildings of Phases Z2 and Z3, is unclear.

There seems never to have been a building in this part of the precinct, and in this also it resembles Site A where the pit and gully systems developed apart from the adjacent buildings, which did not encroach on them. This is very different from the situation at the east end of the *insula* 2 frontage.

The eastern side of the precinct remained unoccupied in this phase and the surface appears to have consisted of the pebble spread representing the top of dump B136/B137 of Phase Y.

In Phase Z2 (Figs A159–A162) the area immediately south of the northern wall of the precinct was the site of a rectangular posthole building, Building 23 (Fig 239). The evidence consisted of a number of postholes and two possible doorways. The south wall was formed from postholes, B180, B119–2, B179, B177, B178, B190, and B191. Of these, B178 and B191 might have belonged to the underlying Building 68 which would give a much more even spacing to the posts forming Building 23. However, in size and construction they are in all respects similar to the other postholes. Two other postholes, B181 and B245, defined the line of the west and east walls respectively. The postholes averaged 0.2m in depth and most were stone-packed. At the western end of the building a closely packed pebble surface, B182, led from the gap in the precinct wall, C140, into the building between postholes B181 and B180, which therefore mark the site of an entrance. Traffic on this pebble surface had been very heavy so that it gave the impression of a sunken path and it may be that the pebbling is part of an underlying feature exposed by wear. A single posthole, B64, lay on the south-western edge of the pebble path and might represent one end of a short fence chanelling traffic into the building. A similar though smaller close packed area of pebbles, B184, seemed to indicate a threshold into another entrance between postholes B119–2 and B179. The south-eastern corner of the building had two pairs of postholes, B177/B178 and B190/B191. It is not clear whether these replaced each other in a repaired wall or whether they were double here from the first (but see above for an alternative suggestion).

Within the building a change in the density of pebble in the floor suggests that there was a partition, dividing off a smaller room at the western end of the building.

Although the evidence for this building is somewhat equivocal its structure is clear. It was post-built and almost certainly leant-to against the precinct wall, perhaps using putlog holes as mortises for its roof timbers. The presence of the two pebble surfaces, with their implication of doorways, seems to preclude it being an open-sided, Dutch-barn-like, structure. The absence of a hearth suggests, however, that it was a barn or storeroom rather than a dwelling, and this seems to apply to all the buildings within the precinct area.

The only other prominent feature which may belong to this phase was a rectangular trench, B172, lying slightly obliquely to the east to west wall of the precinct. It was approximately 7m long and 1.2m wide and had been cut deeper at the north end, to give it a horizontal base into the sloping material of the dumps. This, together with the shape of the trench suggest that it was a setting for a trough containing water or another liquid, probably for industrial purposes, but perhaps for animals, though there is no other evidence for livestock being kept in the precinct.

In Phase Z3 (Figs A163–A166) the eastern end of the precinct was dominated by a building, Building 24, for which the evidence is unequivocal, but whose interpretation presents some difficulties (Fig 240). The evidence included a line of seven identically constructed stone-packed postholes (B66, B54, B55, B63, B37, B22, and B20) which lay parallel to the north to south precinct wall and some 6m from it. Between this line of postholes and the wall was a very complex feature, B176, which consisted of a broad shallow trench some 10m long containing a mass of 95 stakeholes, B14 (Fig 241). Patches of clay were also found in the fill of the cut. Subsequently the trench had held one or more massive timbers, the evidence for which was a group of sandstone blocks, B16, used as packing along the eastern side of the trench, and a number of strips of lead with large nails through them, presumably the remains of flashing left on a reused roof timber (Fig 242). Fragments of iron at each end of the presumed timber suggested it measured 3.3m by 0.16m (roughly equivalent to 11 by 0.5*pM*. It may be assumed that this was one of, probably, four such timbers which had been placed in the trench as sill-beams for the east wall. A third group of features which probably belonged to Building 24 consisted of two pairs of large postholes, B39 and B40, lying some 7m west of the north to south line of postholes, representing a pair of postholes later redug. In addition there was a line of smaller postholes, B57, B229, B66, and B71 aligned east to west and interpreted as marking the north wall of the building. A single posthole, B236, probably marks the south-west corner of the building, and either B12 or B11 may be taken as its south-east corner. Between these corners, however, there is no further evidence of its south wall.



Fig 240 Building 24, baths precinct, looking north. The central ridge line of postholes indicated by ranging poles (the two nearest are not part of the building). The massive postholes of the porch are to the west and the beam-slot B176 to the east, near the precinct wall

At each end of the building groups of small postholes, B67 and B68 at the northern end, and B22, B222, B200, and B18 at the southern end seem to represent annexes, outshots, or pens attached to the main structure (Fig 243).

The interpretation of this building presents some difficulties since the evidence for its west wall is absent and can only be inferred, though an number of alternative interpretations of the evidence are possible. One is that the prominent north to south line of postholes does, in fact, mark the west wall of a long narrow building. However, this leaves the equally prominent group of two pairs of postholes B39 and B40 isolated further west without a function. They seem so likely to be successive pairs of massive door posts that this interpretation has been preferred, though it cannot be proved. Supporting evidence seems to come from the fact that a small tongue of pebbling, B550, part of the larger pebble surface B84 to the east, extends between the putative door posts. If postholes B57 and B236 do in fact represent the north-west and south-west corners of the building respectively then the west wall would lie on a line slightly oblique to them, with the east wall of the building marked by the trench filled with stakeholes and subsequently by the sill-beams which are presumed to have lain in it. It is not clear why the building had not been built leaning-to against the eastern wall of the precinct, in the way in which Buildings 6 and 23 apparently were against the north wall.

The most convincing interpretation of the evidence is that we have a basically rectangular building tapering slightly in plan to the south with walls of varied construction. The east wall was built first of wattle and daub, and then replaced by a timber wall founded on a sill-beam. Had the west and south walls been entirely of clay or framed on sill-beams, this would account for their lack of evidence, and the north wall was constructed on earth-fast posts.

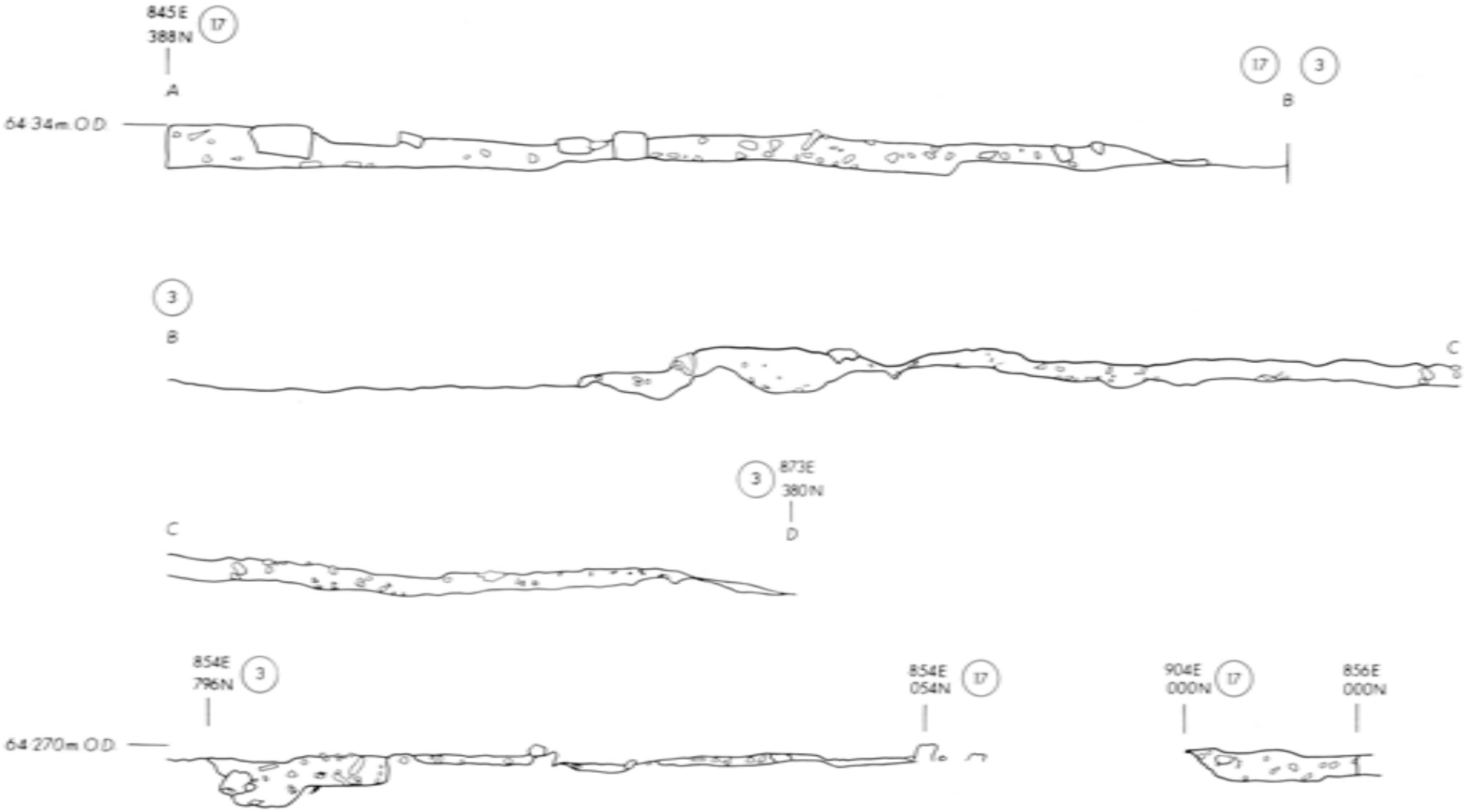


Fig 241 West facing section of beam-slot B176, the east wall of Building 24

The building had a central line of posts supporting the ridge of the roof. Towards the southern end of the building a large porch of two phases projected westwards some 3.5m, while there were two small attached structures, one at either end. Although there are other possibilities, this arrangement seems to be the best fit for the recorded evidence. Building 24, like Buildings 6 and 23, seems to be a barn or store-room rather than a dwelling. Stratigraphically, it is later than Building 23 but may be contemporary with Building 6.

Building 24 had been constructed on an artificial platform of hard-packed earth at least 0.4m thick which included many fragments of tile, rubble, pebbles, etc, homogeneously distributed and this fact, together with the unusual compactness and solidity of the mass led a visiting soil mechanics engineer to suggest that the mixed material had been laid wet like the dump material of Phase Y (see Peripheral areas, above), giving it the consistency of ready-mixed concrete. Only in this way would the inclusions be evenly distributed. Wet-laid levelling layers had also been encountered many years before on the adjacent baths site, where they had been labelled 'plum pudding' because of their colour and the homogeneous nature of the inclusions within them.

One other possible structure was found in this subphase. This was Building 70, a small square structure in the north-west corner of the precinct. The evidence consisted of three stone post-pads, B575, B576, and B583, and a post-setting, B108, which were set within a general rubble spread. An irregular scarp edge faced with a line of stones extended from B583. This building may have been a store-house built with an air space beneath it, but the evidence is not particularly trustworthy and these may merely be some stones left behind from the removal of the rubble platform of Building 6 (see below).

Two other features may be singled out from this phase. The easiest to interpret was a line of postholes (B44, B43, B552, and B549) which were aligned north-east to south-west and may be interpreted as a fence at the western edge of the Phase X pebble surface (B84), visible and in use in this phase since the intervening Phase Y dump layer was wearing away in the centre of the precinct. The second feature was a shallow, amorphous pit lying to the north-west of the fence. It consisted of several interlinking shallow cuts (B187, B188, B283, and B206) within which a number of stakeholes had been cut (B571). The fill of the pit consisted of lumps of limestone. It is not possible to suggest a function for this feature.

The final phase of activity, Phase Z4 (Figs A167–A170), in this part of the site involved the construction of a fourth building, Building 6, together with an associated pebble surface. The building was sited against the north precinct wall. The principal element in its construction was a dump of sandstone rubble, B574, set in a matrix of loam with some ceramic tile and mortar pieces, and perhaps some turf as well.

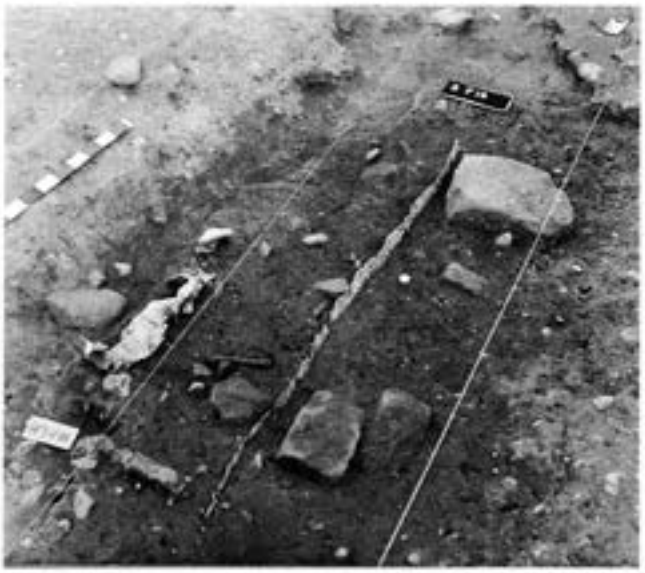


Fig 242 Beam-slot B176 in the early stages of excavation showing a decayed timber whose shape is given by lead flashing



Fig 243 The north wall of Building 24, looking north, which shows as a line of four large postholes aligned east to west. A large hole to the south is one of the central ridge posts. In the right hand corner two postholes parallel with the north wall mark a possible outbuilding

The platform increased in depth to the west in order to compensate for the slight slope of the site from east to west and the southern edge of the platform formed a noticeable but ragged cliff, apparently revetted by a beam in one place (B585). In the centre of the platform, and opposite a break in the precinct wall to the north, was an area of packed heavier rubble, B582, sub-rectangular and projecting about 0.5m south of the wall line, though here the rubble was smaller and less densely packed.

On each side of this rubble were large shallow pits, B581 and B586. B581 did not contain an obvious posthole but B586 did and it seems likely that both pits

contained posts, though their function is not clear; they may have supported a cross-rafter. The heavy rubble platform B582 contained two other smaller postholes, B555 and B584, on its western side, and a third, B556, on its eastern side, close to posthole B586. The whole feature appears to be a combined entrance and through passage across the building, heavily cobbled to take wear, and lying between two massive posts. At the eastern end of the rubble platform were two east to west alignments of postholes comprising B560, and B547 (a pair) to the north, and B561, B58, and B59 to the south. Lying between these postholes was a pebble surface, B564, finer than the cobble surface B582, but similarly marking the position of an entrance, with postholes B560 and B561 representing the door posts. The other stakeholes presumably mark the ends of a pair of sheltering walls, perhaps roofed to make a porch.

It is not easy to envisage this building's construction. As with Building 23, it is unlikely to have been an open, Dutch-barn like building since it has such prominent paved entrances and a revetted southern edge. Certainly whatever the construction of the walls, they had no foundations. They were therefore either based on ground-sills for which there is little evidence, or were of cob or turf. On balance, ground sills seem more probable, at least for the south wall, and it is possible that the ragged edge of the rubble platform has resulted from the removal of the sill-beams at the end of the building's life. The back wall of the building leant-to against the north wall of the precinct. The postholes at the eastern end of the building suggest post-and-wattle or some similar light walling, with the difference in construction reflecting the transition from the building proper to the porch.

The southern entrance to the building lay opposite a newly-created break in the precinct wall containing path C77 which is presumed to have functioned as the northern entrance at this time. Further west the earlier gap in the wall, which has been interpreted as a northern entrance to Building 23 (see above) was still in existence, but since no path approached it from either side in this phase it seems likely to have been blocked, probably by wooden shuttering.

Since the rubble platform foundation for the building was rough and unworn (unlike the entrance) it must be presumed that there was a suspended wooden floor. There was also some evidence for internal partitions: the rubble at the western end was heavier than elsewhere within the building with an edge a little to the west of the southern doorway. Further east, three postholes B116, B580, and B579, and perhaps B560, the door post, lying parallel to the precinct wall may represent an internal partition wall.

Again, the lack of a hearth or any other evidence of domestic occupation suggests that this building was a barn or storeroom, like its predecessors, though it must be pointed out that no obviously domestic internal arrangements have been found in any building discovered during the excavation.

Outside Building 6 various minor features were found. South of the southern entrance to Building 6 was a group of pebbled surfaces B554 and three postholes, B553, B118, and B551 whose function is obscure. To the south and east a large area of pebble surface, B53/B578, was laid running diagonally across the precinct with the postholes of a fence, B73, bounding part of its south-eastern edge, and another fence, B545, lying close to its north-western edge. Within the pebble surface there were also two other groups of postholes, B578 and B9, whose function is not clear. On the edge of the excavation, in the north-eastern corner of the pebbling, was an area of heavier, more worn cobbles, B70, which suggests that a new entrance into the precinct had been created here at this time. This wide pebble surface ran diagonally westwards towards the southern side of the former basilican annexe. The southern part of the east wall of the annexe may have been demolished, allowing access from the precinct, but this cannot be proved because all the Phase Z surfaces in the south of the annexe were removed by later trenching, and the pebble surface itself stops short of the annexe wall. The picture which emerges of this part of the precinct is of an open courtyard, with a succession of barns or storerooms built against the walls. This is a perfectly logical use for a 'back area', hidden by the high walls of the precinct but accessible both from the basilican area and from the street to the north.

The north to south street frontages
(Figs A171 and A172)

By Phase Z Building 1 and its attendant structures had been swept away and the area east of the cobble street had presumably reverted to grass and weeds. A large and deep pit, A17, thought to be a cistern, was dug into the southern end of the site of Building 1 close to the street.

The pit measured 2.4m east to west and 2.2m north to south and was 1.9m deep (Fig A173). The bottom half of the pit was rectilinear but the upper half was more rounded, this distinction being caused by the cutting of the top half of the pit through earlier archaeological strata, and the bottom through the natural keuper marl. The undisturbed sub-soil here was surprisingly only 1.5m below the ground surface. In contrast, the natural sands at the western end of the site, where they had been seen in Graham Webster's excavations beneath the *macellum* lay approximately 2.5m below ground. A shallower subsidiary pit, A16, was cut into the northern side of A17. The upper half of pit A17 had been revetted with a wall of clay reinforced with stakes: there was no need to revet the keuper marl which was very compact. Its structure was very reminiscent of a cistern excavated at Wilderspool, Cheshire which has been dated to the mid-second century (Williams and Williams 1992, 27).

The pit fill consisted of four principal layers, the lowest a bright green silt, with above this a mixed deposit of light green ashy loam with reduced plaster and many inclusions of *opus signinum*, charcoal, bone, shell, pottery, etc. Above this was a light sandy loam with patches of greenish and yellow silt and light blue clay, while the uppermost fill consisted of dark loam up to 0.8m deep with flecks of charcoal and numerous finds. The green colour of the lower layers might suggest that this was a cess-pit, but the lack of any trace of a surrounding building seems to rule this out. It seems more likely that A17 was a cistern, and a small area of rough paving, A49/A95 on the pit's western side, reinforces this interpretation. If A17 was a cistern, then the adjacent pit A16 may have been the post-hole for a vertical timber supporting a bucket on a cantilevered beam, like a *shadoof*.



Fig 244 The north–south street at the eastern edge of the excavation showing its final, Phase Z, surface

North of the cistern was a group of shallow cuts, A4, A8, and A10, of uncertain use, and two further similar features, A1 and A65 which might have held posts lay further north. A large square posthole, A13, whose function is equally obscure lay south-east of the cistern.

Four metres north of the cistern and its attendent features cut into the cobble street was a pit, A23, backfilled with large cobbles and ceramic tile. Between it and the edge of the excavation was a dump of butchered animal bone which had been trampled into the surface (Fig 244).

At the extreme eastern edge of the excavation just within the modern boundary fence a very narrow strip of the western frontage of *insula* 6 was exposed. Although the strip was not wide enough to understand the excavated features completely, they were very suggestive, as they appeared to be similar to those which lay along the edge of *insula* 2, described above.

From north to south, they consisted of A375, a spread of red and yellow sandstone rubble with shattered micaceous flagstone slate, within which was a single posthole, A356. At the southern end of A375 was a large rectangular block of sandstone, A354, 0.3m by 0.3m which projected above the surface, in a manner very similar to those on the frontage of *insula* 2, which can there be shown to be structural. South of A354 was a pit, A228, filled with sandy loam, and further south again was a rectangular cut, A226, filled with sandy loam and angular sandstone fragments. South of this again was a clay and cobble post-pad, A225, while a thin strip of crushed mortar, A224, joined pad A225 to A223, another possible clay post-pad.

Although some of these features were only seen in part, as a group they are so like the features which make up the facades of *insula* 2 that there seems little doubt that similar facades lined the street here on the western frontage of *insula* 6. This, combined with the evidence recovered from the widening of the adjacent road, the B4380, in 1964 (Barker 1968), suggests very strongly that the replanning and rebuilding of the city centre found in *insulae* 5 and 2 extended also into *insula* 6.

Phase post-Z: activity after the great rebuilding

Three distinct events mark the last stages in the life of the site. These were the collapse of the west wall of Building 31, the construction of a large post-built structure, Building 4, cut into the rubble platforms of Buildings 10 and 11, and the burial of a man nearby. Thereafter, the site was abandoned though there is evidence for late Saxon robbing and early post-medieval agriculture.

The collapse of Building 31

The collapsed west wall of Building 31 has been described above (Fig 213, Phase Z). Its collapse postdates Phase Z by an unknown length of time. It lay where it fell, unlike all the other buildings of the Phase Z period, which it will be remembered, were of timber. They seem to have been systematically demolished so that the timbers could be reused elsewhere, and there is no sign of buildings being burnt or decaying *in situ*, though individual posts may have been left in place to rot.

Building 4 (Figs A174–A177)

The evidence for this building consisted of a number of features which clearly cut the rubble platforms of Buildings 10 and 11. The building seemed to be a long structure with a central entrance or cross-passage, a cobbled entrance at each end, and a small room attached on the north wall (Building 5). As with Building 1 its plan, slightly bow-sided with a probable cross-passage, is remarkably like that of a medieval longhouse. The eastern half of the building was sited inside the north-western corner of the foundation platform for Building 10. The evidence for the east end consisted of a pebble surface, D73, which had a line of postholes, D71, D70, and D72, bounding its western edge. The pebble surface, D73, is interpreted as the threshold of the eastern end of the building and the

postholes mark its eastern wall. A doorway from the pebble surface into the building was probably sited between D70 and D71. Internally, a series of parallel linear grooves (D2480A–E) are interpreted as joist positions for a suspended timber floor.

The line of the south wall was formed by postholes, D71, at the south-east corner, D2527, D2526, D2536, D2537, D2538, D2525, and D2524, after which there is a wide gap caused by archaeological disturbances before the wall line continued with D2515, D2496, and D2495 at the south-west corner.

The west wall of the building was formed by postholes, D2495, D2494, D2493, D274, and D2484, with a possible doorway sited between D2493 and D274. The north wall consisted of postholes, D2484 at the north-west corner, D2485, D2486, D2487, D2488, D2489, D2490, D2491, D2492, D2516, D2517, and D2531. The wall line between D2517 and the presumed north-east corner of the building is uncertain, with the exception of posthole D2531 which is sited roughly halfway along its line.

Three metres within the western end of the building a line of postholes D2490, D2513, D2514, and D300 appears to mark the line of an internal partition, while a series of postholes D2502, D2499, D2501, D2511, and D2512 appeared to form an out-house, Building 5, attached to the northern wall of the building. This smaller building appears to have had a wide entrance, almost an open front, and the east wall appears to have been renewed at least once in the same format.

The cross-passage of Building 4 consisted of two pairs of large postholes, D2516 and D2517, on the north, the latter itself a pair of holes, and D2524 and D2525 on the south. Posthole D2523 may belong to this cross-passage, or it may be part of an anomalous line of posts D2523, D2522, D2521, D2520, D2519, and D2518, which appeared to cut across the passage. These may be a later blocking of the cross passage or a later partition. There are some small stakeholes each side of the southern doorway which appear to form an inturned entrance here.

To the west of Building 4 lay a long cobbled surface, D2504, previously the base of the north wall of Building 11, which became a path leading to the building's west door. It contained a number of quite large postholes forming two lines. The northern one consisted of D279, D273, D276, D277, D285, D2509, D278, D298, and D2532. The southern line comprised holes D2534, D279, and D2533. It is likely that one line is a replacement for the other, and that each represents a fence edging the path to the western doorway.

Building 4 may thus be reconstructed as a possible two-bay, bow-sided, post-built structure measuring 17.6m long and 4m wide with an entrance at each end and a central cross-passage. The suspended wooden floor implied by the joist lines probably extended the whole length of the building since there is no evidence of any other sort of floor, and, as elsewhere, the rubble is rough and unworn. There was no evidence of a hearth.

Although Building 4 is demonstrably the latest building on this part of the site, it is not closely dateable. There was no turf line or break in the stratigraphy between it and the rubble layers forming the foundation of Buildings 10 and 11, so that it appears to have been constructed soon after their demolition. In spite of its apparent medieval parallels there was no post-Roman or medieval pottery associated with it. All the evidence, therefore, points to it being the latest in the sequence of structures here, probably dateable to the seventh century or later.

The burial

Lying 2m south of the southern wall of Building 4 was a shallow grave, a mere 80mm deep when recognised, containing the extended skeleton of an adult male (Fig 245) aged at least 26 to 27 years old, of short stature, between 1.66m to 1.67m (5ft 5in to 5ft 6in) based on



Fig 245 D311 male burial, orientated north to south, seen from the south

combined length of femur and tibia, and of very robust muscular physique. In the opinion of Leonard Wilkinson *(report in archive)*, the cranial and dental evidence is consistent with that of a Roman or Romano-British male rather than with that from a relatively modern source.

Although the grave cut was not detected in the early stages of the excavation, careful examination of all the relevant site drawings and photographs, including the stereoscopic photographs, shows that the lower part of the grave had been dug through the rubble platform which formed the foundation of Building 11 (see Phase Z, above). The reason for the failure to recognise the grave was that it had immediately been backfilled with the rubble that it had been dug through. It was only with hindsight that it was clear that the rubble fill of the grave was more disturbed and contained a higher proportion of loam.

It follows therefore that this burial, being demonstrably later than the destruction of Building 11, must be one of the latest events on the site, though its chronological relationship with Building 4 nearby is uncertain. After this, the site appears to have been abandoned to stone-robbers and archaeologists.

The burial was orientated north to south with the head at the north end and was unaccompanied by grave goods.

The bones have been radiocarbon dated to Cal AD 600–790 (Birm-1045; 1340±60 BP). An early date for the burial seems unlikely given the length of time necessary to accommodate all the events between the *terminus post quem* of *c* AD 367 for the earliest Phase W basilica floors, and the burial itself. In addition, the burial disregards Roman law regarding interment within the city walls, suggesting that law and order had broken down by the time of the man's death. The date of the burial must, therefore, act as a *terminus ante quem* for the desertion of this part of the site. It is also clear that enough time must have elapsed for up to a metre of soil to have accumulated here to allow the man to be buried. The burial might be seen as an outlier to the possible cemetery identified in the region of the *frigidarium* of the baths (*see chapter 7*).

The abandoned site

The next detectable activity on the site was stone robbing, demonstrated by an Anglo-Saxon strap-end decorated in the Trewhiddle style of the late ninth century which was found in the robber trench for the south aisle colonnade (see Fig 297, *chapter 6*). Presumably, it had been lost by people searching for building stone, probably for one of the churches nearby which are known to have Roman ashlar masonry in them, including St Andrew's Wroxeter and St Eata's Atcham.

There was little medieval pottery on the site, which suggests that the site was largely abandoned between the eighth and, probably, the eighteenth century. The soil built up over a millenium undoubtedly protected the site from considerable damage when ploughing did start.

Dating

The discussion of dating has been postponed to this late stage for one principal reason, that the latest material dating to the Roman period found on the site has already been discussed. The latest coins, dating to 388–402, were found in the robber trench of the north portico colonnade and thus belong in Phase X, or Y at the latest, and sherds of *amphorae* possibly dateable to the very late fourth to seventh century were found in Phase Y on *insula* 2. There were no artefacts, including pottery, from Phases pre-Z or Z which can definitely be described as post-Roman yet the remanent magnetic date of 500–550 for the end of Phase X shows that the material found in Phases pre-Z, Z, and post-Z was residual, although it may still have been in use (*see chapter 6*).

One radiocarbon determination of Cal AD 110–440 (OxA–1579; 1730±75 BP) was obtained from phase pre-Z, on a human skull fragment from the north wall robber trench D116. Two radiocarbon determinations for Phase Z related to charred beams found on the west portico in Phase Z2 (D394; HAR–5628 and D345; HAR–5629). HAR–5629 was dated to Cal BC 190 – Cal AD 330 (1940±100 BP) while HAR–5628 was dated to Cal AD 20–410 (1810±80 BP). All the radiocarbon determinations lie earlier than 500 and are residual being from skull fragments or from structural timbers. They therefore do not have any relevance for the dating of the phases but are of interest on their own account. In the case of the skulls, it is important to note that they date from within the full Roman period. In the cases of the structural timbers, they are very probably from the basilica itself, which was no doubt constructed from trees which had been growing well before the foundation of the town. It should also be noted that the Phase X oven, D371, which had a remanent magnetic date of about AD 500–550, was stratigraphically sealed beneath both the Phase Y layers and these timbers.

The most important radiocarbon date for the length of occupation of the town is that of the burial, D311 discussed above, which stratigraphically post-dates all the buildings on the site. Its date peaks between 600 and 700 (Birm–1045, 1340±60 BP). There is therefore a *terminus post quem* of AD 600, though it could be as late as 700 at 43.2% probability or 790 at 95.5% probability (see Table 17). The only other dateable object was the Anglo-Saxon strap-end which shows that some stone robbing occurred after the late ninth to tenth century. It must be concluded that the site was definitely abandoned by this time.

5 A catalogue and structural interpretation of the buildings

Introduction

The aim of this chapter is to list all the structures recognised on the site and test the hypothesis that those constructing the buildings were using a recognised unit of measurement. The structures are listed in catalogue format, each entry giving the location and phase of the building, and a discussion of the form the structure may have taken, including possible materials used, etc. The listing is in numerical, not phase, order. Where enough evidence survives buildings have been illustrated with a conjectural axononometric reconstruction.

Reconstructing the evidence

It will be clear from the structural evidence in this catalogue that every variation of timber building technique was employed on the site, from simple wattle huts to timber-framed buildings of great size and complexity, of which Building 10 was the chief. While Building 10, the barn-like Building 6, and some of the buildings on the frontage of *insula* 2, for example, were almost certainly fully-framed, that is, with uprights tenoned into ground-sills, other buildings were constructed with framing using posts which simply stood on the ground or on post-settings made to support them. Buildings 7 and 36 are good examples. Others, again, such as Buildings 23 and 4 used posts sunk into the ground. Some, such as Buildings 22 and 24 show a mixture of different techniques. The evidence for others was poorly preserved or was not completely recovered and consequently they cannot be reconstructed. Indeed, it is worth commenting here that some of the numbered structures, such as Building 70, were probably not actual buildings. Nonetheless, we felt it important to treat all the evidence equally, without any prejudgement, and have in most cases attempted to present a case for a structure.

Cladding was more difficult to identify. There was presumptive evidence of clay walls, as in, for instance, Building 7, and of wattle and daub, as in Building 1, but often the evidence is missing and walls could have been covered in vertical planks or weather-boarding, which would have left no trace. This is a phenomenon also encountered in medieval buildings (Beresford 1975, 37–40).

It is even more difficult to be specific about roof covering. No evidence was found for the use of slates or tiles, while thatch and shingles leave no trace under the conditions found at Wroxeter. However, the lack of any evidence is evidence itself in favour of roofs made of organic materials such as thatch, shingles, or planks, all known to Vitruvius (*De Arch* II, 4). There is also a possibility that one of the buildings on the west portico in Phase Z2 had gorse thatch (*see appendix 6*).

The variety of timber building techniques available bears a remarkable similarity to that found on medieval sites, and it is probable that these techniques are all part of a more or less continuous tradition going back into prehistory and on into Anglo-Saxon and Norman times (Higham and Barker 1992). Certainly, there is increasing evidence for the importance of the timber-framed tradition in Roman Britain (Goodburn 1991).

The illustrations offered here are, of course, open to debate and are intended to provoke discussion rather than to provide definitive solutions to all the problems of reconstructing the buildings. They have been deliberately kept simple, and detail is functional. Thus there are no painted walls, fancy mouldings, or finials. They are intended primarily to reflect the structure suggested by the excavated evidence, and various restrictions have been imposed on the drawings to make structural differences clearer. Fully-framed buildings, whether tied to sill-beams or uprights resting on the ground, have been shown with cross-bracing. Buildings with a skeleton of earth-fast posts are assumed to have been more stable and are shown unbraced.

The finish of the walls also incorporates various visual clues. Timber-framed buildings are assumed to have had an infill of wattle and daub, and are therefore shown plastered. Walls based on earth-fast posts offer a wider range of possibilities, but are most often shown clad in planking. Buildings with walls wholly of wattling were probably surfaced with daub but, to make it possible to distinguish wattle buildings from framed, the wattle walls have been left bare.

Framing has been kept very plain, with only as many timbers as necessary to make the building stand, but with no supporting or decorative infill between the basic structural members. Roman taste in decorative timber framing is unknown, as is the social status of timber buildings and whether they were thought worth elaborating. Vitruvius dismissed out of hand all buildings not made of stone: 'some peoples make roofs out of leaves; others dig artificial caves beneath mountains; and some, copying the nest of the swallow, shelter in structures made of mud and twigs' (*De Arch* II, 2).

The size and elaboration of the timber buildings on the baths basilica site argues that much had changed, and it is possible that the buildings of late Roman Wroxeter were as exuberantly patterned as the medieval houses which enliven the modern towns of Shropshire.

Doors have been shown in walls only where they could be demonstrated on the ground, from worn thresholds or gaps in wall lines. An exception has been made for buildings like the south aisle lean-tos (Building 17, *et seq*) which on this system would have been left without entrances and their doorways are invented. Windows, of necessity, are also invented, since none of the buildings survived above ground.

The question of heating was considered, and whether the buildings should be reconstructed with smoke-vents in their roofs. Of the 75 structures found, four comprise the original basilica and its component parts, 15 seem to have been domestic, given their elaborate, possibly two-storeyed, construction, six were industrial, and the rest are thought to be workshops, shops, and stores. The only hearths found associated with buildings were industrial; the source of domestic heating is unknown, but braziers may have been used. There were, therefore, perhaps exits for smoke, possibly louvres, in the roofs of at least 20% of the buildings. However, since it is impossible to be sure precisely which buildings were heated, only structures with internal hearths or ovens have been drawn with smoke holes in the roof.

Another detail missing from the roofs of the reconstructions is guttering. Some of the buildings, such as the basilica itself and Building 10, had very large roofs which would have shed water in torrents during a storm. How was the run-off dealt with? Was it channelled via a system of guttering and downpipes into water-butts? If not, where did the water go? The gravel street, which has been shown to be very vulnerable to erosion, had large buildings along its northern and southern sides; if rainwater had been left to drain downslope through the streets of the town, surely it would show some trace of damage. However, the only part of the site which had clearly been eroded by running water was a small area of roadside wash north of the stone gutter and the north portico, and the source of the water was the drain itself. Whether all this could imply the presence of guttering must remain a moot point. In the absence of more positive evidence it has been omitted from the reconstructions.

Metrical analysis

After the preliminary outlines of the buildings had been arrived at, it was decided to investigate whether a known Roman standard of measurement had been used or whether there was a new 'Wroxeter foot' which might hint at a different influence at work. However, it must be be borne in mind that it is unlikely that those laying out the platforms for the various buildings rigidly adhered to absolute accuracy and may well have adopted a more pragmatic approach, breaking the site down according to the number of building platforms required in any one area. Nonetheless, there seemed to be areas where precise measurements might be identified. The obvious starting point for this was Building 10 which formed the centre of the great rebuilding. Measurement began with the pair of pad-stones either side of the porch, and it was found that they had centres exactly 11*p.M.* (3.245m) apart. (The *pes Monetalis* is here taken to be equivalent to 295mm, although in practice there could be variation between 294mm to 297mm, Boon 1974, 97, 293 and Duncan-Jones 1980, 127, note 3). This discovery suggested that those responsible for laying out the structure might still be using the conventional Roman unit of measurement. To check this, the rest of the building was measured. As defined, the platform for Building 10 measured 33.5m east to west by 15.6m north to south. The nearest equivalents in *pedes Monetales* are 114 by 53*pM* (33.6 by 15.63m). This was less convincing than the exact equivalence noted for the pad-stones but was a correlation close enough to prompt the tabulation of the other buildings of Phases W to Z with at least one full dimension to see whether they also conformed (Tables 4 to 8). Following the model provided by Zienkiewicz (1986, 97), the tables show the relationship of the observed measurement to a postulated exact measurement in *pedes Monetales*, and the percentage of error has been calculated.

Table 4 Dimensions of buildings in Phase W

building	*observed*	*postulated*		*error*	
number	*metres*	*p M*	*metres*	*metres*	*%*
60 (length)	6.2	21	6.19	+0.01	0.16

pM: pes Monetalis

Table 5 Dimensions of buildings in Phase X

building	*observed*	*postulated*		*error*	
number	*metres*	*p M*	*metres*	*metres*	*%*
54 (length)	4.0	14	4.13	-0.13	3.24
54 (width)	3.6	12	3.54	+0.06	1.69
56 (length)	7.0	24	7.08	-0.08	1.12
56 (width)	3.9	13	3.83	+0.07	1.82
57 (length)	8.3	28	8.26	+0.04	0.48
57 (width)	4.3	15	4.42	-0.12	2.71
58 (length)	6.2	21	6.19	+0.01	0.16
58 (width)	5.0	17	5.01	-0.01	0.19
63 (length)	7.6	26	7.67	-0.07	0.91
63 (width)	5.0	17	5.01	-0.01	0.19
64 (width)	5.0	17	5.01	-0.01	0.19

pM: pes Monetalis

Table 6 Dimensions of buildings in Phase Y

building	*observed*	*postulated*		*error*	
number	*metres*	*pM*	*metres*	*metres*	*%*
1 (length restored)	12.7	43	12.68	-0.02	0.15
1 (length, to partition)	10.2	35	10.32	-0.12	1.16
1 (width, end)	1.8	6	1.77	+0.03	0
1 (width, centre)	3.0	10	2.95	+0.05	1.69
2	6.3	21	6.19	+0.11	1.77
3 (length)	10.4	35	10.32	-0.12	1.16
3 (length, excluding hard-standing)	8.2	28	8.26	-0.06	0.72
52	3.0	10	2.95	+0.05	1.69

pM: pes Monetalis

The good correlation in all phases, especially on the shorter measurements, suggests very strongly that the unit of measurement throughout was the *pes Monetalis*. But it is in Phase Z that the best correlation was seen, in that of the 28 buildings and plots measured, only 10 had a percentage of deviation greater than 1% and statistically five were exact equivalents to the suggested

Table 7 Dimensions of buildings in Phase Z

building number	*observed*	*postulated*		*error*	
	metres	*p M*	*metres*	*metres*	*%*
6 (length)	14.2	48	14.16	+0.04	0.28
6 (width)	5.3	18	5.31	-0.01	0.19
7	8.3	28	8.26	+0.04	0
9	7.3	25	7.30	0	0
10 (length)	33.5	114	33.60	-0.10	0.29
10 (width)	15.6	53	15.63	-0.03	0
11 (west end)	12.7	43	12.68	+0.02	0.16
11 (east end)	12.0	41	12.10	-0.01	0
11 (combined)	24.7	84	24.78	-0.08	0.32
11 (width)	5.3	18	5.31	0.01	0.19
10 + 11	58.2	200	59.00	-0.08	0.13
12	7.6	26	7.67	-0.07	0.91
13	6.2	19	6.20	0	0
15	9.0	30	8.85	+0.15	1.70
17	8.3	28	8.26	+0.04	0.48
18	8.3	28	8.26	+0.04	0.48
19	8.3	28	8.26	+0.04	0.48
20	8.6	29	8.56	+0.04	0.47
21	8.0	27	7.97	+0.03	0.38
23 (length)	10.7	36	10.62	+0.08	0.75
23 (width)	4.2	14	4.13	+0.07	1.69
24 (length)	12.5	41	12.09	+0.16	1.30
24 (width)	6.6	22	6.49	+0.11	1.69
26	3.5	12	3.54	+0.04	1.13
27	5.2	18	5.31	-0.11	2.07
28	3.0	10	2.95	+0.05	1.69
27+28	8.2	28	8.26	-0.06	0.73
29 (west wall)	3.8	13	3.83	-0.3	0.78
29 (east wall)	4.4	14	4.13	+0.07	1.69
33 (length)	8.8	29	8.55	-0.07	0.81
34	4.8	15	4.42	-0.04	0.90
38	4.9	17	5.01	-0.11	2.19
40	6.3	21	6.19	+0.11	1.77
41	4.5	15	4.42	+0.08	1.88
42	3.5	12	3.54	-0.04	1.12
43	7.8	27	7.95	-0.15	1.88
44	3.0	10	2.95	+0.05	1.69
45	7.7	26	7.67	+0.03	0.39
46	4.8	16	4.72	+0.08	1.69
(46)	6.0	20	5.90	+0.10	1.69
47	6.0	20	5.90	+0.10	1.69
(48)	6.0	20	5.90	+0.10	1.69
49	7.0	24	7.08	-0.08	1.13
50	5.6	20	5.90	-0.04	0.68
51	3.4	12	3.54	+0.14	3.95

(figures in brackets represent building plots)
pM: pes Monetalis

Table 8 Dimensions of buildings in Phase post-Z

building number	*observed*	*postulated*		*error*	
	metres	*p M*	*metres*	*metres*	*%*
4	17.3	59	17.4	+0.10	0.57

pM: pes Monetalis

equivalent in *pedes Monetales*. In addition to identifying the basic fact that the buildings were constructed using a Roman system of measurement, it also became apparent that, in two areas at least, regularly-sized platforms could be identified. These were the south aisle and the south frontage of *insula* 2. In the south aisle, Buildings 17, 18, and 19 were built on plots measuring 28*pM*, Building 20 on one which measured 29*pM*, and Building 21 on one of 27*pM*. The remaining plot contained two structures (Buildings 27 and 28) which, when measured separately, did not conform closely to the *pes Monetalis* equivalent. However, when the two units were measured as one plot, their combined measurement was 28*pM*. On the frontage of *insula* 2, in Phase Z1, of seven possible plots (Buildings 45 to 51), four were of 20*pM*, one was of 26*pM*, and another was 24*pM*. The seventh, Building 51, did not fit in with the others in the group as it was only 12*pM* wide but there is a possibility that this building has not been fully excavated as it lay at the extreme western edge of the site. Though the widths of the *insula* 2 buildings varied, a possible link may tentatively be put forward: all of this second group of plots, with the exception of Building 45, have frontages divisible by 4*pM*. This possible larger measuring unit of 4*pM*, recurs in the plot sizes seen on the south aisle and the measurement of Building 11. However, the dimensions of Building 10 and most of the remaining buildings cannot be divided by 4 and the existence of a specific unit of measurement 4*pM* long at Wroxeter must remain in doubt.

Having discovered the unit of measurement used in laying out the Phase Z buildings, there remains the problem of the way in which the overall plan for the buildings was designed. Clearly, Building 10, whatever its function, was the most important structure in this phase and it was therefore assumed at the outset that it would have been the first building to have been laid out. As noted already, the key to the position of Building 10 was the central door in the south wall of the basilica, the porch of Building 10 being due north of this doorway. A line drawn northwards from the centre of the doorway to the north wall of Building 10 measures 23.9m, a distance only 0.3m longer than 80 *pedes* (23.6m). This distance is, of course, divisible once again by 4, and is two thirds of an *actus* (120 *pedes*). The building was then laid out symmetrically about this axis, its width apparently being determined by a line drawn northwards from the western side of the main doorway into the *frigidarium*. Building 11 then filled the gap between the west end of Building 10 and the stub of the north wall of the basilica which had been left standing to keep the west wall of the basilica stable.

The layout of the south aisle buildings was determined by the central and eastern doorways which the planners of the reconstruction wanted to retain. This divided the aisle into three unequal sections: a long western section, a shorter portion between the doorways, and a small area east of the *frigidarium* door. There are two possible methods for arriving at the standarised size of platform observed. One is pure pragmatism, taking the smallest area as the standard east to west length and then sub-dividing the rest of the aisle by this measurement, respecting the doorways. Given the underlying geometry of the basilica, this would produce a pair of platforms in the middle section and five at the west end. The alternative is that an existing standard size of platform was imposed on the aisle, determining the size of platform.

The buildings outside the area of the basilica on the *insula* 2 frontage did show clear signs of the use of Roman measurement, as already demonstrated, but there was no obvious mathematical interval at which the building plots were laid out. In Phase Z1, the change in level between the upper and lower terraces determined the edge between plot 48 and Building plot 47, but the size of the building plots may simply have been a matter of fitting the number of plots required into the space available. However, it is of interest that in the case of Building 46, although the actual building did not occupy the full width of the plot both it and the plot conform quite well to a *pes Monetalis* measurement. In Phase Z2 there was no obvious sign of a series of regularly-sized plots and the buildings were much wider than before. However, the buildings conform to their *pedes Monetales* equivalents with astonishing accuracy, except for Building 15. There was no sign of the use of Roman measurements in the organisation of the booths on the gravel street, although Building 12, the only substantial structure, does seem to be laid out in *pedes Monetales*.

Catalogue of the buildings

Building 1, *insula* 5, east frontage, Site A, Phase Y2, (Fig A113)
Reconstruction, Fig 246: Building 1 was a long narrow bow-sided building with a hipped roof, divided by a cross passage. A feature of the building was that the main posts were merely resting on or only slightly penetrating the ground, rather than being deeply sunken, and so the stability of the building derived purely from the structure of the walls and roof. The walling between the posts was certainly wattle in at least two areas and it is reasonable to assume that this method of walling was used throughout, which would give the structure stability like an upturned basket. In 1972 the construction of a full-scale replica of this building was begun at the Avoncroft Museum of Buildings, Bromsgrove, Worcs. The reconstruction was sufficiently advanced to demonstrate that it was viable before hurricane-force winds destroyed it, and the experiment was abandoned. For a photograph of the unfinished building see Barker 1977, figs 85 and 86. Roofing would either have been thatch or wooden shingles. There were two doorways or openings, one at either end of the cross passage. The passage gave access to a northern room, possibly with wooden fittings and a hearth and, to the south, a central room paved as a hard-standing. It is likely that there was a central north to south partition dividing the hard-standing but further subdivision would have prevented access to another room at the extreme southern end of the building. There may have been another door in the end wall, now lost.



Fig 246 Reconstruction of Building 1

Building 2, *insula* 5, east frontage, Site A, Phase Y1 (Fig A110)
Not enough evidence survived to reconstruct Building 2, but the curved of the wall line suggests it was bow-sided, as with Building 1.

Building 3, *insula* 5, east frontage, Site A, Phase Y1 (Fig A110)
The eastern wall of the building was lost leaving its form uncertain. The surviving walls had some earth-fast posts and some standing directly on the ground, presumably finished in wattle and daub. As with Building 1, the bowed sides of the structure demand a hipped roof of thatch or shingles. A tripartite division was apparent from two internal partitions. The hard standing at the south end also resembles that in Building 1 although in a different location and without its structural complexity. Furnace A150 may have been in use with this building.

Building 4, North portico and north aisle, Site D, Phase post Z (Fig A176)
Reconstruction, Fig 247: Building 4 was a long, narrow, two-bay post-built structure with two major entrances in the short west and east walls, both of which had associated hard-standing areas. The two bays of the building were separated by a possible cross passage which may also have had doorways. The walls may have been wattle and daub, though planked walls are also possible, perhaps with a roof of thatch. There was evidence for a suspended timber floor at the east end and for a partition at the west end. No evidence was found for a hearth or any other fixtures.

Building 5, North portico and north aisle, Site D, Phase post Z (Figs A176 and A177)
This was a small post-built building, walled and roofed as Building 4 and joined to it. The wide gap in the north wall implies an open-fronted lean-to shed.



Fig 247 Reconstruction of Building 4

Building 6, Baths precinct, Site B, Phase Z4 (Figs A169 and A170)
Reconstruction, Fig 248: Building 6 had a timber-framed south wall and earth-fast posts in the east wall. The north and west walls were provided by the precinct and annexe walls respectively, implying that the building was a lean-to tied to the walls at higher levels, perhaps reusing putlog holes. The floor was probably of timber suspended over the rubble platform. There were three doorways, each fronted by an area of hard standing. The eastern doorway had a post-built porch.

Building 7, *insula* 2, south frontage, Sites C and E, Phase Z2 (Figs A155 and A157)
Reconstruction, Fig 249: It seems fairly clear that Building 7 was a clay walled building with the walls reinforced with wattling and vertical posts set in shallow cuts. The facade could have been of two phases since the clay wall base shows impressions of both wattle panels and horizontal beams. The large post-settings framing the doorway could have taken reused stone bases. The building was entered through a porch edged by sandstone pad-stones which could have supported slender columns (either reused stone ones, or timber). The area in front of the facade of the building was probably planked. The full dimensions of the building must remain undefined, although it is apparent that the long axis of the building must have been north to south. It was probably two-storeyed.

Building 8 (narrow), *insula* 2, south frontage, Site C, Phase Z2 (Fig A153)
Building 8 (narrow) was probably a timber-framed building with horizontal beams resting on the surface tied to relatively slender earth-fast uprights. The post-holes found might be considered too small to support a

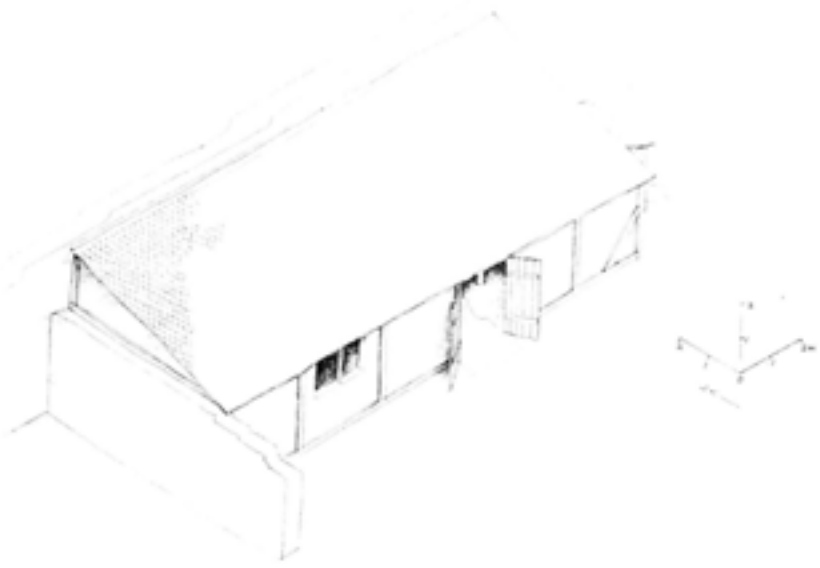


Fig 248 Reconstruction of Building 6

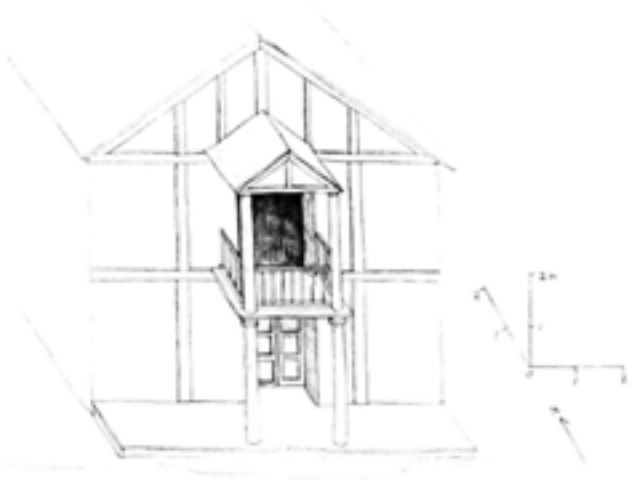


Fig 249 Reconstruction of Building 7

two-storey building, but the structure of the building is not well understood, and a substantial internal clay pad may have carried a massive central timber taking much of the weight of the roof and walls. The position of the north wall was not clear and Building 8 was either a small square building or a rectangular building with its long axis lying north to south. The latter interpretation seems more credible taking into account the large porch and step in front of the building.

Building 8 (broad), *insula* 2, south frontage, Sites C and E, Phase Z3 (Fig A158)
Reconstruction, Fig 250: Building 8 (broad) may be reconstructed in two different versions. One would be a large, square building, the other, more likely version, would be more rectangular. Each would have clay pad C198 at its centre, possible as a brazier stand or even as a support for a central roof post. Both versions would include the substantial porch. The construction would have been timber-framed. Infill between the posts could have been wattle and daub or vertical or horizontal planking.

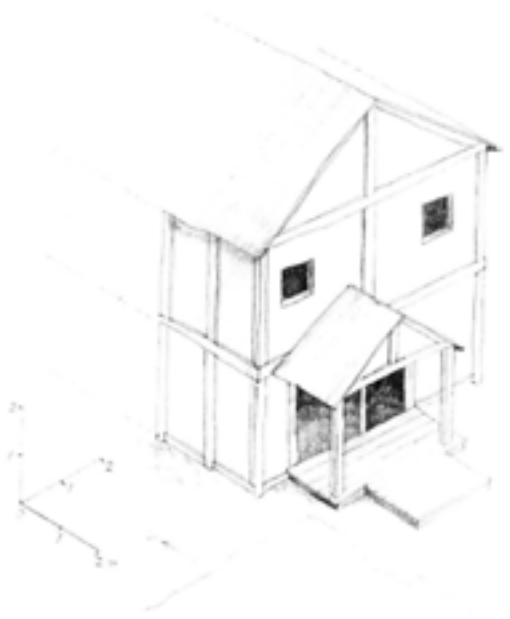


Fig 250 Reconstruction of Building 8 (broad)

Building 9, *insula* 2, south frontage, Site E, Phase Z2, (Fig A155)
Reconstruction, Fig 251: Only the southern end of the building was recovered but the surviving elements show it was quite substantial. Evidence was found for horizontal beams in the west wall and these were presumably tenoned into vertical posts standing on the stone pads found along the south wall. Its long axis would have been north to south and the building would have been entered via a porch and through a central doorway.

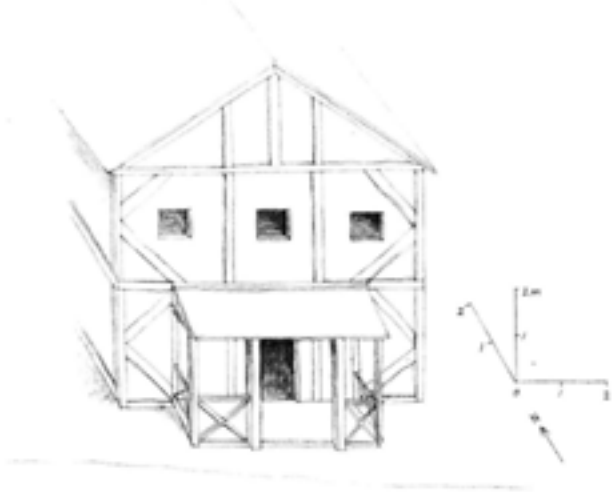


Fig 251 Reconstruction of Building 9

Building 10, Nave, north aisle, north portico, Site D, Phase Z, (Figs A129, A130, and A131)
Reconstruction, Fig 252: The plan of the platform indicates that this building was rectangular in shape with wings at the south-east and south-west corners and a verandah between them. It was aligned east to west so that the main doorway in the south wall faced the central door in the wall of the south aisle. Due to the lack of obvious structural elements, the building must be assumed to have been timber-framed so that it merely rested on the platform. The solid nature of the platform implied at least two storeys to the building. The very large size of the post-pads at the edge of the verandah suggests a very substantial porch, presumably with a pediment. The columns may have been of stone, reusing elements of the basilica, or of wood. The verandah is assumed to have been planked. The wings were of particularly heavy design and it is argued that these were possibly towered, as with the villa depicted on the reconstructed Trier fresco (Wightman 1970, pl 6b) or on the villa represented on a Carthage mosaic (Dorigo 1971, pl 146). The walls were probably of wattle and daub infill, although no evidence was found for this. Roofing could have been in reused micaceous flagstone or ceramic tiles but, as none were found collapsed onto

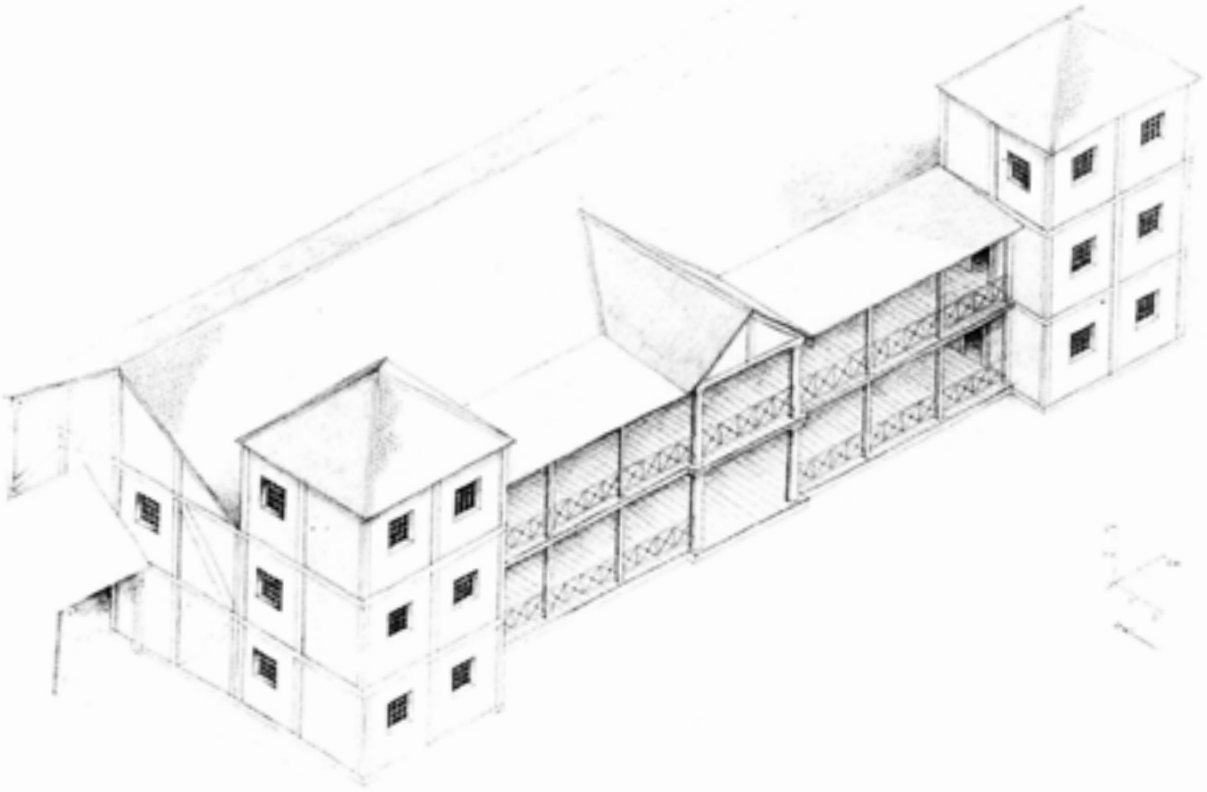


Fig 252 Reconstruction of Building 10

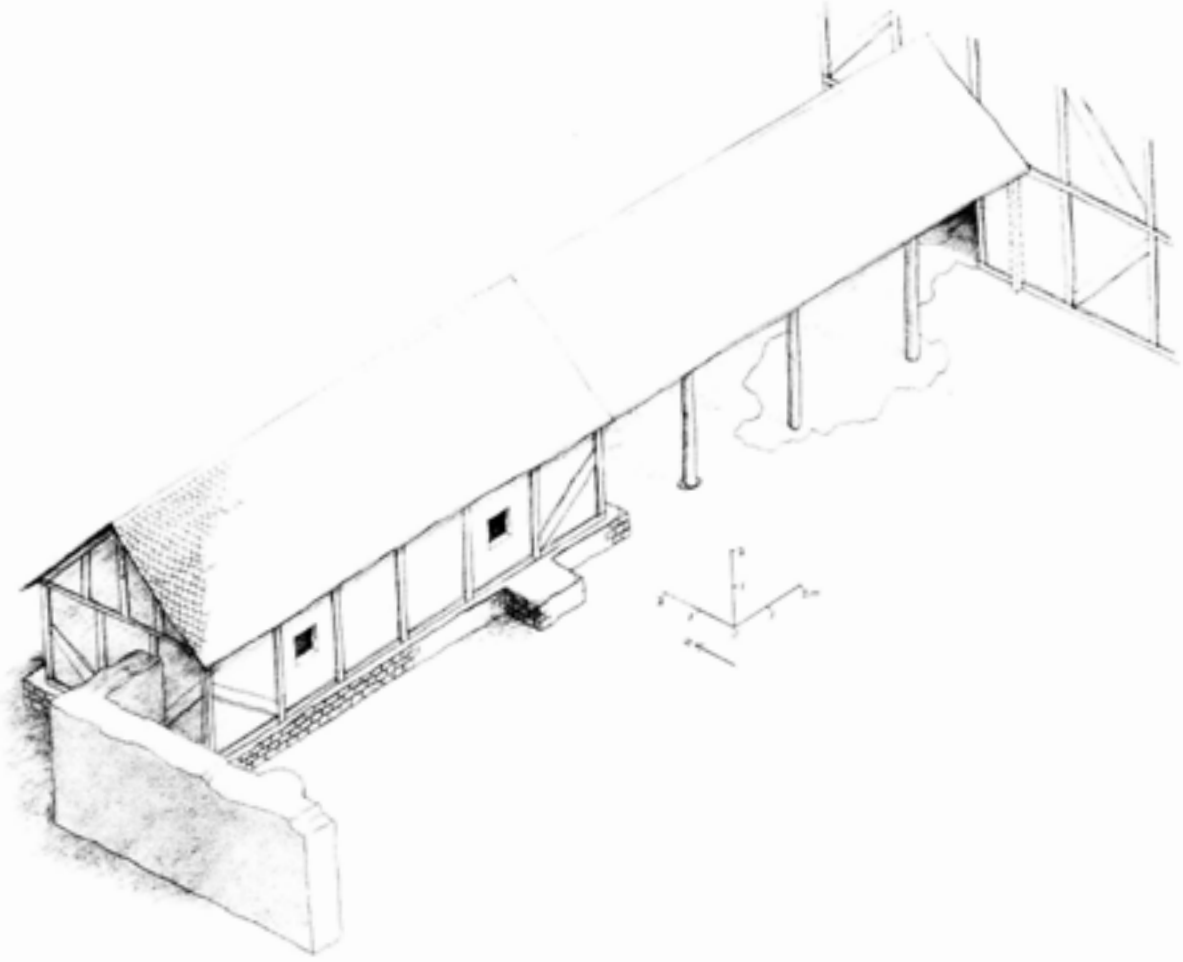


Fig 253 Reconstruction of Building 11

the platform, these were either robbed before demolition or it must be assumed that the roof was of wooden shingles. Thatch or planks would have been unlikely because of the large area to be covered.

Building 11, North portico and north aisle, Site D, Phase Z (Figs A127 and A128)
Reconstruction, Fig 253: Building 11 was divided into two distinct halves unified by its mortar-packed floor surface. The surviving sections of walling found in the western half were too poorly constructed to stand to any height and it is likely that they were dwarf walls with a timber superstructure. Further indications of this may be seen in post-pads within the south wall. The west wall is likely to have been buttressed by the still-standing north-west corner of the basilica. The east wall of the west end of the building formed the central dividing wall between the two halves and would have helped to support an otherwise impossibly long ridge beam.

The eastern half of the building differed in construction in having only post-pads and postholes for much of its length, suggesting that this half may have been open or only lightly screened. Three, or possibly four, doorways may be suggested. In the western half of the north wall was a very broad and extremely worn threshold area showing that this pathway was much used. In the eastern half of the south wall an extension of the mortar platform beyond the wall line suggests a doorway here with an external path. It is likely that there was also a doorway in the party wall between Buildings 10 and 11 and an interconnecting door between the two halves of Building 11.

Building 12, Gravel street, Site E, Phase Z2 (Fig A145)
Reconstruction, Fig 254: A puzzling post-built building with some of the posts arranged in trenches suggesting dug-in wattle panels and others in single postholes, all lying within a shallow rectagular platform which extended to the south-west. Inside the main building in the south-west corner was a rectangular setting of wattling. Infill of the walls appears to have been in wattle and a pitched thatched roof seems likely.

Building 13, *insula* 2, south frontage, Site E, Phase Z2, (Figs A154 and A155)
Reconstruction, Fig 255: Building 13 was a timber-framed structure with vertical posts resting on post-pads and horizontal timbers tying them together. The micaceous flagstone patch in front of the doorway in the south wall indicates a possible step here. Its full size is not known.



Fig 255 Reconstruction of Building 13

Building 14, West portico, Site D, Phase Z4 (Fig A141)
This was possibly a small timber-framed structure, but there was not enough evidence to determine its exact form.

Building 15, *insula* 2, south frontage, Site E, Phase Z2 (Fig A154)
Reconstruction, Fig 256: Building 15 was a rectangular structure aligned east to west with a sub-rectangular area of fine stones representing the western half, and a curved run of postholes representing the south-east corner. In front of the facade, slightly off-centre, was a beam-slot which may represent a step. This was perhaps a two-storeyed building. The walls appeared to

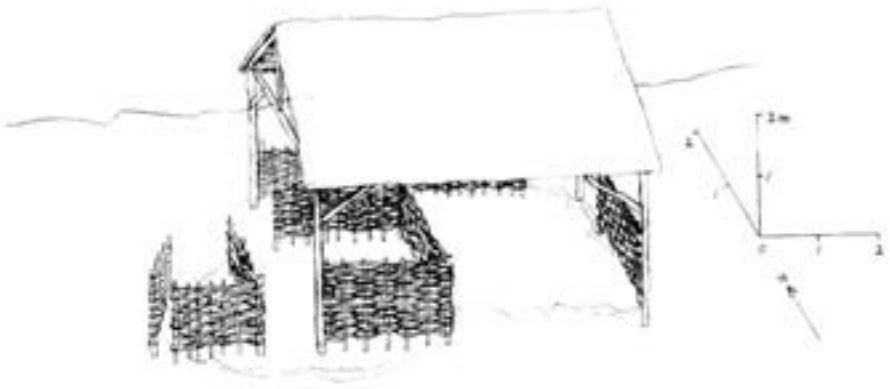


Fig 254 Reconstruction of Building 12

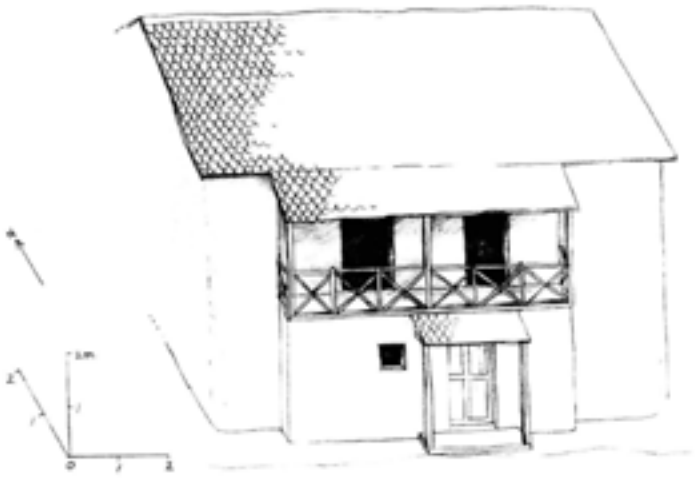


Fig 256 Reconstruction of Building 15

differ in construction with the western side of the facade perhaps resting on beams, and the eastern half supported by earth-fast posts. Above this foundation level, however, the walls themselves may have been of the same construction. The curved corners may suggest that they were built of clay.

Building 16, South aisle, Site D, Phase Z (Fig A119)
It is doubtful that a building did stand here, but if it did it would have been timber-framed as with the others in the aisle.

Building 17, South aisle, Site D, Phase Z (Fig A119)
Reconstruction, Fig 257: Although no evidence for the building other than a rectangular platform was found, it may be assumed that, like the other structures on the aisle, its south wall was formed by the still-standing basilica wall and that the other walls were all timber-framed. This would allow for a single storey lean-to building with a lightweight roof of wooden shingles or thatch. No evidence was found for a doorway or internal arrangements.

Building 18, South aisle, Site D, Phase Z (Fig A118)
Reconstruction, Fig 258: Again, a largely timber-framed lean-to structure similar to that described for Building 17 is indicated. Some differences may be noted, however, in the shorter west and east walls which have earth-fast posts suggesting post-built sides.

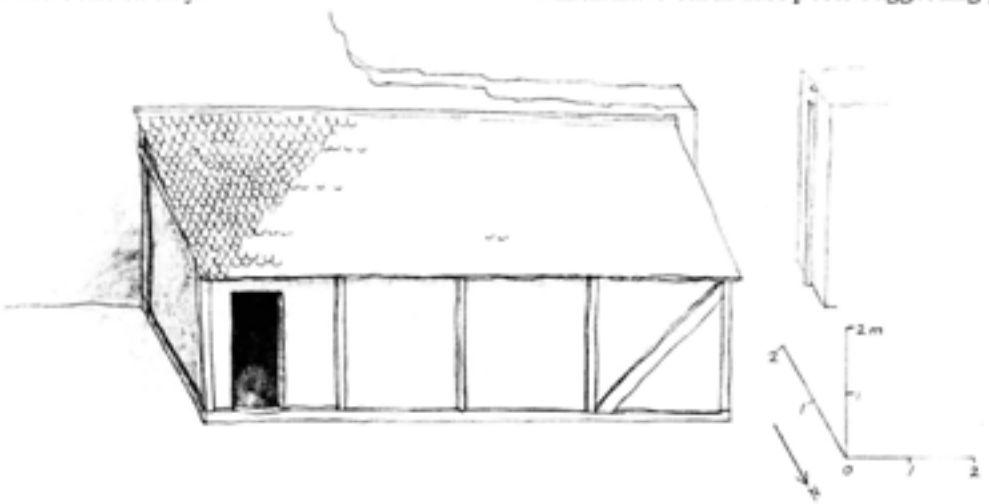


Fig 257 Reconstruction of Building 17

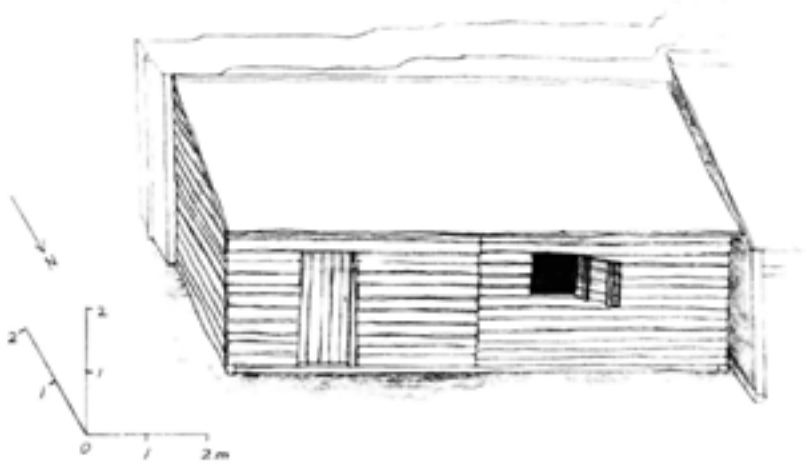


Fig 258 Reconstruction of Building 18

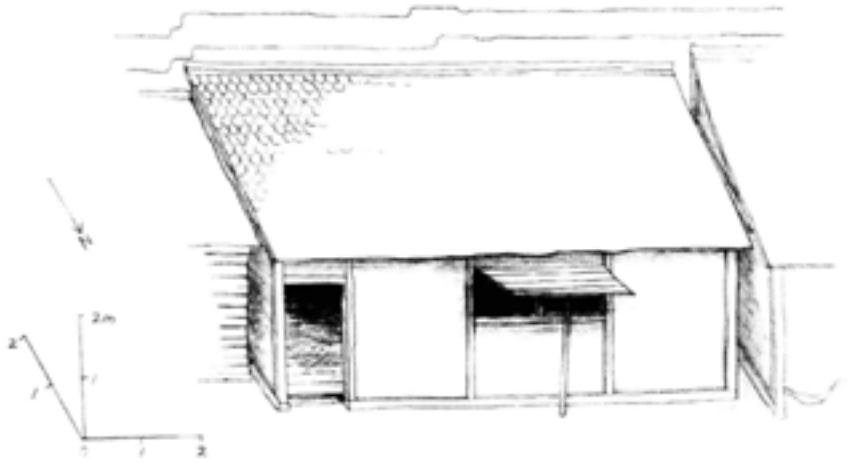


Fig 259 Reconstruction of Building 19

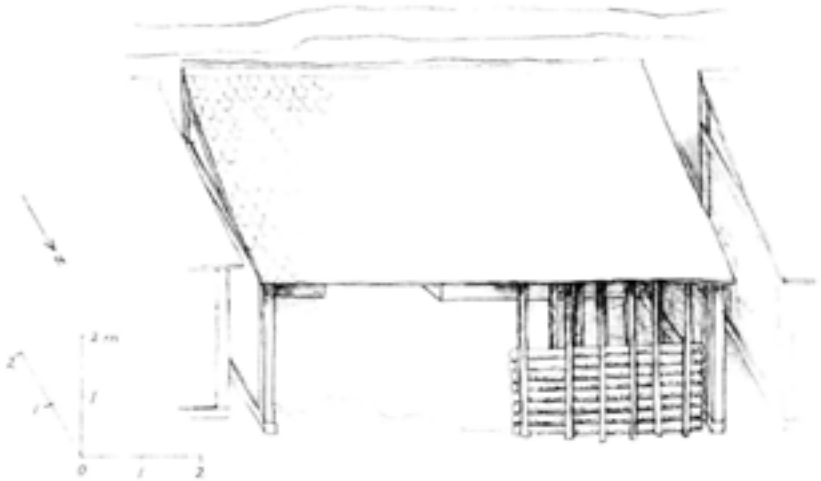


Fig 260 Reconstruction of Building 20

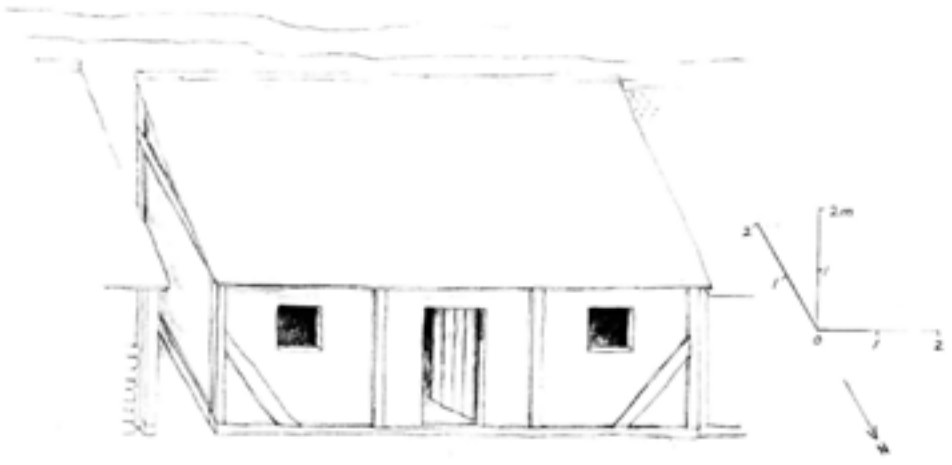


Fig 261 Reconstruction of Building 21

Building 19, South aisle, Site D, Phase Z (Fig A118)
Reconstruction, Fig 259: This was another lean-to building with a beam position giving clear evidence of a timber-framed facade, and a post-built east wall. The construction of the west wall was not clear but timber framing seems likely. The purpose of a large internal posthole near the facade was not clear but the small stakeholes within the building possibly represent evidence for a suspended timber floor.

Building 20, South aisle, Site D, Phase Z (Figs A117 and A118)
Reconstruction, Fig 260: Again a lean-to building is suggested but this time the western half of the facade seems to have been a substantial earth-fast wall and the side walls appear to have been timber-framed. A possible doorway existed in the east side of the south wall giving onto a doorway through the south wall of the basilica and into the baths courtyard.

Building 21, South aisle, Site D, Phase Z (Fig A117)
Reconstruction, Fig 261: The only positive evidence for this building was a rectangular rubble platform, probably supporting a timber-framed lean-to building with possible central doorways in the south and north walls.



Fig 262 Reconstruction of Building 22 (narrow)

Building 22 (narrow), *insula* 2, south frontage, Site C, Phase Z2 (Fig A157)
Reconstruction, Fig 262: A very large post-built and framed building, probably including a vestibule, behind a porch and steps. The infill between the uprights may have been wattle and daub. Two storeys would be logical given the size and elaboration of the porch.

Building 22 (broad), *insula* 2, south frontage, Site C, Phase Z2 (Fig A157)
As Building 22 (narrow) but with the main body of the building extending westwards another bay. If this reconstruction is preferred, then Building 8 cannot be contemporary with Building 22 (broad) as the walls would overlap.

Building 23, Baths precinct, Site B, Phase Z2 (Figs A161 and A162)
Reconstruction, Fig 263: Building 23 was a post-built structure tied in to the north precinct wall, possibly using existing putlog holes. There were some difficulties in reconstructing the east end of the south wall as there appeared to be a duplication of postholes. The walls may have been infilled with wattle and daub or timber framing with wattle and daub, or simply clad in planks. Building 23 may have had a suspended timber floor.

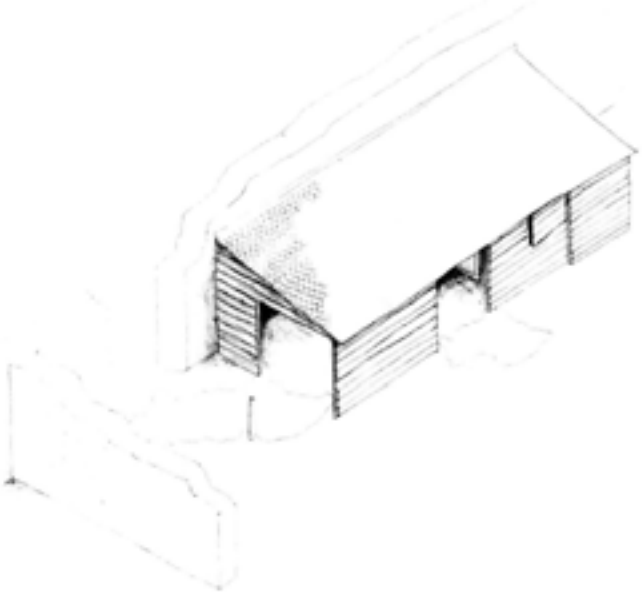


Fig 263 Reconstruction of Building 23

Building 24, Baths precinct, Site B, Phase Z3 (Fig A166)
Reconstruction, Fig 264: Building 24 may be restored as a barn-like structure with a central ridge supported by a line of posts and, probably, fairly low west and east walls to support the roof. The walls may have been constructed on sill-beams, but the details of construction varied. The east wall may have had an initial wattle and daub phase. The north wall was apparently of earth-fast posts while the south and west walls could have been built on sill-beams resting on the ground with uprights tenoned into them. The building was entered via a large porch at the southern end of the west wall. The evidence for this consisted of two double postholes, both of massive size, lying 3m west of the wall. It is unlikely that both elements of these holes were in use at the same time, which would suggest that the porch, as with the east wall, may have been rebuilt. A small patch of pebble floor had been laid in the doorway, projecting a



Fig 264 Reconstruction of Building 24

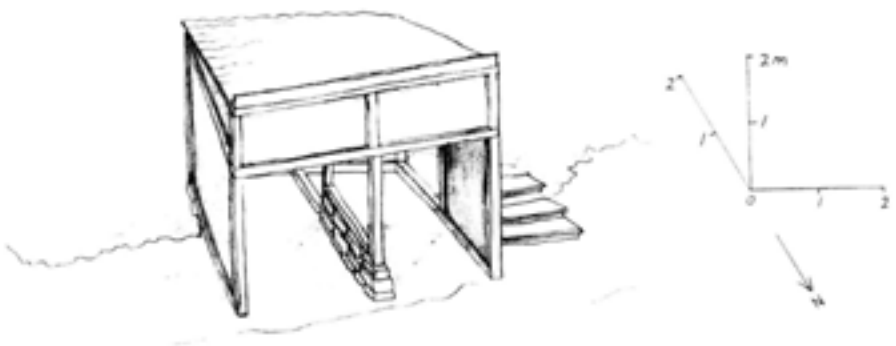


Fig 265 Reconstruction of Building 26

short distance into the porch. It was not clear why the doorway should have been so substantial or why it was placed asymmetrically in the west wall, but if the building is interpreted as a barn rather than as a residence, then a large doorway would make sense.

It should be noted that an alternative interpretation suggested for the central line of postholes envisages it as the west wall of a lean-to building against the east precinct wall. This would give a building 5.5m wide (east to west) by 12m north to south. The weakness of this interpretation is that it leaves unexplained various other features such as the double postholes forming the porch.

Building 25, West portico, Site D, Phase Z3 (Fig A140)
Too little survived to make many sensible conclusions but the south wall seemed to be of post-in-trench construction.

Building 26, Cobble street, west, Site E, Phase Z3 (Fig A144)
Reconstruction, Fig 265: Building 26 was a timber-framed structure with an open north side and a central partition resting on a dwarf wall. All the walls seem to have rested on horizontal beams and it is likely that the north wall was shuttered when not in use. The roof could have been either flat and sloping to the south or gabled with the gable end facing north. The internal partition was either left open or contained a doorway as otherwise there was no access from one room to the other. A single identifiable door lay in the west wall and had three timber steps leading up to it from the street surface.

Building 27, South aisle, Site D, Phase Z (Fig A117)
Reconstruction, Fig 266: No structural evidence survived other than a rubble platform, so a timber-framed building seems likely given the evidence for the adjacent buildings in the south aisle. The west wall may have been solid and without any connection to Building 28 to the west but it is likely that they shared a common roof as, added together, they make a standard-sized building for the aisle.



Fig 266 Reconstruction of Building 27 and 28

Building 28, South aisle, Site D, Phase Z (Fig A117)
Reconstruction, Fig 266: A timber-framed structure probably with a doorway in the north wall. The roof may have been continuous with Building 27 to the east.

Building 29, West portico, Site D, Phase Z3 (Figs A139 and A140)
Reconstruction, Fig 267: A post-built structure perhaps with wattle and daub infill and a flat or pitched roof. Two doorways were found, one in the north wall, and one in the east wall through the part of the west door of the basilica which still remained open. Internally, the building was divided into north and south halves by a step which would presumably have been of wood.

Building 30, Nave, Site D, Phase W (Figs A54 and A55)
This was probably not a building but a misinterpretation due to the incomplete evidence available at the time of the initial excavation in 1966–7.

Building 31, Nave, Site D, Phase Z (Fig A132)
Reconstruction, Fig 268: This was a substantial mortared stone structure built against the east wall of the basilica. It was one storey high and there was no sign of the wall having been rendered. A possible window may be suggested in the west wall, and a doorway on the south side. The roofing material remains unknown but as it has left no trace at all, it may be assumed that either it was perishable or that it was completely removed.



Fig 267 Reconstruction of Building 29



Fig 268 Reconstruction of Building 31

Building 32, West portico, Site D, Phase Z3 (Fig A139)
Too little evidence survived for a full reconstruction but a timber-framed building with a suspended timber floor may be suggested by analogy with Building 33 (see below). Unlike Building 33, however, it would have been a lean-to structure.

Building 33, West portico, Sites D and E, Phase Z2 (Fig A138)
Reconstruction, Fig 269: Building 33 was a long timber-framed structure with doorways in the north, south, and east walls. The floor was planked and suspended on joists. It is unlikely to have been more than one storey and presumably had a pitched roof with thatch or wooden shingles.

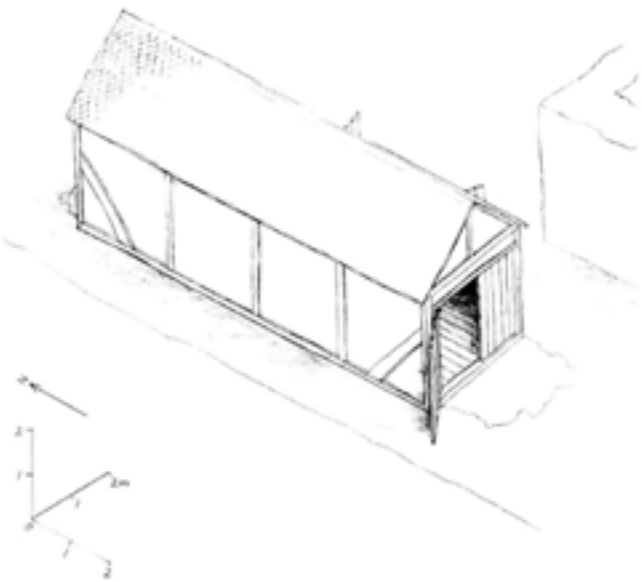


Fig 269 Reconstruction of Building 33

Building 34, West portico, Site D, Phase Z2 (Figs A137 and A138)
Reconstruction, Fig 270: A square timber-framed building possibly with a suspended timber floor with at least one door, in the south-west corner. A possible porch was attached to the south wall and there might have been a door here as well, although since this would give two doors almost back to back it seems unlikely. Evidence for gorse found in the ash from a hearth just to the south might indicate that Building 34 was roofed with gorse thatch. It is more likely, however, that the gorse was brought in specifically to light a fire on the hearth.

Building 35, *insula* 2, south frontage, Site C, Phase Z1 (Fig A103)
Too little of Building 35 was recovered to make any detailed remarks about its appearance but it appeared to be a post-built building with the posts set into the ground. Infill between the posts could have been wattle and daub or horizontal or vertical planking. The presence of a large porch, similar to Building 22, suggests that this was a large two-storey building.



Fig 270 Reconstruction of Building 34

Building 36, *insula* 2, south frontage, Site C, Phase X (Fig A101)
Reconstruction, Fig 271: Building 36 may be reconstructed as a substantial two-storeyed structure based on large posts which, on the south wall at least, rested on carefully constructed post-pads formed from alternate layers of clay and cobble. The north and east of the building remains unexcavated, under the modern road. The foundations of the west wall were more mixed, but still capable of taking substantial weight, with clay and cobble post-pads to the south, earth-fast posts in the centre, and the possible reuse of an earlier clay and cobble dwarf wall at the north end. The form of the roof was unclear but was presumably pitched. A possible door may be suggested between the posts in the west wall where a dump of micaceous flagstone and rubble reinforces the surface. It is assumed that the massive posts ran round the edges of a two-storeyed porticoed building and took a good deal of the weight of the roof. Within the line of post-pads there was no evidence for the floor surface or internal construction of the building, so it is assumed that it was framed with suspended timber floors.

Building 37, West portico, Site D, Phase Z2 (Fig A137)
There is insufficient evidence to attempt a reconstruction, but presumably this was a timber-framed lean-to building resting on horizontal beams. The floor was probably of timber, suspended on joists above the platform.

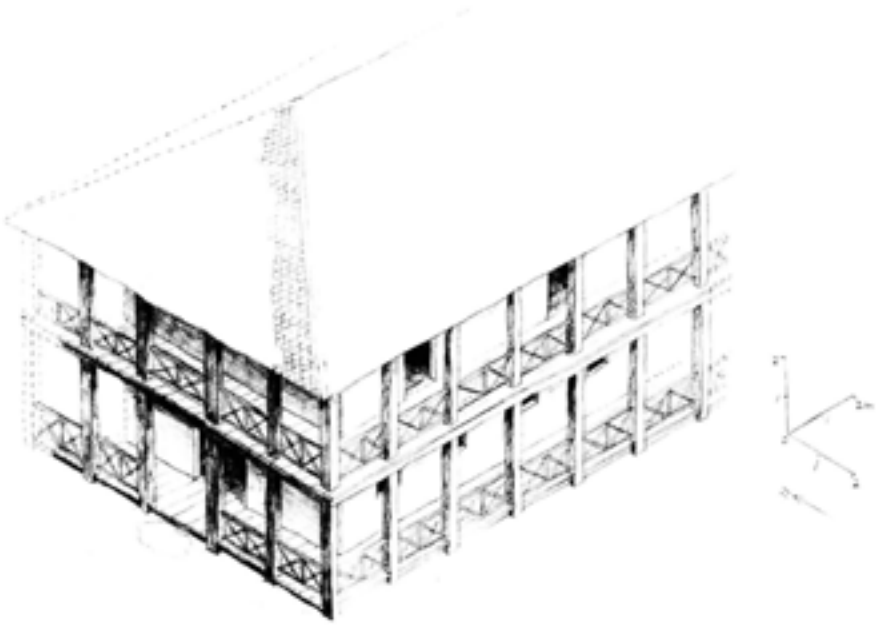


Fig 271 Reconstruction of Building 36

Building 38, West portico, Site D, Phase Z1 (Fig A135)

Reconstruction, Fig 272: A square timber-framed building with a doorway in the north-west corner. It rested on horizontal beams with a suspended timber floor on joists. The roof was presumably pitched. There was no evidence of the roofing material, so it was probably organic.

Building 39, West portico, Site D, Phase Z1 (Fig A136)

Reconstruction, Fig 273: Building 39 was post-built on its west and east sides but the south wall rested on a horizontal beam. The walls were presumably infilled with wattle, although horizontal or vertical planking is also possible. There was no clear evidence for a door position but the direction of a path to the west suggests there might have been an entrance in the west wall. The roof would have been pitched, with thatched or shingled cover.

Building 40, Gravel street, Site E, Phase Z2 (Fig A147)

There was no positive evidence on which to base a reconstruction, other than a shallow platform. Presumably Building 40 was a lightweight building set onto the gravel street surface but not dug into it. The rounded corners of the platform suggest that the building was slightly smaller than the platform. No evidence for a doorway or other fittings was found.



Fig 272 Reconstruction of Building 38

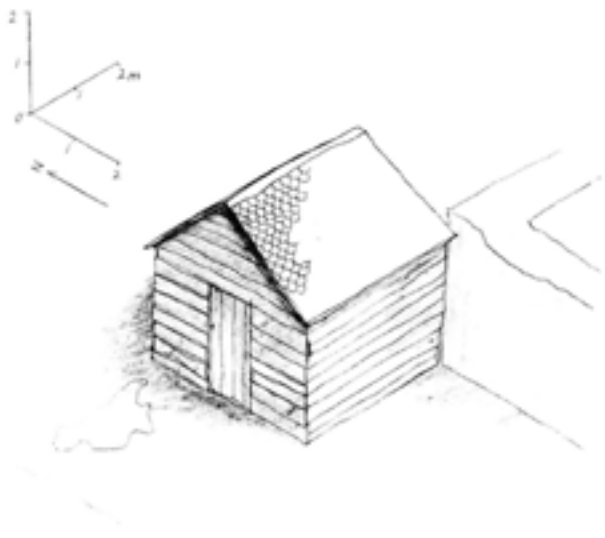


Fig 273 Reconstruction of Building 39

Building 41, Gravel street, Site E, Phase Z2 (Fig A147)
No structural evidence other than a platform, so Building 41 is also thought to be a lightweight building set onto the gravel street surface. The platform abutted that of Building 41 to the east, but it was impossible to say whether the structures would have been linked.

Building 42, Gravel street, Site E, Phase Z2 (Fig A146)
Again, no evidence other than the building platform, so presumably this was a lightweight building, set partly on the gravel street surface and partly on the backfilled north portico colonnade robber trench. The building was probably slightly smaller than the surviving platform.

Building 43, Gravel street, Site E, Phase Z2 (Fig A146)
Another shallow platform with rounded corners suggesting a lightweight building set on the gravel street surface but not cut into it. A shallow gully to the north might have been an eaves drip or could have been worn by pedestrians. The western half of the platform was slightly narrower than the eastern half and may indicate that Building 43 was formed of two units.

Building 44, Gravel street, Site E, Phase Z2 (Fig A145)
Reconstruction, Fig 274: Building 44 comprised a collection of features extremely difficult to reconstruct as a structure: a stretch of wattling on the south side, a section of walling based on a beam-slot running north from this, detached from both but parallel to the south wall another possible piece of walling based on a beam-slot, and finally, in the gap at the east end, a solitary but substantial post. Various lesser stakeholes were found within these features.

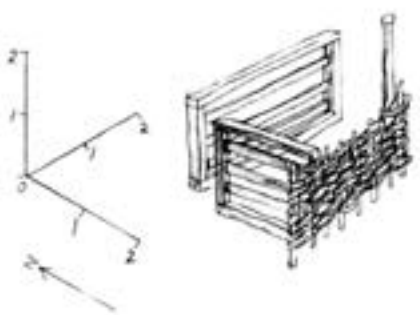


Fig 274 Reconstruction of Building 44

Building 45, *insula* 2, south frontage, Site E, Phase Z1 (Figs A103 and A152)
Reconstruction, Fig 275: This was a rectangular building, probably aligned east to west rather than north to south, with a centrally placed doorway in the south wall. Construction seems to have been timber-framed with vertical posts resting on post-settings tenoned into horizontal beams. The floor must have been planked and suspended on joists.



Fig 275 Reconstruction of Building 45

Building 46, *insula* 2, south frontage, Site E, Phase Z1 (Fig A152)
Reconstruction, Fig 276: A timber-framed building with vertical timbers resting on clay pads or stones and tied together with horizontal timbers. Most of the south wall was taken up with a slightly off-centre flight of broad, shallow steps leading into the building, which probably had a suspended timber floor. It was reasonably certain that more of the building lay to the north of the limit of excavation and that the building's long axis was orientated north to south.

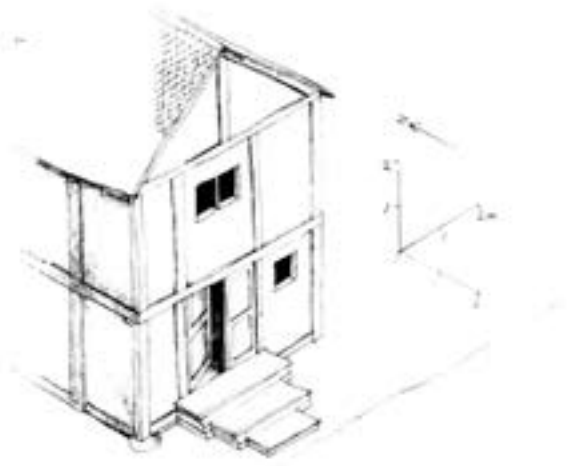


Fig 276 Reconstruction of Building 46

Building 47, *insula* 2, south frontage, Site E, Phase Z1 (Fig A152)
Reconstruction, Fig 277: Building 47 was defined by an internal pebble spread between dwarf walls, one of clay and sandstone and the other of cobble in loam.



Fig 277 Reconstruction of Building 47

The rounded corners of the walls suggest a dwarf clay wall on which a timber-framed building rested, or a structure built entirely of clay. The floor may have been of timber, suspended on joists, but could also have been the pebble and tile surface. The full size of the building was unclear. It may have had a north to south or east to west axis. If the latter, then it would have been a small, one-storey building, probably with a thatched roof. If the former, it would have been more substantial, possibly with two storeys.

Building 48, *insula* 2, south frontage, Site E, Phase Z1 (Fig A152)
No positive structural evidence was found, apart from a stretch of building platform of approximately standard width for *insula* 2, with a double post-setting on its eastern side. If there was a building here it must have been timber-framed resting on horizontal beams. The double post-setting might suggest that one of the walls was post-built.

Building 49, *insula* 2, south frontage, Site E, Phase Z1 (Figs A151 and A152)
Reconstruction, Fig 278: Building 49 was a timber-framed structure resting on horizontal beams which may be restored either as being aligned east to west and having one storey, or as a much more substantial structure aligned north to south.

Building 50, *insula* 2, south frontage, Site E, Phase Z1 (Fig A151)
Reconstruction, Fig 279: This was a timber-framed building resting on horizontal beams. As excavated, the building was aligned east to west but it is possible that only the facade of the building was found and that it extended further north. If so, it would have been a substantial two-storey structure. Not enough evidence survived to decide which is the correct interpretation. The roof was presumably gabled and either thatched or shingled.

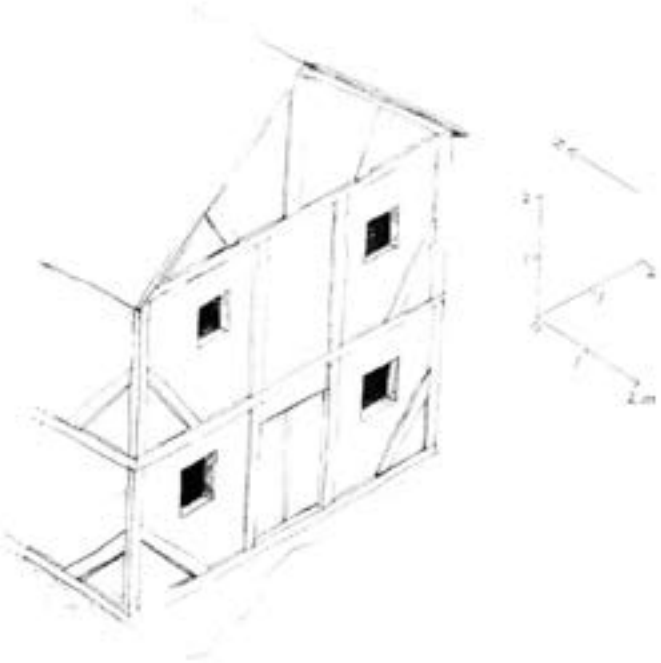


Fig 278 Reconstruction of Building 49

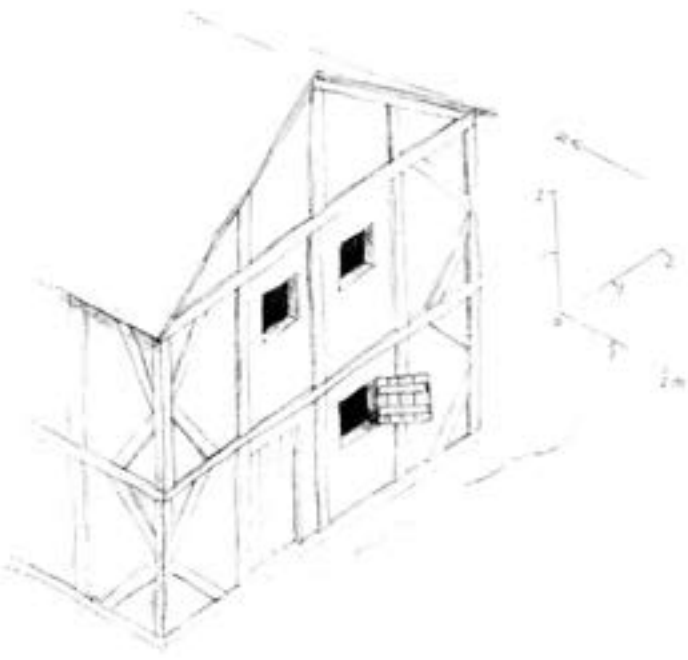


Fig 279 Reconstruction of Building 50

Building 51, *insula* 2, south frontage, Site E, Phase Z1 (Fig A151)
Reconstruction, Fig 280: This was a small timber-framed building, possibly not fully recovered. A possible doorway in the south-east corner was suggested by a gap in the evidence for a sill-beam, but this seems unlikely since there is less than a 1m gap between Buildings 50 and 51. Given its small size, Building 51 may have been a single-storey structure with a gabled roof. However, if this is only the southern end of a building aligned north to south, then a much more substantial building is possible, with two storeys.

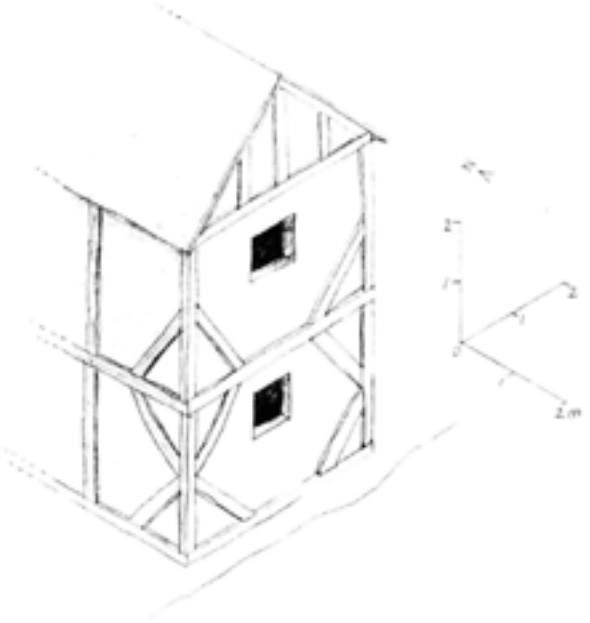


Fig 280 Reconstruction of Building 51

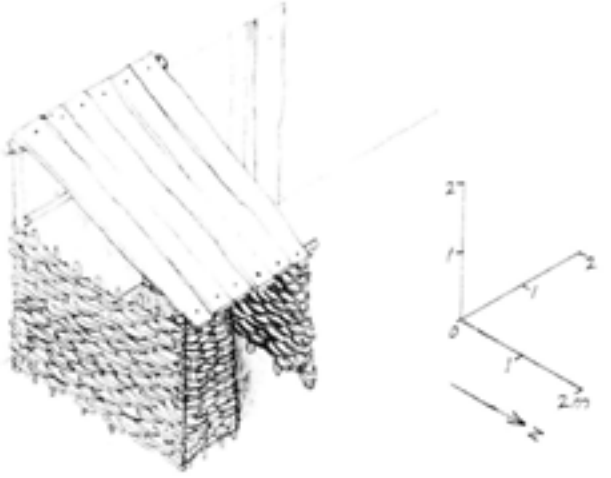


Fig 282 Reconstruction of Building 53

Building 52, South aisle, Site D, Phase Y2 (Fig A85)

Reconstruction, Fig 281: Building 52 was a small timber-framed lean-to, resting on horizontal beams and reusing two of the basilica walls. One doorway was found, in the east wall. Building 28 may have been a renewal of this structure.

Building 53, South aisle, Site D, Phase X (Fig A70)

Reconstruction, Fig 282: This was a problematical building since the evidence is a roughly square mass of stakeholes. It may represent a small structure, built against the south wall of the basilica. If so, the walls were wattle and the floor was a pebble surface reused from the previous phase. A possible doorway existed in the west side of the north wall.

Building 54, South aisle, Site D, Phase X (Fig A71)

Reconstruction, Fig 283: This was a timber-framed building with the north wall resting on a horizontal beam and with the west wall supported by at least two stakes. The west wall may have been open or both it and the north wall may have had wattle panels or been covered in planks. The building was constructed against the south and east walls of the basilica and presumably the doorway in the south-east corner of the basilica remained in use as one doorway. There may have been a second doorway giving access into the basilica either in the north wall, or where a ramp led down from the scarp slope on the west side. The roof could have been either flat or pitched. Within the building was a hearth used for metal-working and a large stone block, possibly used for casting.

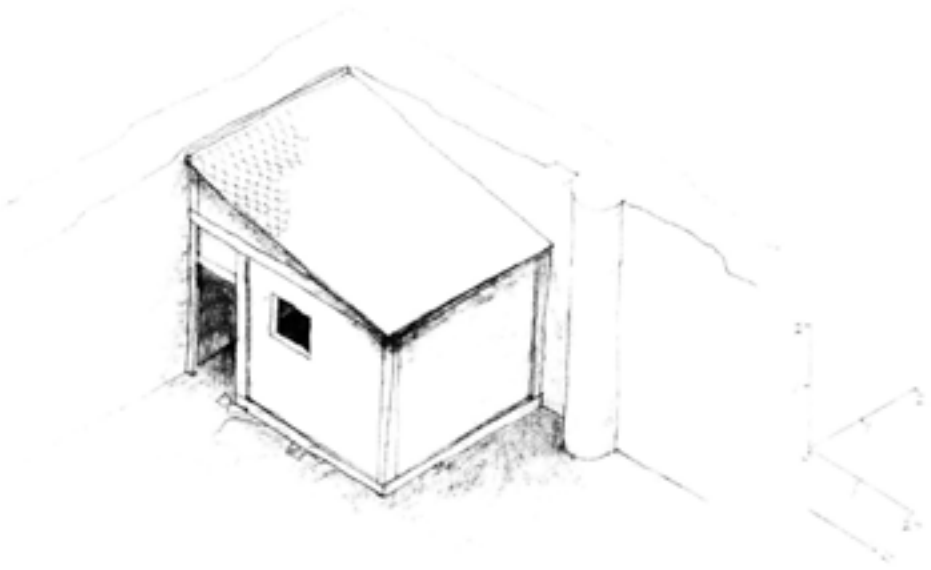


Fig 281 Reconstruction of Building 52



Fig 283 Reconstruction of Building 54

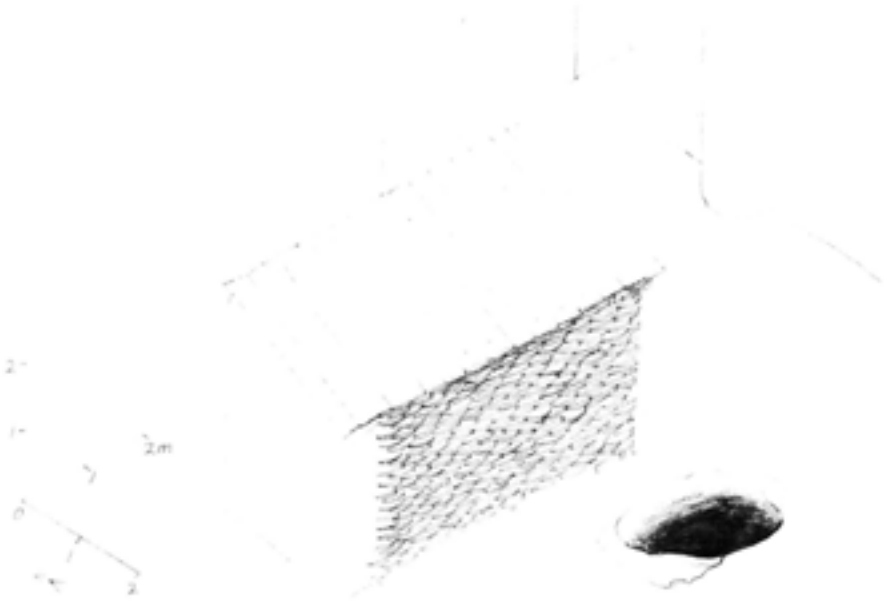


Fig 284 Reconstruction of Building 55

Building 55, Nave, Site D, Phase X (Fig A74)
Reconstruction, Fig 284: Building 55 was an extremely amorphous structure, with a mass of internal stakeholes. It may be reconstructed as a small free-standing building with wattle walls and with a door in its east wall. Presumably the roof was of some light organic material or planking.

Building 56, North aisle, Site D, Phase X (Fig A75)
Reconstruction, Fig 285: This was a substantial wattle building aligned east to west again with many internal stakeholes, and two pairs of postholes, one pair replacing another. The south wall may originally have been of more solid construction as a beam-slot here suggests timber framing. This was replaced by a wattle wall line. The roof would have been relatively lightweight, though the presence of internal posts might suggest supports for rafters which would allow for slightly heavier material, planks perhaps, rather than thatch. Internal partitions were observed but are not clearly understood. There was no evidence for a hearth.

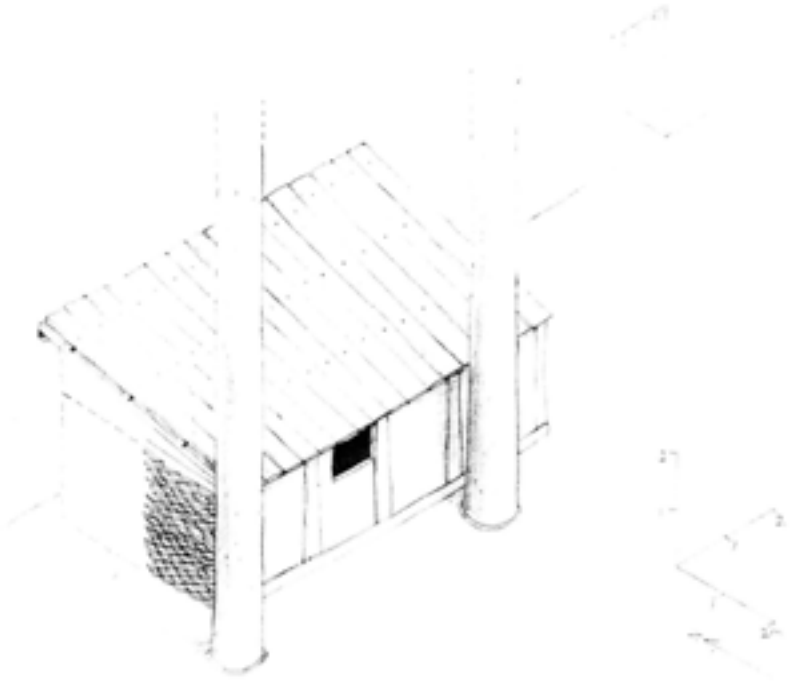


Fig 285 Reconstruction of Building 56

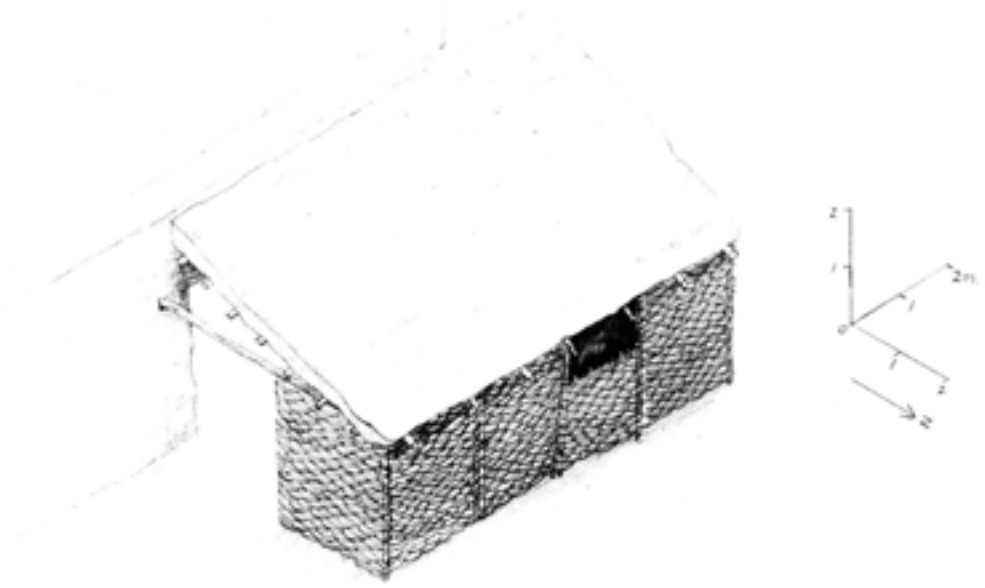


Fig 286 Reconstruction of Building 57

Building 57, North portico, Site C, Phase X (Figs A82 and A83)
Reconstruction, Fig 286: Building 57 was a rectangular wattle structure built against the still-standing precinct wall and was presumably tied in to it. The roof would probably have been thatched and sloping. At least one doorway existed, through the precinct wall, and given the lack of evidence for stakeholes in the south half of the east wall, it is possible that this was also open.

Building 58, North portico, Site C, Phase X (Fig A82)
Reconstruction, Fig 287: Timber-framed, resting on horizontal beams, to the north on 4 surviving stylobates and to the east and west on the portico floor. The walls tied into post-holes at either end of the stylobates and probably into existing putlog holes in the south wall. The floor reused that of the previous phase. The walls were probably of wattle and daub infill and the sloping roof may have been thatched or shingled. Heavy wear on two stylobates suggests a door at the east end of the north wall.

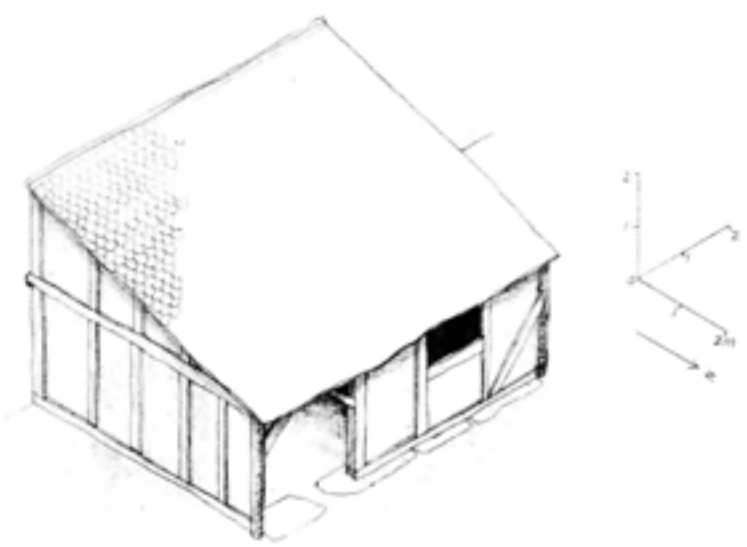


Fig 287 Reconstruction of Building 58

Building 59i, Annexe, Site B, Phase W1 (Fig A61)
An open-fronted lean-to constructed by roofing the north end of the annexe. The flat, sloping roof was supported by a line of earth-fast posts and some internal props.

Building 59ii, Annexe, Site B, Phase W2 (Fig A63)
Reconstruction, Fig 288: A rebuilding of 59i, moving the post-built open front slightly further south. Inside the building were two industrial hearths. The roof would have been flat and sloping. The front wall of the building eventually began to sag outwards, and was shored up by an angled prop.

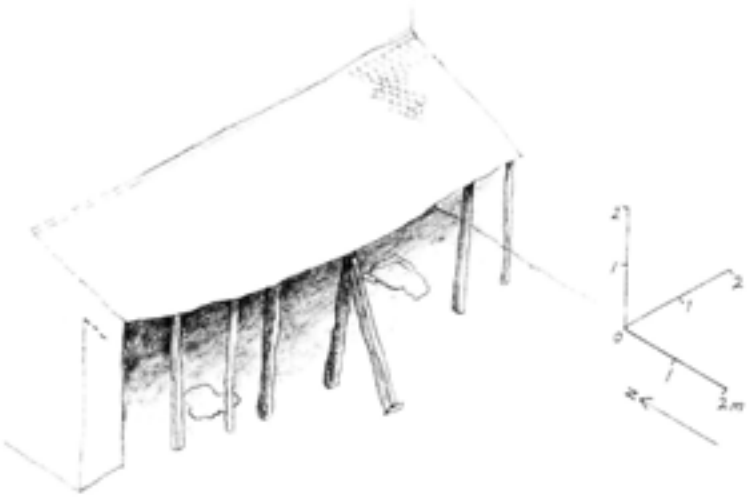


Fig 288 Reconstruction of Building 59ii

Building 60i, Annexe, Site B, Phase W1 (Fig A61)
A simple post-built lean-to roofing the south-east corner of the north room of the annexe. There was no evidence for infill between the posts. Presumably the building had a flat, sloping roof.

Building 60ii, Annexe, Site B, Phase W2 (Fig A63)
Reconstruction, Fig 289: A rebuild of 60i, after the cross-wall of the annexe had been taken down, resulting in a simple post-built building constructed against the east wall of the basilica. There was no walling between the upright posts making the building not much more than a shelter over a hearth and mortar mixing area. Presumably the roof was flat and sloping.



Fig 289 Reconstruction of Building 60ii

Building 61, North aisle, Site D, Phase V (Fig A41)
Not a free-standing structure, but a subdivision of the basilica creating a room at the west end of the north aisle by building a wall from the first free-standing column in the aisle colonnade to the north wall. It may have been open-fronted since no evidence of a wall was found between the west wall of the basilica and the column. A possible door was located in the east wall, though this seems slightly superfluous if the entire front of the room was open.

Building 62, *insula* 2, south frontage, Site C, Phase pre-V (Fig A100)
Impossible to reconstruct as too little survived but the massive clay and cobble dwarf wall suggests a substantial building.

Building 63, West portico, Site D, Phase X (Fig A79)
Reconstruction, Fig 290: This was a large post-built timber-framed structure with a combination of earth-fast posts and posts set in the underlying portico floor. The walls could have been of wattle but timber framing with wattle and daub infill seems more likely given the size of the building. Building 63 can be subdivided by internal wall lines into a large, almost square room on the north side, with an oven, and three narrow rectangular rooms on the south side. There is no definite evidence for doorways. The roof may have sloped westwards from the basilica wall or have been pitched and was probably of wooden shingles.



Fig 290 Reconstruction of Building 63

Building 64, West portico, Site D, Phase X (Fig A78)
Reconstruction, Fig 291: Building 64 was a timber-framed structure, the horizontal beams of which were tied into vertical posts which either rested on stones in the portico floor or were dug into it. The west wall of the basilica formed the east wall of the building. The roof may have sloped down to the west, or may have been pitched.

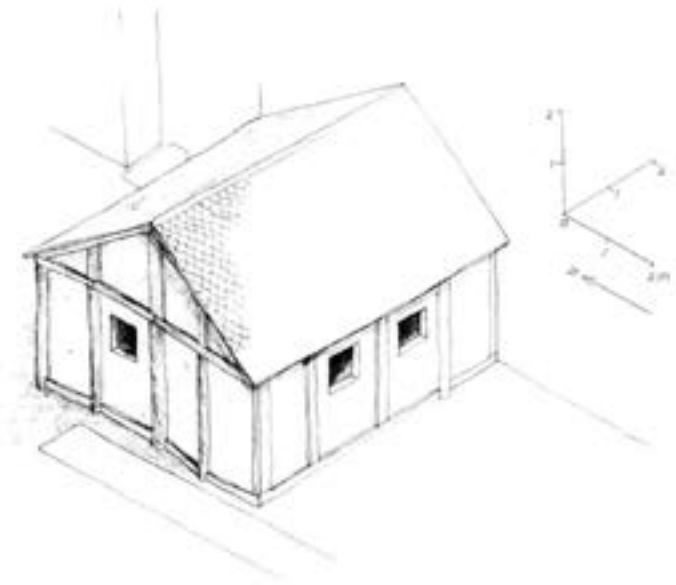


Fig 291 Reconstruction of Building 64

Building 65, Nave, Site D, Phase W2 (Fig A57)
No positive structural evidence other than a squarish clay platform rich in charcoal, so Building 65 was presumably a lightweight building, probably of wattle, which rested upon the ground rather than in it.

Building 66, Nave, Site D, Phase W2 (Fig A57)
Again, no structural evidence other than a charcoal-rich clay platform, so therefore also likely to be a lightweight building, probably of wattle, which rested upon the ground rather than in it. Between the platforms for Buildings 65 and 66 ran a micaceous flagstone and pebble path in a hollow-way.

Building 67, Annexe, Site B, Phase W2 (Fig A63)
Reconstruction, Fig 292: A simple shelter covering a barrel. It had a western wall of wattle, while the other three were post-built and open, as with Buildings 59 and 60 (see above). Presumably, the roof was light, flat, and sloping.

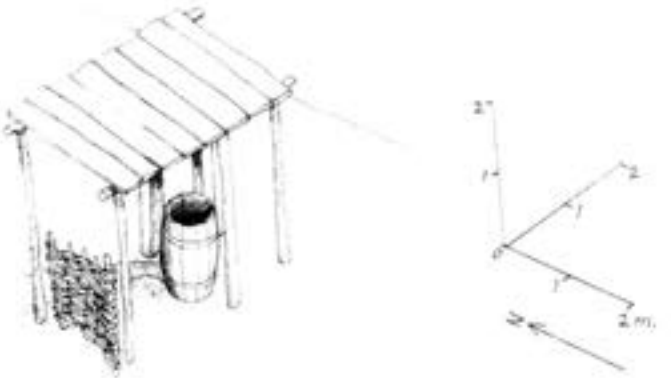


Fig 292 Reconstruction of Building 67

Building 68, Baths precinct, Site B, Phase Z1 (Fig A107)
Reconstruction, Fig 293: Building 68 would have been a simple lean-to structure with its north and east walls being the walls of the baths precinct. The west wall was not properly traced but the arrangement of the south wall suggests a timber-framed structure with a possible doorway area slightly west of centre. The horizontal timbers would have been tenoned into uprights placed on the ground or on post-settings.

Building 69, Annexe, Site B, Phase V (Fig A49)
A square masonry room created in the south-west corner of the south room of the annexe, with a doorway in the north end of the west wall. The beaten earth floor was identical to that in the rest of the south room.

Building 70, Baths precinct, Site B, Phase Z3 (Fig A165)
A dubious building. If the post-pads and possible joist lines do represent a building, it is clear that it would not be a large structure, and the use of post-pads at each corner suggests a shed-like building with its floor suspended above the ground indicating use as a storehouse rather than a dwelling. It must be pointed out, however, that the evidence for a building here was very slight and, on balance, we are inclined to disregard it.

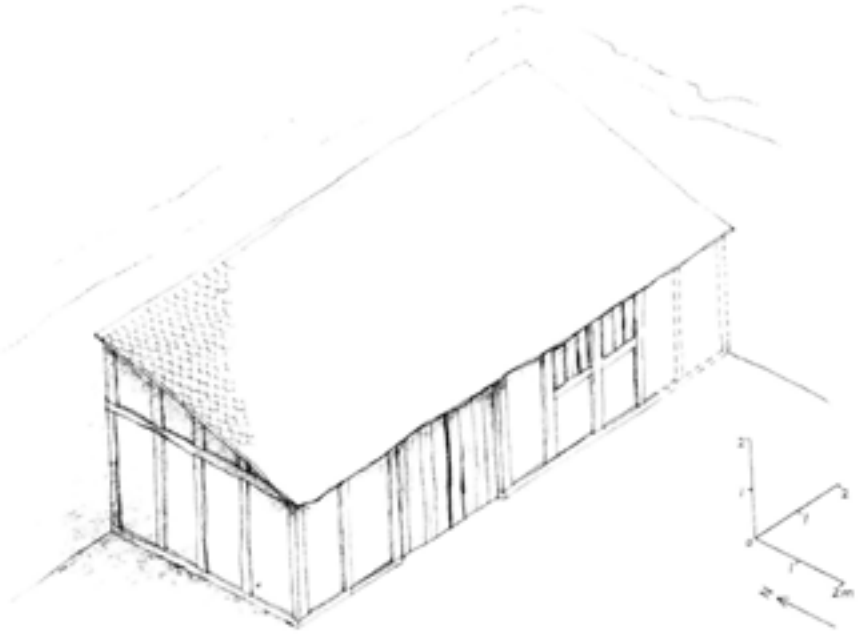


Fig 293 Reconstruction of Building 68

Building 71, Annexe, Site B, Phase S (Fig A38)
A large masonry annexe abutting the east wall of the basilica but nevertheless an integral part of the original building. It was designed with two separate rooms, perhaps changing rooms or ancillary rooms for the baths, but was much altered during the course of its life, with the cross wall being demolished, rebuilt, knocked through, and finally demolished again. Its sloping roof would probably have been covered first with terracotta tiles and then with micaceous flagstone slates and the roof timbers must have been independent of the cross wall.

Building 72, South aisle, Site D, Phase V (Fig A47)
An area of stakeholes, possibly of two phases. No coherent plan for a building is possible.

Building 73, South aisle, Site D, Phase V (Fig A47)
An area of stakeholes, possibly of two phases. No coherent plan for a building is possible.

Building 74, Annexe, Site B, Phase U (Fig A45)
Reconstruction, Fig 294: A small stakehole structure next to a pit and gully system, with a similar, smaller structure on its east side. This might possibly be a very small wattle building, but since it has no entrance and measured scarcely 2m by 1m, it seems more likely to represent some kind of storage bin/bunker.

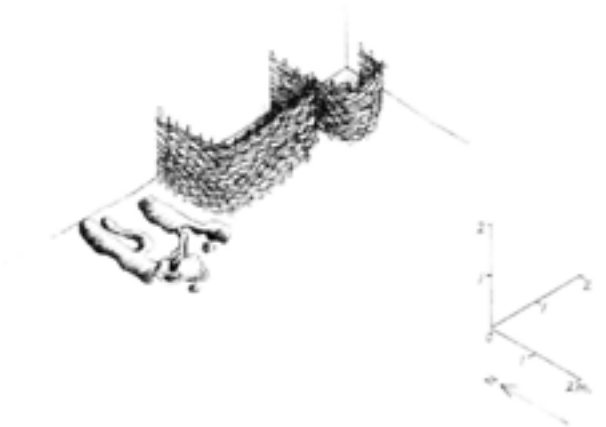


Fig 294 Reconstruction of Building 74

Building 75, Site D, Phase S, (Figs A13, A14, A19–A22, and A24–A37
The baths basilica; *see chapter 4, Phase S.*

6 The finds

Introduction

In over twenty-five years of excavation large quantities of finds were recovered from the baths basilica, some of them doubtless directly related to the buildings described in earlier chapters, others not. The central problem of establishing the degree of relationship between structures and finds, allied to the question of residuality (to which we return below) caused us to adopt a radical approach to the publication of the finds in this volume after working through the material. We decided not to employ a piece-by-piece descriptive approach, not merely because of constraints on space and expenditure (although these were formidable) but because we wished to look beyond the objects themselves to attempt to assess their significance in our interpretation of the context within which they were found: the baths basilica and the buildings that succeeded it. By their very nature most of the finds are rubbish, deliberately discarded, but not deliberately deposited. Others may have been lost inadvertently and that loss no doubt caused irritation, hardship, or grief to their Romano-British owners. In this volume we have used the finds in an attempt to analyse patterns of loss or deposition and to try to understand the baths basilica site itself.

This site-oriented approach was an essential part of our research strategy. We recognise the limitations of this approach in the sense that experts on Romano-British material culture will not be able to use this publication to establish exact parallels, to add to distribution maps, or to discuss provincial or imperial patterns of industry, economy, or fashion.

The finds are all fully assessed, described, and analysed in a Level III archive which has been summarised for this report (*see appendix 1*). However, we have used the data on the finds to illustrate our main thesis, selecting those finds or groups of finds which may throw light on the builders and users of the structures. We have had to accept that many finds, unusual or lovely as some of them are, tell us only about the city as a whole, not its baths basilica, and have thus been excluded.

The finds were recovered in the normal processes of excavation, by hand, by individual diggers observing and recording their finds either *in situ* or from the sieve. Narrow gauge sieves were used from 1970 onwards, under the influence of Sebastian Payne, who was then conducting small-scale experiments on the question of differential recovery based on the variation in perception between individuals. It is worth noting that our own observation of our diggers, as they worked systematically across a fairly homogeneous layer in which finds were evenly distributed, was that some people see and recover more finds both from the ground and from the sieve. This talent may be linked to concentration on the task in hand and to a previous training in noting detail but not necessarily to previous archaeological experience. At a later stage many contexts were wet-sieved, with an increase in the number of very small items recovered, including friable potsherds, very small coins, and beads. Stephen Pierpoint's commentary on the importance of wet-sieving for the recovery of some classes of pottery is included in the archive report on the pottery.

Overall there are some 100,000 sherds of pottery, about the same number of animal bones, 66 square metres of wall plaster, 10,000 pieces of vessel and window glass, and a further 12,000 small finds, not to mention quantities of environmental material, tiles, nails, and building stone. In all cases, except that of the animal bone, each piece has been separately considered, described, and assessed. The enormous quantity of animal bone, coupled with the need for speed of publication, has precluded the consideration of much of the bone from the basilican area, a fact which we regret and hope can be remedied in future. Almost everything found in these excavations has been brought to the site by human agency in the past and is thus deserving of explanation if possible. However we recognise that only a very small proportion of the finds can be explained by present-day commentators.

Residuality is a major factor in any multi-period site and Romano-British towns exemplify this problem. Over three hundred years of occupation and use, extended to nearly six hundred in the case of central Wroxeter, have produced deep stratification, disturbed by later activity, both Roman and more recent. In our own excavations we never reached these earliest layers, lying sealed beneath the baths basilica floor, although we glimpsed them in earlier archaeological trenches, themselves evidence of disturbance and disconcertingly stuffed with Roman finds in their backfill. In the later layers the mixture and accretion of objects of widely divergent dates demonstrates the upward movement of earlier material by on-site activity, a process clearly seen in the baths precinct area, where first and second-century material, derived from deep pits, lies on the fourth-century surface of a cobbled yard. This sort of disturbance and deposit is easy to spot: it is earlier than the surface on which it lies and belongs to another period but, even so, it may belong to another place for it may itself derive from dump material brought in from elsewhere in the city. Inter-site activity is demonstrated by the occurrence of huge dumps of material, imported to the baths basilica site for the purpose of constructing building platforms, such as that of Building 10, or for the filling of local subsidence as in the north portico. The nature of the dump deposits will be discussed below, for they are of considerable interest. Nevertheless the finds from these deposits are residual on the baths basilica site and that residuality is demonstrated by the contexts in which they are found.

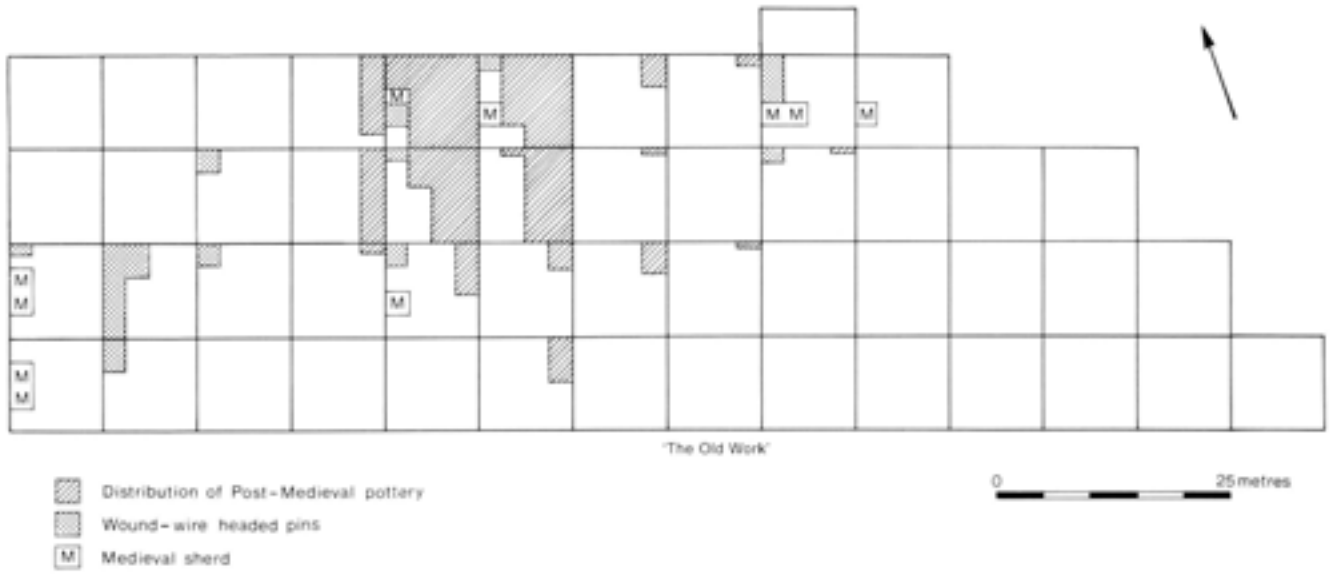


Fig 295 Distribution of post-Roman finds on the baths basilica site

They were clearly imported to their present position from elsewhere in the city. In his discussion of the pottery (*see appendix 4*), Robin Symonds draws attention to 'a veritable porridge of pottery sherds' and notes the rarity of such a situation where almost the whole site is redeposited material.

In contexts which are less visibly the product of importation, residuality might be established through stratigraphy but this raises a problem in distinguishing residual objects from old material which is still in use. The normal view of typology and the date-range of individual objects, explored by Sir David Wilson in relation to Almgren's work on Viking keys (Wilson 1959) and recently questioned most interestingly by Chris Going with special relation to Roman Britain (Going 1992), suggests that many objects may have a date-range, from manufacture through use to final deposition, of a couple of centuries. This range may be extended in sites which are on the margins of a centralised economy, like Wroxeter, or in periods when new types were not being produced so that conservatism and conservation must be taken into account. The latter is particularly true of Wroxeter in its latest phases. Residuality at Wroxeter then may be inferred by the presence of an early object in a late phase but cannot be assumed. We will return to the problems of chronology later in this chapter.

Another problem in distinguishing the residual object from the object in use is the physical difficulty of demonstrating association in the true archaeological sense. At Wroxeter we are fortunate in having no structures later than the seventh century but, as a consequence, there is no *terminus ante quem*. The material culture of the latest phases of the site, Phases Z and post-Z, lies on the surfaces of those phases and cannot be distinguished from the material at the bottom of the topsoil above. In places the depth of overburden was over a metre thick, particularly where a lynchet had developed running north to south from the end of the Old Work. In other places the plough actually touched the surface of the rubble layers, creating marks on the portal stones of Buildings 10 and 22, and dragging cobbles onto the surface of the gravel street. Using the evidence of manuring (see below) we suggest that only part of the site was extensively ploughed and then probably only for about a century, up to the start of intensive archaeological work in the middle of the last century. Lateral displacement of Roman material may be expected as a result of plough action but the dragged cobbles suggest that material did not move laterally more than a metre. There is an astonishing number of finds in this upper stratum (about 16,200, not including wall plaster and animal bone), some of which must have been derived from Phase Z dumps, with others belonging to the latest users of Phase Z structures. They cannot now be closely associated with the levels below, but nor can they have been imported from elsewhere after the site was abandoned.

This upper layer, layer I/II, contains a small quantity of much later material, witness to the use of the site in the post-Roman period. There is a spread of post-medieval pottery, dating from the mid-eighteenth to the mid-nineteenth centuries, which shows some limited manuring of the centre of the site and possibly delimits a field boundary of this period (Fig 295). There are also seventeen medieval sherds and a piece of painted window glass whose distribution overlaps with, but does not match that of the later pottery suggesting a different reason for their deposition. Kathleen Kenyon found a complete medieval pipkin in her excavations (Kenyon 1940, 221) but the amount of medieval material from the twelfth to the fifteenth centuries suggests casual loss from the nearby village and the use of the site as pasture. The lack of evidence for root holes further suggests that the site was never badly overgrown by trees from the Roman period onwards, which adds to the problems of understanding its use in the post-Roman period.

The lack of a chronological horizon between the post-medieval pottery and the latest Roman finds brings into question the date of a class of object, previously found on some other Roman sites, but generally considered medieval or later. These are small bronze dress pins, resembling modern dress-making pins in size and shape, which are conventionally assigned to the sixteenth to eighteenth centuries although they appear from the twelfth century onwards. They fall into the class of wound-wire headed pins discussed in a paper by Caple and Warren who comment *inter alia* on the obscurity of their ancestry (Caple and Warren 1982). Wroxeter has produced 57 of these pins, 30 of them from Layer I/II where they might arguably be post-Roman in date (Fig 296). Six more are from archaeological trenches, the rest from dumps or robber trenches. One unusually large example is in silver and has parallels at Gadebridge Park and Jewry Wall, Leicester (Neal 1974, fig 64, no 215; Kenyon 1948, fig 89, no 8). Others have parallels at Canterbury Defences, St George's Street Canterbury, Canterbury Castle, Nettleton, Rudston Villa, and South Shields (Frere, Stow, and Bennett 1982, fig 60, no 16; Frere and Stow 1983, fig 61, no 2; Bennett, Frere, and Stow 1983, fig 89, no 30; Wedlake 1982, fig 93, no 4; Stead 1980; Allason-Jones and Miket 1984, 3, 342–4, 512, 522, and 534). Excavators at these sites have been reluctant to claim these pins as late Roman although their frequency may perhaps suggest that there is some evidence for suspecting that their origin lies in the late fourth century or even slightly later. At Wroxeter they would fit comfortably into a late fourth-century context but their small size could have permitted them to travel downward from the topsoil to be relocated in the topmost Roman layers. Given the paucity of other post-Roman material it is their frequency which is of note and they are mentioned here as an example of the difficulty of establishing either dates or direct associations for material in the layer above the last surviving Roman structures.

Since these structures take the form of rubble platforms, worn paths, and cobbled and gravelled yards and streets, there is a mechanical problem in ascertaining direct association of finds with structures. Close observation of any rough pavement, farm yard, or pathway in use today shows that, unless such a surface is meticulously cleaned or swept, small artefacts lodge in the dusty or muddy crevices of the surface. They are difficult to distinguish from other similar artefacts incorporated into the aggregate that makes up the surface itself. In the process of archaeological 'cleaning' of rubble (which inevitably cleans more effectively than any contemporary Roman clearance), a process takes place which removes small finds loosely embedded in the aggregate along with finds lying on or just above the surface. In this way a distinction between 'on' and 'in' the surface is hard to maintain. In the uppermost levels finds from Layer I/II are both those from the interstices of the rubble, itself filled with black soil, and finds which were dropped onto it and nestle in the same black soil. In the lower layers the finds lying within a beaten earth floor may have once lain on it or indeed are lying on the surface of the next floor below. Where these floors are only millimetres thick this issue is too nice to judge but the caveat is that very few finds at Wroxeter can be shown to have been dropped or lost *in situ* and to have remained undisturbed. This, coupled with the difficulties of typological determination mentioned above, suggests that little weight can be placed on the provenance of any single find. Instead we must look for patterning in finds distribution if the finds are to say anything about the structures.

There is only one artefact whose late origins and provenance are not in doubt and which, on its own, provides both a date and a context in its own right. This is a small gilt-bronze strap-end (Fig 297) found in the backfill of the robber trench of the south aisle colonnade of the baths basilica.

Sir David Wilson has described the strap-end as: 'a classic English strap-end of the ninth century. Its most useful parallel is an example from the Sevington, Wilts., hoard which is dated by the coins deposited with it to *c* 850 (Wilson 1964, 71 and 96). The position of the animal and the nicks in its contour are strikingly similar on both objects. The only unusual feature of the animal on the Wroxeter strap end is the splayed rear legs; this normally occurs only on Anglo-Carolingian metalwork (Haseloff 1951).'

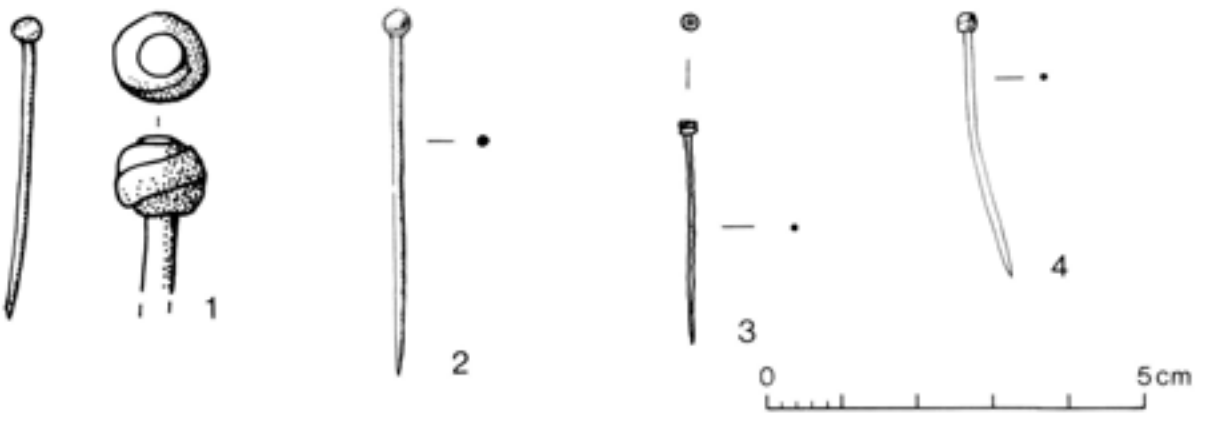


Fig 296 Wound-wire headed pins, all copper-alloy (scale 1:1, except no 1 detail of head)

The loss of this ninth-century object provides a *terminus post quem* for the robbing of some of the stylobates themselves (the columns were presumably long gone). The date and style of ornament lead us to speculate that the stones may have been needed for the construction or reconstruction of Wroxeter Minster church in the south-west corner of the town and some 800 yards from the findspot. A standing cross in the churchyard, whose stones are now incorporated into the fabric of the building itself, dates to the mid-ninth-century and may represent a period of substantial activity at the minster where large Roman stones are built into the nave wall (Moffett 1989). The coincidence in date between the strap end and the cross shaft gives weight to the theory that the stone robbing was connected to the building of St Andrew's Church, as well as the churches at Atcham and Upton Magna, but other uses for the robbed stone are discussed in Appendix 2.



Fig 297 Anglo-Saxon strap-end, gilt copper-alloy (scale: drawing 1:1; detail 2:1; photo 2:1)

The dumps

Detailed analysis of a number of large construction dumps has provided some general information about the source of the dump material. We have assumed that this material derives in part from rubbish which accumulated elsewhere in the city. This raises the question of the nature of waste disposal within Roman towns. It is conventionally assumed that rubbish collection, including night soil, was a municipal activity, maintained by the *ordo*. Private and public structures, which were also served by the main sewers, presumably accumulated household material, in particular kitchen waste, in fairly large quantities. There is little evidence in this part of Wroxeter for the use of backyard rubbish pits and middens as seen at Silchester (Boon 1974, 90), so we must assume effective collection of discarded household matter, perhaps by the accumulation and periodic removal of midden deposits. The use of middens is a well-attested British habit, but it is worth noting that we have not observed any contemporary midden deposits on the later levels of the baths basilica site (we were unlikely to miss these given the intensity of excavation), and indeed the only possible evidence for contemporary, that is, fifth-century or later, rubbish disposal is the bone-filled, but aceramic, pit (A23) dug into the north to south road surface on Site A (Fig A171).

We have suggested (*chapter 4*, Phase Y, south aisle) that some of the material dumped on the baths basilica site was newly deposited and covered with rubble, earth, and midden deposits collected elsewhere. This is based on the recovery of whole ox skulls and articulated bones at the base of some dumps, suggesting that the output of a slaughterhouse was covered with less noisome rubbish (*see appendix 8*). The lack of analysis of much of the animal bone prevents us from being too specific about the nature of this bone waste. However, an analysis of the fish bones from the whole site shows that both freshwater and marine fish vertebrae and scales were present in some quantity (*see appendix 9*), suggesting that these too had been recently deposited, either on the baths basilica site, or in nearby middens, and redeposited before they had time to get broken up or rotted away.

Many of the dumps have their own distinctive components which are not shared by other dumps. One period of securely-dated dumping of earlier material is in Phase W. If we assume that each dump in this phase is derived from a single source elsewhere in the city (and this is a big assumption), then the study of these distinctive components may allow us to speculate on the origins of these dumps and the kinds of institutions or establishments which created them. This can be done by simple functional analysis, noting the nature of the artefacts within the dumps

Table 9 Finds from C527 and D1569 by function

	% of whole assemblage	*% of pottery from dump*	*% of whole assemblage*	*% of pottery from dump*
a) pottery	*C527*		*D1569*	
coarse wares	60.9	65.8	44.9	79.7
fine wares	14.7	15.8	8.1	14.4
storage (cooking)	11.4	12.3	1.9	3.3
samian	5.6	6.0	1.4	2.5
total	92.6	99.9	56.3	99.9

b) other finds	*C527*	*D1569*
vessel glass	21.8%	18.0%
window glass	19.5	6.7
personal jewellery & toilet implements	12.8	48.5*
tools and weapons	0.8	0.3
business and coins	9.0	8.5
industrial	6.0	0.3
building and furniture	5.3	2.9
leisure	9.0	0.3
other	15.7	14.5
total	99.9	100.0
	(133 finds)	(373 finds)

**(including 142 beads)*

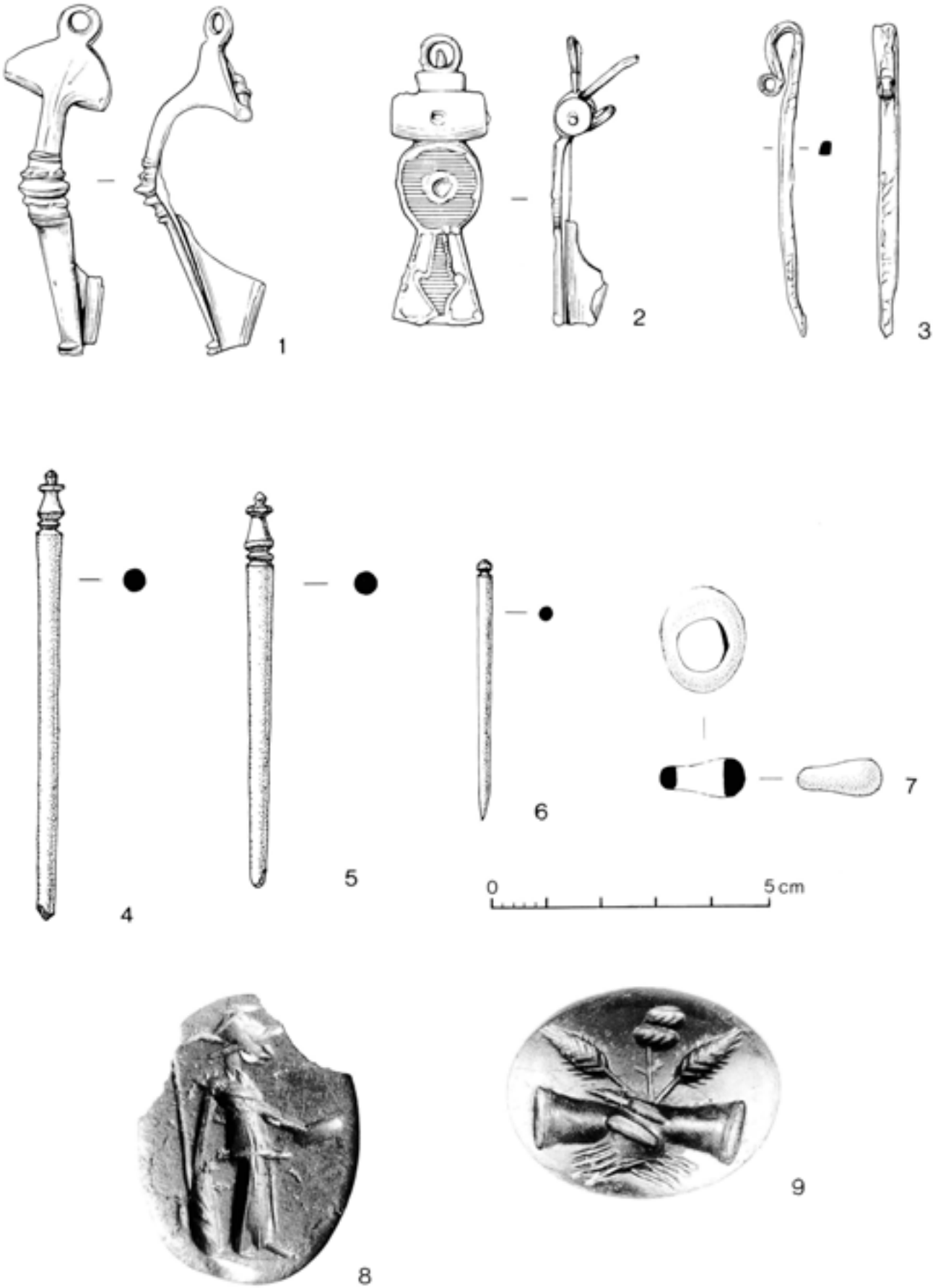


Fig 298 Objects from dump C527, nos 1–3 copper-alloy brooches and penannular brooch pin, nos 4–6 bone pins, no 7 glass bead, nos 8 and 9 cornelian intaglios (scale 1:1, except no 7, 2:1; nos 8 and 9, 4:1)

and comparing them with other deposits. At the same time a chronological analysis can be used to try to differentiate the periods of original collection despite the fact that the dumps compared were redeposited at the same time in the late-fourth to fifth-century Phase W on the baths basilica site.

Space precludes the publication of a detailed analysis of all Phase W dumps, but a comparison of two floor-foundation dumps (C527 in the north portico and D1569 in the nave) serves to illustrate the method and the sort of conclusions that may be drawn. Both dumps were about the same size in terms of volume

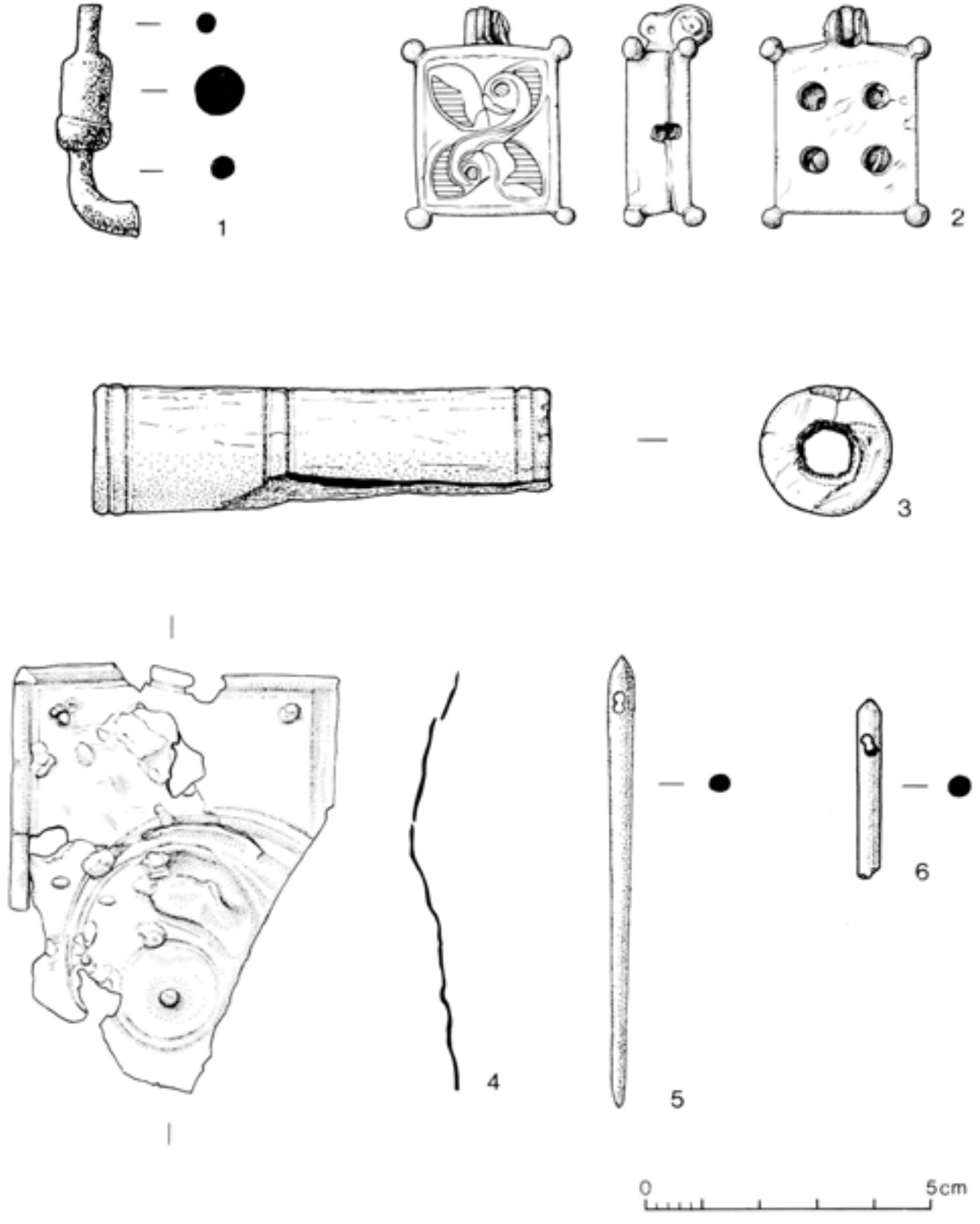


Fig 299 Objects from dump C527, no 1 copper-alloy handle fragment, no 2 seal box, no 3 bone handle, no 4, casket fitting, nos 5 and 6 bone needles (scale 1:1)

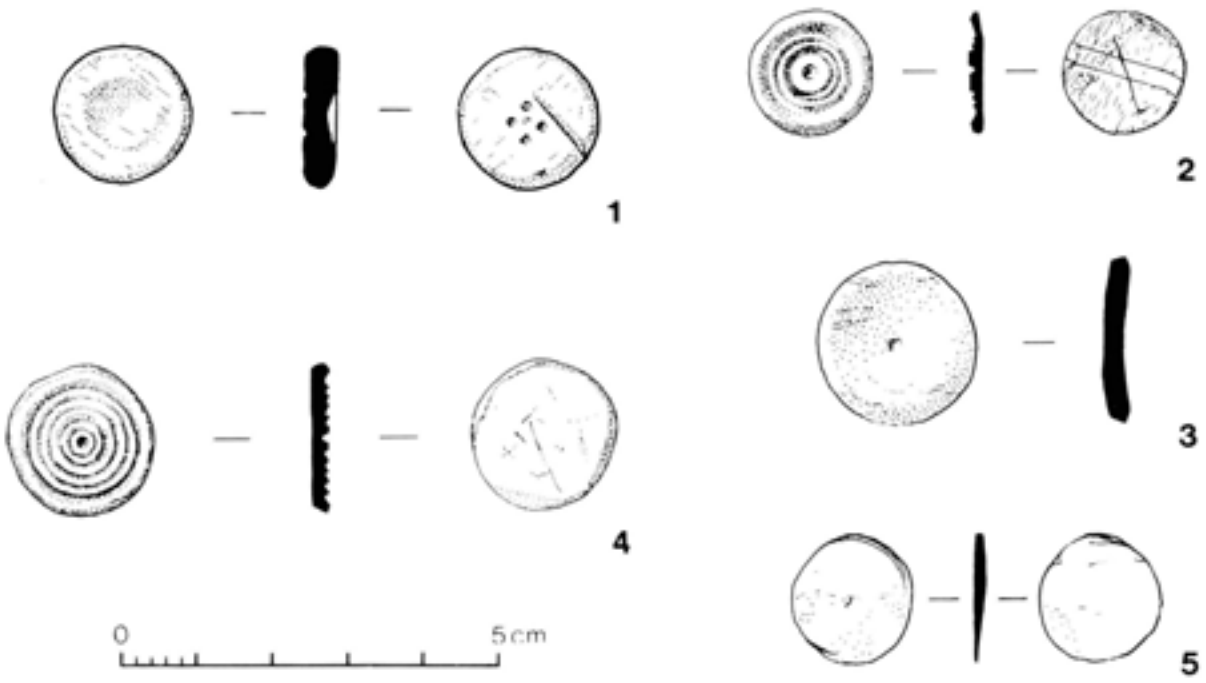


Fig 300 Bone counters from dump C527 (scale 1:1)

and both were deposited in the late-fourth century. The actual number of artefacts in C527 is more than twice that of D1569 (1793 compared to 852), but 92.6% of that number is made up of pottery compared with 56.3% in D1569. Table 9 shows the breakdown of the material by function. In addition C527 contained enough wall plaster to cover an area 8.16 by 8.34m, much of it still in large, freshly broken pieces. D1569 contained 11.07 by 10.085m of plaster in smaller pieces but much more varied colours.

This table cannot do more than quantify differences, showing for instance the enormous quantity of beads included in the jewellery in D1569 and the effect they have on the overall percentages of finds in that dump. It is when we move to a qualitative analysis that the real differences appear. C527 contains the remains of four brooches, three in bronze (Fig 298, nos 1–3) and one in iron, but little other jewellery except for six bone pins (Fig 298, nos 4–6), a shale bracelet, and three beads, one glass (Fig 298, no 7),and two jet. Two *intaglios* (Fig 298, nos 8 and 9) indicate losses from two finger-rings, and a link between this personal jewellery and the process of letter writing is augmented by the complete seal-box (Fig 299, no 2) and the remains of two iron *styli*. There are four bone needles (Fig 299, nos 5 and 6) suggesting sewing, and part of a simple lamp. There is little evidence for furniture other than an iron key, but a nail, a cleat, a T-clamp, and a joiner's dog, connected with timber structures, together with a small amount of window glass and part of a ceramic chimney, may tenuously infer the nature of contemporary buildings. Seven counters infer gaming, five of bone (Fig 300) and two ceramic. Apart from bone pins or needle shafts there is little else in this deposit to which a function can be attributed. In comparison with the later dumps of Phase Z there are very few coins, suggesting a period in which earlier coinage might still have had some use as currency so that coins were not in household rubbish. The large, freshly-broken pieces of wall plaster may have been added to provide extra substance to the dump.

An odd feature is the presence of six fragments of human bone including teeth, a metapodial, and a tibia. Human bones, other than the skulls discussed in Appendix 10, were found scattered both in dumps and on contemporary late fourth to sixth-century surfaces. We have recovered a total of seven baby burials from the site as a whole, mostly tucked in beside walls or interred in the building debris of the annexe, and the adult burial which marks the site's *terminus ante quem*. We would expect other burials to have been extra-mural and the bones to have been decently buried and not included in midden material. Clearly, ritual interpretations cannot be ruled out, especially for the infant burials which are paralleled elsewhere in Roman Britain (Scott 1991). Table 15, shows all human bone finds (see below). C527, like some other dumps, may point to a grisly, perhaps criminal episode in the history of the original deposit. These scattered human bones may be the survivors of obscure practices, and like the single Barbary Ape finger bone, probably from a pet, found in the gravel street, they pose more questions than they answer.

D1569, on the other hand, has much more material which is pure rubbish. There is a much larger amount of vessel glass, some 64 body sherds as compared with 18 in C527. There are considerable numbers of unattributable pieces of metal: fragments of sheet bronze, bronze rods, shafts, and discs, together with strips and bars of iron. Both dumps contain waste lead but there is four times as much by weight in D1569.

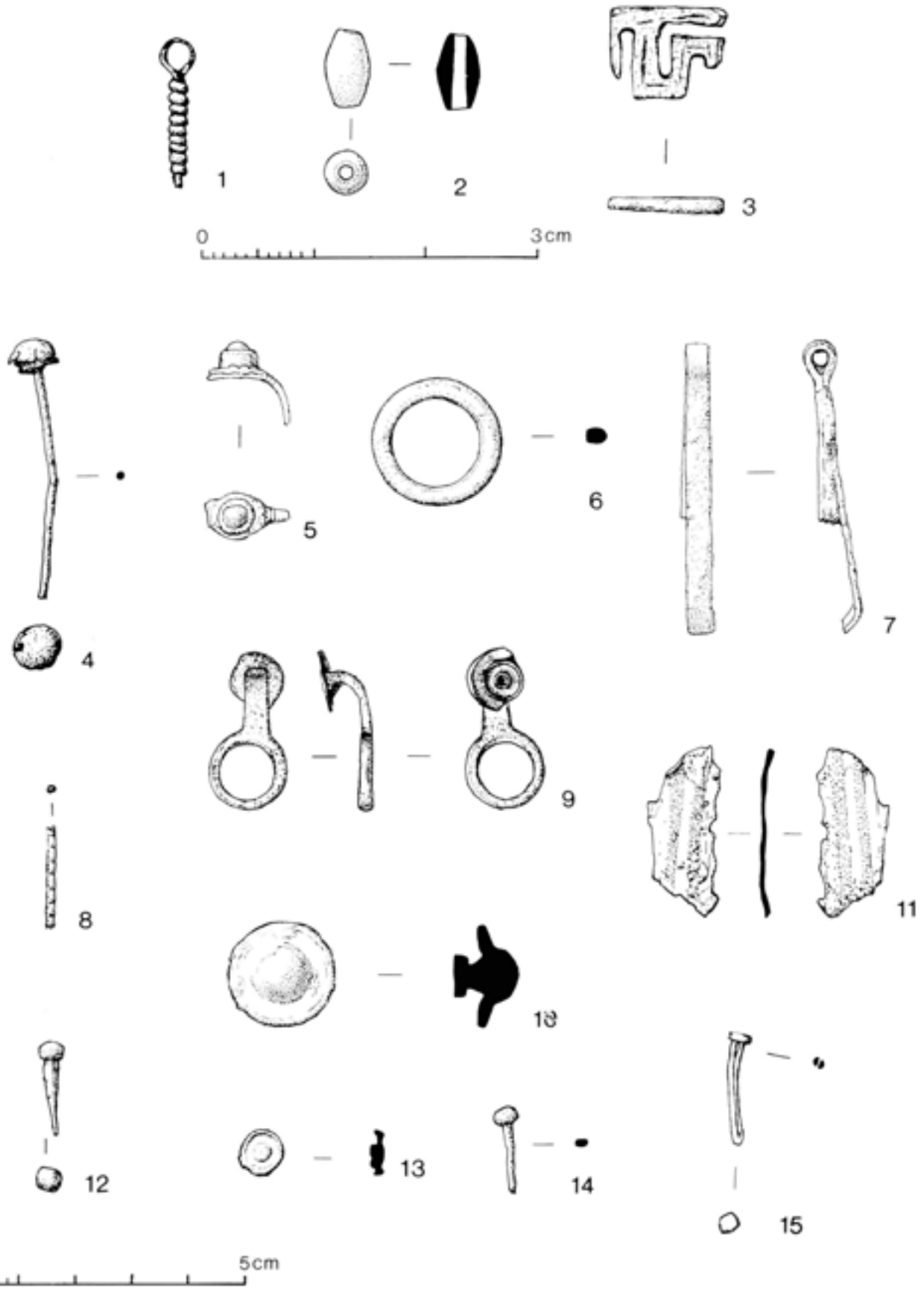


Fig 301 Objects from dump D1569, no 1 necklace fastening, no 2 glass bead, no 3 ward from key-ring, no 4 stud, no 5 finger-ring, no 6 jet bead, no 7 tweezers, no 8 lace-tag, no 9 button-and-loop attachment, no 10 stud, no 11 fragment, nos 12–15 stud-heads and rivets, all copper-alloy except 2 and 6 (scale 1:1)

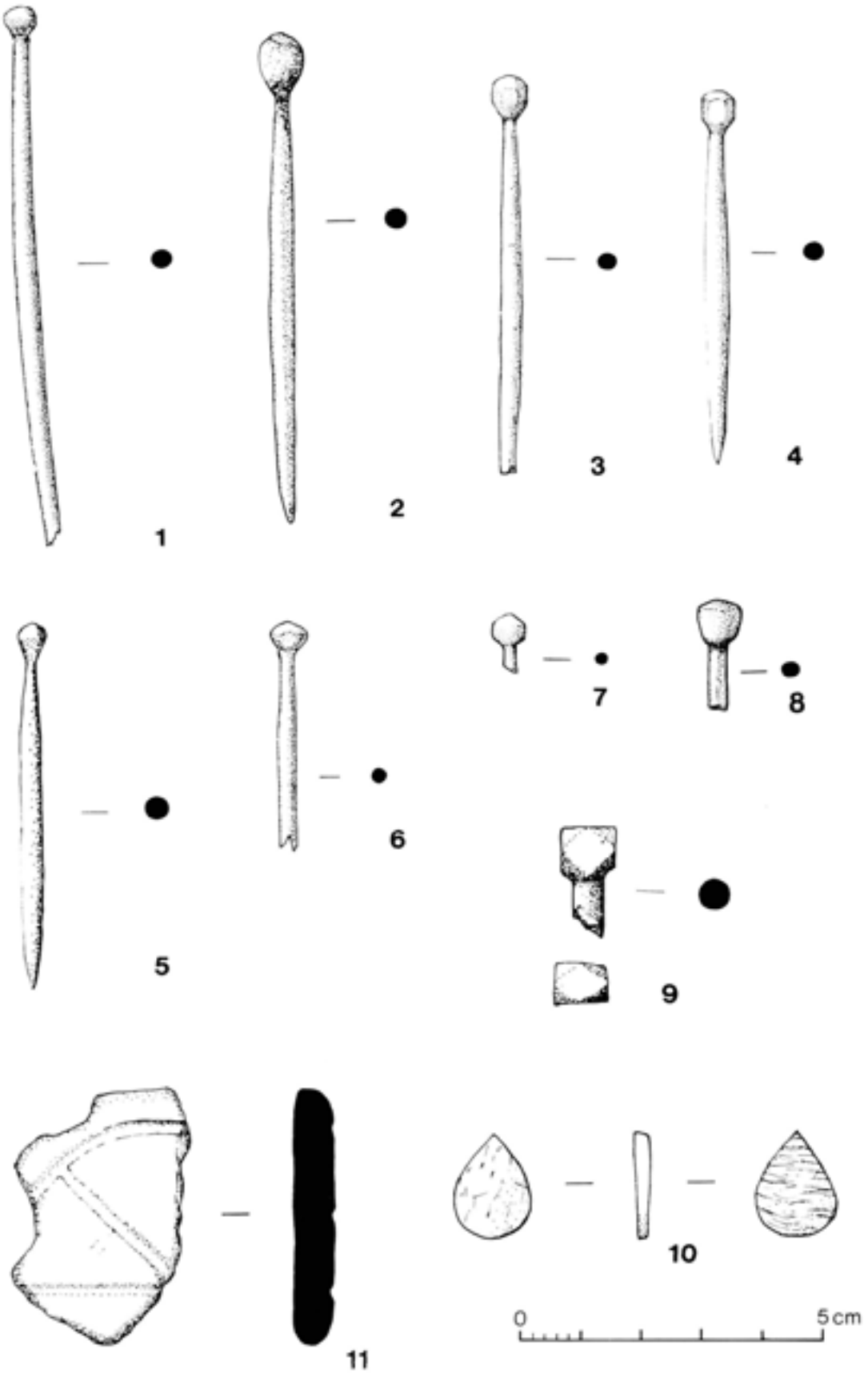


Fig 302 Objects from dump D1569, nos 1–8 bone pins, no 9 jet pin, no 10 bone counter, no 11 incised micaceous flagstone disc (scale 1:1)

Setting aside the 142 beads of jet and glass, there is also more personal jewellery, including a bronze brooch spring, the remains of a first-century button-loop (Fig 301, no 9), part of a necklace terminal (Fig 301, no 1), 4 boot-lace tags (Fig 301, no 8), 11 bone and 6 jet hair-pins (Fig 302, nos 1–9), together with the remains of 8 shale bracelets. The shafts of 23 more bone pins or needles enhance this impression. Personal toilet effects include part of a mirror and a pair of tweezers (Fig 301, no 7). The two finger-rings are not seal-rings and there are no *styli* or seal-boxes to suggest writing. The large number of beads probably derive from more than one necklace; the glass beads include Guido's Groups 6 and 7 and types 1A, 1B, 2A, 2B, 3, 6A, 6B, 7, 8, and 13 (Guido 1978). The jet beads are even more diverse: they represent most of the 13 types established at Wroxeter (*see appendix 1*), but about half are laterally-bored cylinder beads which belong to a single string. Beads with double transverse holes also appear which are probably part of composite necklaces. The large numbers of jet beads found at D1569 at one time gave rise to speculation that the dump emanated from a workshop, but the lack of manufacturing material or unfinished beads, coupled with the quantities of glass beads, bone and jet hair-pins, and shale bracelets implies some other explanation. The reinterpretation of the 32 coins found in this dump as part of a hoard (*see appendix 3*) could suggest a cache of cheap jewellery. Alternatively we might even be looking at the residue of a house of ill-repute. In D1569, as in C527, tools, weapons, and cooking equipment are noticeably absent, though here too there is a small amount of evidence for timber buildings and their fittings.

The detailed analysis reveals that the differences between the two dumps are probably as much due to their date of accumulation as to their function or source of origin. C527 is, on the whole, an earlier deposit. While both dumps contain a little fourth century material, notably the coins of Constantine I and Crispus in C527, and coins of Constantius I and II, and fragments of two fourth-century glass beakers in D1569, much of the material is second or third century or even earlier. C527 contains two second-century coins and remains of three first-century glass vessels as well as second-century brooches. The pottery is almost exclusively earlier than the fourth century, with a higher proportion of Samian ware (18.3%), while the bone pins are all of Greep's Type A (Greep 1983). In comparison D1569 has bone pins only of Greep's Type B and there is only 5.8% samian and white wares, while the presence of Oxford wares confirms a later date. The absence of brooches and seal-rings confirms that D1569 was accumulated later than C527. Overall the close analysis of the Wroxeter dumps does add something to our understanding of how the site was built up. In addition, we or others can comment elsewhere on the nature of the material reaching Wroxeter. It demonstrates that the residual material has some value in interpretation, but only in aggregate, not in particular.

Category A contexts

As part of our analysis of the depositional history of the baths basilica we have been able to demonstrate that a number of strata were newly deposited so that finds associated with these strata were more likely to have been in use or newly mislaid. These we have called Category A contexts (*see appendix 11*). We would stress again the problems of association between find and stratum outlined above. In our discussion of the depositional history of the site (*see chapter 4*), we have set out the reasons for asserting that many of these strata were deposited in or after the fifth century and that some finds associated with them were in use in these centuries. Given the difficulty of assigning Romano-British artefact types to the fifth century and later because of the breakdown of coin-dated type series, the artefacts associated with these deposits from Wroxeter will be of the greatest possible interest to Romano-British studies.

There are 435 Category A contexts at Wroxeter. They are differentially distributed across the site by area and by phase as set out in Table 10 which shows the number of finds (other than wall plaster and animal bone) in each area and the number of Category A contexts from which they are derived. Table 10 shows that the highest numbers of finds per context are in the annexe, the baths precinct, the south frontage of *insula* 2, and in the north portico. On the other hand, when looked at by phase, it can be seen that despite the large numbers of contexts of Phase W in the basilica, the greatest number of finds per context by phase are in Phase Y, Phase pre-Z in the north portico, and in Phase Z itself. In addition the finds from Layer I/II are only slightly fewer than those from all other Category A layers combined, 16,196 compared to 16,605. These are the finds which may relate most closely to the latest structures on the baths basilica site.

By looking at the Category A finds in aggregate it is possible to discern patterns in the disposition of the finds both functionally and chronologically. Moreover, since we are dealing with a Romano-British city on the edge of the British civilian zone at the end of the Roman occupation, it is worth looking for evidence of ethnicity, for evidence of people who used non-Romano-British objects or for practices which are unusual in a conventional late Roman context.

All the material from Category A contexts have been analysed by function and divided as follows:

Personal equipment: including jewellery, brooches, finger-rings, toilet-implements, and other personal effects

Tools and weapons: including horse harness, military equipment and armour, knives and tool handles, and whetstones

Business equipment: including *styli*, sealboxes, coins, weights and scales

Table 10 Number of finds by context, area, and phase

Number of Category A contexts by phase	*S*	*T*	*U*	*V*	*W*	*X*	*Y*	*pre-Z*	*Z*	*a*	*b*	*c*
Area												
insula 5	-	-	-	-	-	-	6	-	1	7	48	6.9
annexe	-	-	3	4	8	-	2	-	1	18	1131	62.8
baths precinct	-	-	-	-	-	6	-	-	10	16	935	58.4
insula 2	-	-	-	1	5	-	3	-	7	16	1174	73.4
gravel street	2	-	-	-	-	1	-	-	5	8	222	27.8
nave	-	3	2	9	156	4	11	-	11	196	7823	39.9
north aisle	-	-	6	4	30	2	11	-	2	55	977	17.8
north portico	1	-	-	-	20	1	5	5	7	39	2497	64.0
south aisle	-	1	2	11	30	2	10	-	9	65	1646	25.3
west portico	-	-	-	-	9	-	1	-	5	15	152	10.1
total contexts/phase	3	4	13	29	256	16	49	5	58	435	-	-
total finds/phase	145	4	145	1017	3496	634	3107	648	7409	-	16,605	-
average finds/ context/phase	48.3	1	11.2	35.1	13.6	39.6	63.4	129.6	127.7	-	-	-

a number of Category A contexts by area
b total number of finds by area
c average number of finds per context in each area

The average number of finds per context by phase is 38.2, and the average number of finds per context by area is 36.6. Phase X, Phase Y, Phase pre-Z, and Phase Z are above the average, as are the annexe, baths precinct, insula 2, and north portico.

Domestic equipment: with pottery divided between coarse wares, fine wares, storage and cooking vessels, and Samian, picking out repaired and reused pottery; glassware divided into drinking vessels, tableware, and containers; eating implements other than knives; lamps and querns

Industrial material: including textile manufacturing and sewing implements; crucibles, and waste material in bone, glass, shale, and metal

Furniture and building materials: including nails, studs and tacks, inlay, locks and keys, window glass, chimneys, lead flashing and waste lead, and the cleats, hooks, hinges, and other ironwork which are the residue of timber buildings

Leisure and religious materials: and other recognisable categories, including counters, statuettes, plaster 'eyes', and human bone.

This type of analysis is a response to the difficulty of adopting an inductive approach to the structures at Wroxeter. Basilicas have a multiplicity of uses and we might expect to find artefacts associated with leisure and commerce from the period when the baths were still in use and their basilica was appropriately utilised. Equally we have enough structural evidence to expect that the annexe should produce artefacts appropriate to a builder's yard in its later phases. But we must admit that we have no idea what the post-basilican fifth to seventh-century structures were used for and have had to turn to a deductive approach to the finds in order to attempt to interpret these structures. Indeed the amount of material from the basilica before Phase W is so small that an inductive approach is otiose.

In dividing the artefacts by function we have deliberately chosen to highlight certain classes of object which we consider give clear signals about function; other indicators might have been chosen by other investigators and this method is purely subjective. However, without this subjectivity of choice, the mass of material is entirely intransigent. Some objects are also good chronological indicators, a matter we shall return to later. Certain artefacts like the plaster 'eyes', scalped skulls, and *martio barbuli* (see below), are rarely found elsewhere or are unique to Wroxeter and are discussed in greater detail than others, but other classes of finds, particularly the brooches, *intaglios*, and coins, are dealt with in summary here, although full analyses provided by national experts exist in archive. Many of the 'best' pieces are from the dumps and thus are not helpful in this functional analysis of the Category A contexts. The only other group of finds which will be discussed in detail are the finds from Phase Z, the sixth and seventh-century rebuilding phase.

Using the main functional categories the finds break down as shown in Table 11. There is a striking congruence between the distribution of classes of find by function in the stratified layers, mostly late fourth century or later in deposition, and the upper Layer I/II. It confirms our view that I/II is the product of the layers immediately below it and the material recovered is not likely to be derived from some other source, though we should stress the peculiarly rich range of finds in I/II which may be an original feature of all such deposits but is usually truncated or disturbed by later activity.

The other noticeable feature of this overall analysis is the small number of artefacts which are either tools or weapons (see Table 12) or belong to the processes of manufacture. Of the latter the majority are for sewing.

The small number of these artefacts suggests that either they were little used in the area of the baths basilica or that their recovery value was high enough to prevent them being easily discarded. No weapons were lost before Phase X, perhaps reflecting the civilian nature of the city centre at this stage and the majority of the horse harness is also late in Phase Z or Layer I/II.

Table 11 Finds by functional categories

	Category A	*Layer I/II*
	%	%
personal	2.7	1.7
tools and weapons	0.3	0.4
business	2.7	3.6
	(2.6[1])	(3.4[1])
domestic	86.3	86.4
	(82.4[2])	(82.4[2])
	(3.6[3])	(3.5[3])
industrial buildings and furniture	0.2	0.2
	5.6	4.8
	4.4[4]	3.8[4]
leisure and religion	0.5	0.2
unattributed	1.6	2.6
total	99.9	99.9

[1]*coins* [2]*pottery* [3]*glass* [4]*window glass*

Table 12 Tools and weapons

	Category A	*I/II*
horse harness	5	10
weapons	8	7
military equipment	4	5
tools	14	17
knives and handles	16	25
other	5	9
total	52	73

One group of objects is singled out here because it is unusual and has been linked with a particular group of Roman auxiliaries, the *Jovii* and *Herculii Palatini*, mentioned by Vegetius and discussed briefly by Philip Barker (1979b; Eagle 1989). These are *martio barbuli* or *plumbatae* which are small iron barbed throwing darts, lead-weighted, and attached to a wooden shaft (Fig 303 , nos 1–6 and 304, nos 1 and 4). Seven have been found at Wroxeter, five in Layer I/II, one in the gravel street, and one in a Phase Y dump in the South Aisle. None have been found in a Category A context.

Seven throwing darts, of which five make up a quiver, are skimpy evidence for the presence of a military force especially as there is markedly little of the late fourth-century belt equipment so often associated with soldiers and military administrators of this period. The whole site has produced about 14 examples of late fourth-century belt fittings of the types originally published by Hawkes and Dunning (1961) and commented on more recently by a number of authors. Among them are plain bronze ring attachments (Fig 304, nos 2 and 3), a belt disc attachment with a suspension loop (Böhme 1986), a tinned bronze belt stiffener (Fig 304, no 5, Clarke 1979, no 267), disc-shaped and heart-shaped strap-ends (Fig 304, no 6, Böhme 1974; Clarke 1979, 282–3; Simpson 1976, 201–2) and parts of zoomorphic buckles (Hawkes and Dunning 1961). Such finds are becoming commonplace in urban sites of this period and it is no surprise to find them at Wroxeter especially in its latest layers. Presumably in any late Roman town such finds as *martio barbuli* and belt fittings bear witness both to the pseudo-military trappings, the *cingulum militare* of some administrators, and perhaps to the temporary visitations of foreign troops, stationed elsewhere. They may even be trophies for display. The *barbuli* and the belt fittings do not in our view attest to the presence of foreign mercenaries, brought in to defend a town whose huge size rendered it indefensible in any case.

Within the functional category of personal jewellery and toilet implements are several classes of objects which have direct significance for our attempt to reconstruct the erstwhile population of Wroxeter and their use of the baths basilica. Personal effects, albeit subject to the movements of fashion and availability, get us closer to the individuals who made, bought, used, and wore them and therefore to the wider questions of ethnicity and chronology which are raised by the nature of the structures described in earlier chapters. Within the fourth century we can be confident that many of the inhabitants of Wroxeter were Romanised British with three centuries of acculturation overlying their *Cornovian* ancestry and with no pretensions to a taste other than that exhibited in every other provincial city in the Western Provinces. Towards the end of the century new coinage failed to reach the city for some reason (*see appendix 3*) but despite that the archaeological deposits demonstrate that material ascribed on other sites to the late fourth century continued to be acquired and subsequently lost in the baths basilica area. After the end of the following century the baths basilica site shows signs of vigorous regrowth with the Phase Z rebuilding. There is nothing to suggest that the instigators of this activity were anything other than Romano-British in culture with a continuing preference for Roman custom, the counterparts of those Britons with Romanised habits historically attested in Early Christian documents, gravestones, and genealogies.

There are some slight differences visible in the pattern of loss which may indicate changes of use or fashion through the fourth century and beyond. Table 13 shows a decline in the use and loss of finger-rings on the site and similarly a possible move away from the wearing of strings of beads. On the other hand bracelets increase in numbers throughout the period, as do hair-pins. Of course it can be argued that a larger loss may denote an increased discard as objects go out of fashion or are not worth recovering. Some objects were clearly susceptible to greater loss, such as hair-pins, or may have been more breakable, like shale bracelets, as compared with the more durable copper alloy examples. If conservation of artefacts became a necessity as markets dwindled, a factor seen in the resharpened bone pins and mended pottery, then certain types may have come to dominate because of their durability rather than their aesthetic or fashionable appeal. However no one late fourth-century artefact type can be seen as the prevailing fashion: it is almost as if anything Roman was wearable in the fifth and sixth centuries in preference to the Germanic or British fashions found further east or west.

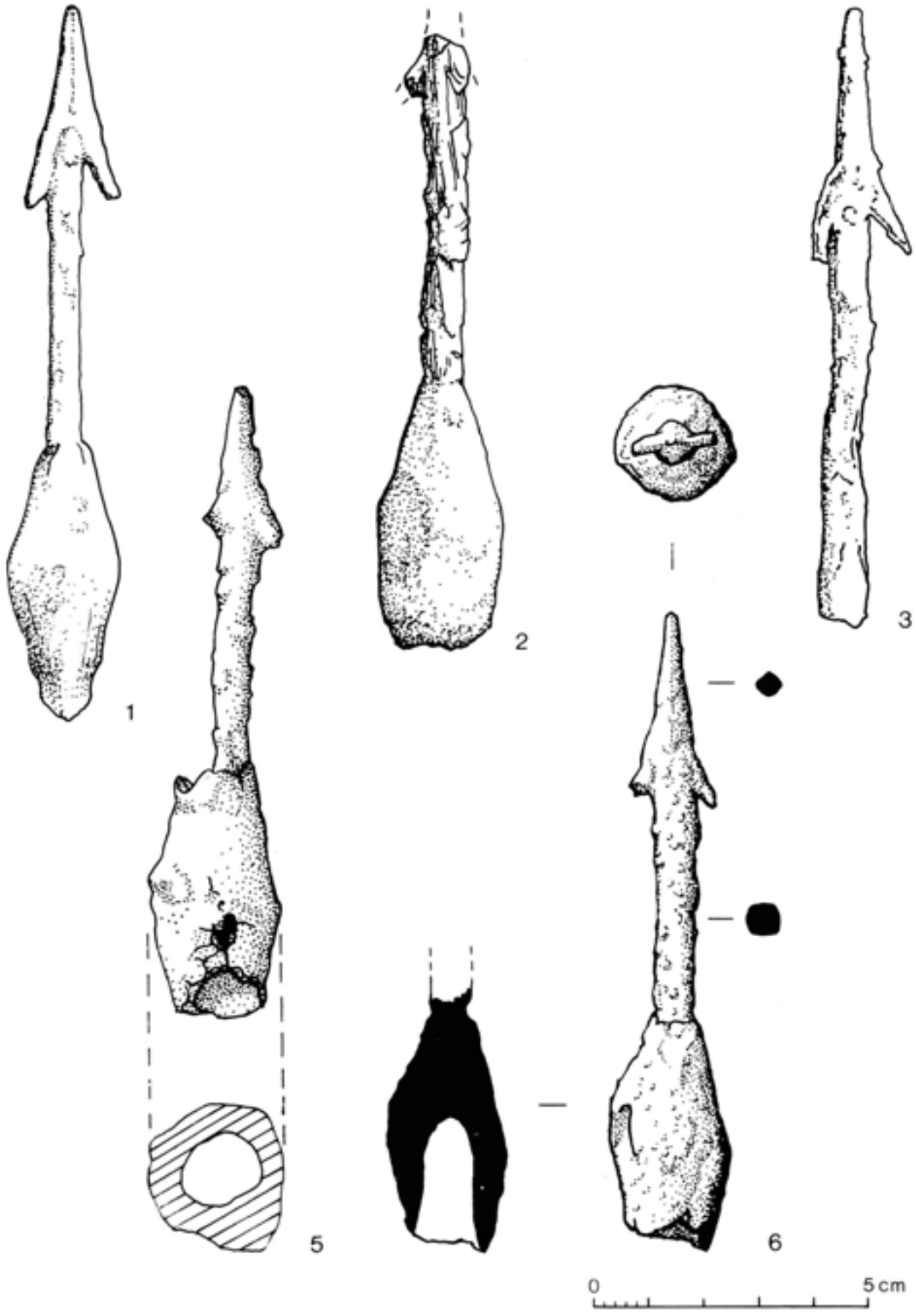


Fig 303 Martio barbuli *or* plumbatae, *all iron with lead weights, except no 3 (scale 1:1)*

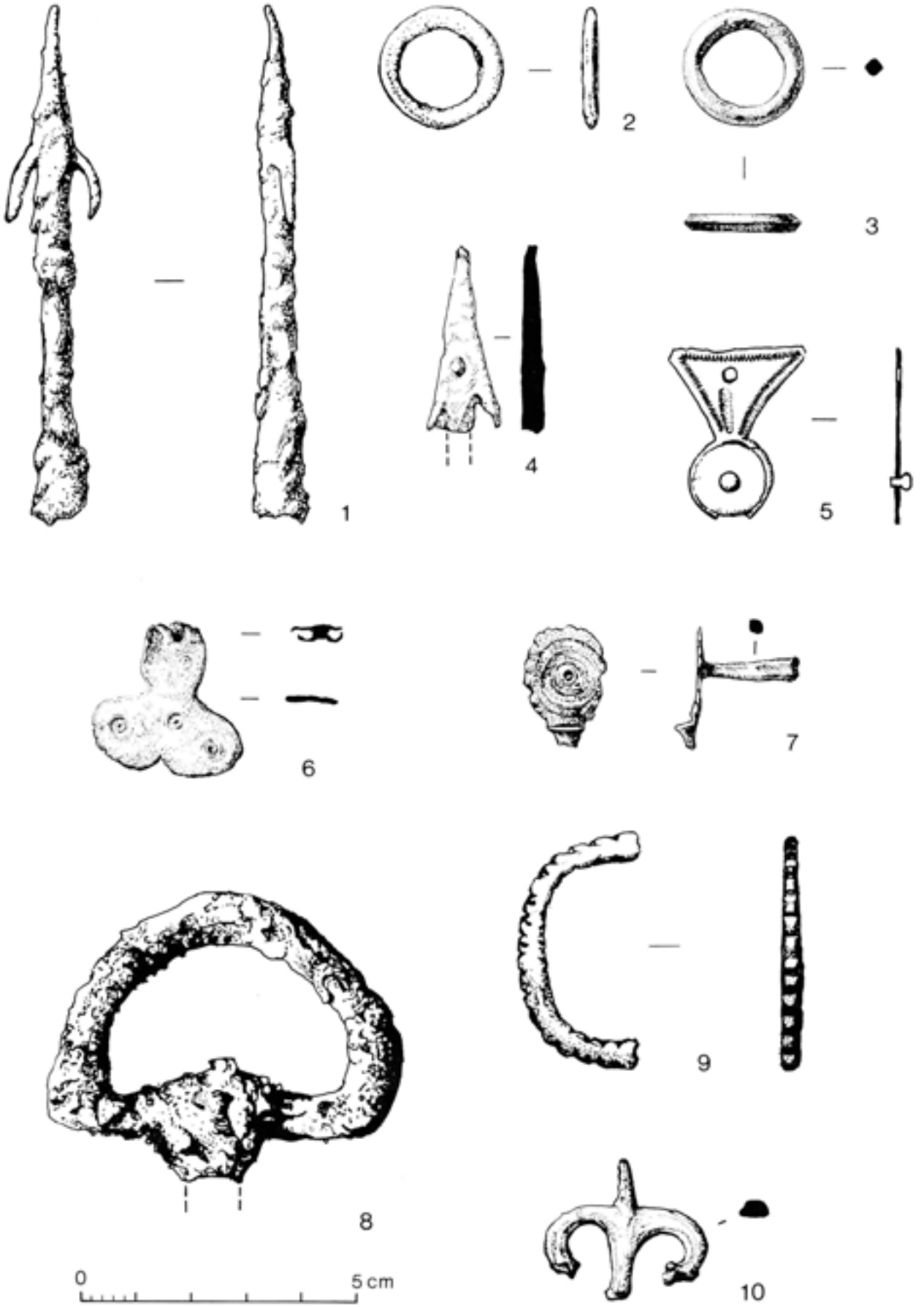


Fig 304 Late military metalwork, nos 1 and 4 plumbatae, *nos 2 and 3 rings, no 5 belt fitting, no 6 strap-end, no 7 rosette attachment, no 8 buckle, no 9 chip-carved buckle hoop, no 10 buckle tongue, no 5 tinned copper-alloy, nos 1 and 4 iron, all others copper-alloy (scale 1:1)*

At Wroxeter personal jewellery was made from a wide variety of materials with no obvious change to locally-available fabrics, with the possible exception in an increased use of iron discussed below.

There is a noticeable dearth of precious metals (Table 14). All the gold from the site and most of the silver artefacts come from the dumps, as do the majority of the *intaglios*. Wroxeter has produced most of the main types of jet and shale artefacts commonly found on Romano-British sites with the exception of shale furniture. Jet beads predominate over shale ones but there are, unusually, shale beads which copy jet prototypes, particularly the more elaborate double-perforated beads (Fig 305, no 5). Shale finger-rings (Fig 305, nos 2 and 3) and spindle-whorls (Fig 305, no 4) are included among the finds. Angela Bliss, whose report on the jet and shale is in the Level III archive (Bliss, unpublished), comments that the Roman liking for black jewellery could be satisfied by a mixture of both materials, the cheaper shale substituting for jet for larger items. A single shale lathe-core from Layer I/II (Fig 305, no 1) may suggest the working of shale bracelets from lumps of Kimmeridge shale but there is also local shale from the Carboniferous beds to the east, around Coalbrookdale, where there are open-cast mines today. Further analysis may yet reveal the provenance of the shale artefacts and the core, but it is worth noting that Leslie Alcock found evidence for shale working at Dinas Powys in another apparently very late Romanised-British context in South Wales, although he attributed it to antique tourism (Alcock 1963, 25).

Among the iron finger-rings in Category A contexts are two which form part of a group of rather slight iron trinket rings embellished with copper-alloy decoration (Fig 306 nos 2 and 7). No 2, from Phase Z, has a rectangular bezel with two transverse notched strips running

Table 13 Personal jewellery type by phase

Phase	*S*	*T*	*U*	*V*	*W*	*X*	*Y*	*pre-Z*	*Z*	*I/II*	*total*
brooches	2	-	-	4	5	-	2	-	8	18	39
finger-rings	-	-	-	-	14	-	5	-	6	5	30
bracelets	-	-	-	1	26	6	28	-	33	66	160
pins	-	-	1	8	21	7	19	-	28	62	146
toilet implements	-	-	1	3	8	-	5	-	3	11	31
buckles	-	-	-	-	3	-	5	-	3	18	29
beads	-	-	1	2	112	7	22	-	28	28	200
total	2	-	3	18	189	20	86	-	109	208	635

Table 14 Personal jewellery from Category A contexts by material

Phase	*S*	*T*	*U*	*V*	*W*	*X*	*Y*	*pre-Z*	*Z*	*I/II*
finger-rings										
copper-alloy/silver	-	-	-	-	10	-	3	-	1	1
iron	-	-	-	-	1	-	-	-	1	-
glass	-	-	-	-	1	-	1	-	1	-
bone	-	-	-	-	-	-	1	-	-	-
shale	-	-	-	-	1	-	-	-	1	-
jet	-	-	-	-	-	-	1	-	-	1
intaglio, paste	-	-	-	-	-	-	-	-	-	1
intaglio, stone	-	-	-	-	1	-	-	-	1	2
bracelets										
copper alloy	-	-	-	-	4	1	7	-	9	30
bone	-	-	-	-	8	-	4	-	4	8
shale	-	-	-	1	14	5	17	-	17	26
jet	-	-	-	-	-	-	-	-	3	2
pins										
copper-alloy	-	-	-	-	1	-	1	-	2	8
bone	-	-	1	8	18	7	13	-	20	48
shale	-	-	-	-	-	-	3	-	1	3
jet	-	-	-	-	2	-	1	-	5	3
glass	-	-	-	-	-	-	1	-	-	-
beads										
glass	-	-	1	2	49	4	15	-	19	16
jet	-	-	-	-	60	2	5	-	8	10
shale	-	-	-	-	2	-	-	-	1	2
bone	-	-	-	-	1	-	-	-	-	-
all										
copper-alloy	-	-	-	-	15	1	11	-	12	39
glass	-	-	1	2	50	4	17	-	20	19
bone	-	-	1	8	27	7	19	-	24	56
shale	-	-	-	-	17	5	20	-	20	31
jet	-	-	-	-	62	2	7	-	16	16

across the bezel; no 7, from Phase W, has a ?lozenge-shaped plate as a bezel with a cut copper-alloy strip producing a geometric decoration transversely across the plate. The other examples are from dumps or robber trenches. Iron finger-rings with copper-alloy decoration are rare on Romano-British sites (Hilary Cool personal comment). One illustrated by Manning (1985, 78, no J7, pl 33) is a more substantial piece from Great Chesterford, dated to the second century or later.

Elaborately-decorated ironwork can also be seen on the large number of iron *styli* found on the baths basilica site. Here again the material from the site is unusual in that half the *styli* are decorated. Manning suggests that decorated iron *styli* are relatively rare because the addition of decoration was time-consuming and expensive for what he regards as the cheaper versions of *styli* (*ibid*, 85). On the baths basilica site iron *styli* outnumber copper alloy examples by 79:3. Gordon Turner-Walker, who treated the Wroxeter *styli* at the Ancient Monuments Laboratory, discovered that 38 of the 79 had decorated grips, 20 had decorated stems, and 6 had decorated erasers, including a group of 4 possibly from the same workshop. Two more were tinned and eleven had brass inlay (Fig 307). Of these, five inlaid *styli* were from Category A contexts or from Layer I/II which together provided 34% of all the *styli*. Six come from Phase Z and four of these from the small buildings in the south aisle.

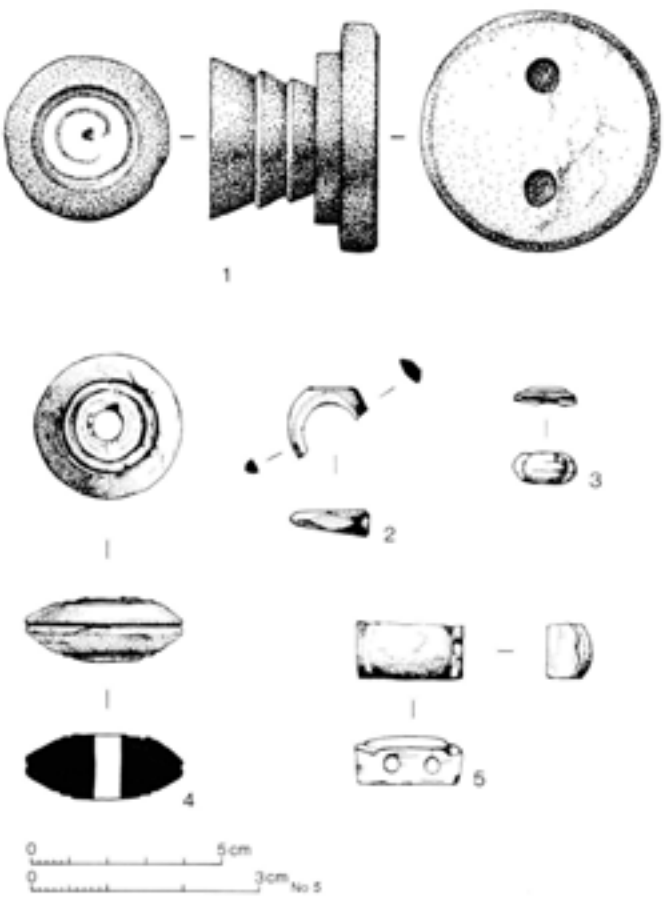


Fig 305 Shale, no 1 lathe core, nos 2 and 3 finger-rings, no 4 spindle whorl, no 5 bead (scale 1:2 except no 5, 1:1)

This large number of lost writing implements may reflect the public rather than domestic nature of the baths basilica and it is tempting to equate their use with public literary activity, such as scribes and letter-writers, and with a survival of literacy as a further example of Romanised behaviour into the fifth and sixth century. The frequency of fine ironwork may perhaps have increased at the end of the Roman period: a further example of the use of iron for personal jewellery is an iron pin with a glass head (Fig 306, no 1) which comes from Layer I/II and seems unparalleled in late Roman Britain.

In his detailed commentary on the brooches Donald Mackreth also draws attention to the importance of iron brooches and the effect of their absence or presence in an assemblage, particularly as he suggests a very late date for some of the iron penannular brooches. His complete analysis is in the Level III archive (Mackreth 1991) and it is hoped that all the brooches found so far throughout the town will be published elsewhere. Unlike the material discussed above it is possible to use the brooches as chronological indicators and, in his closely-reasoned analysis, Donald Mackreth draws particular attention to two classes of fourth-century brooch: crossbow brooches and penannular brooches. There are 172 brooches, brooch pins, and springs from the baths basilica site of which about 70 are recognisable by type; of these there are 6 crossbow brooches and 26 copper alloy and iron penannular brooches and their pins. (Both Kate Pretty and Donald Mackreth remember a further piece from a crossbow brooch, a screw from a lefthand terminal, which was found in the early years of the excavation but has not reappeared in the post-excavation process.) All the crossbow brooches were found in Category A contexts or in Layer I/II and none are deposited earlier than Phase Z.

Donald Mackreth writes: 'none of these belongs to the earlier stages of the crossbow, dating to the third or early fourth century'. Using Keller as a chronological guide (Keller 1971), he would place Fig 308 nos 1, 2, and 3 as Keller *Typ* 3 or 4, probably the latter, with a date-range of *c* AD 340–80. Of the others he writes: 'the types are clear; Fig 308 no 6 is *Typ* 5, Fig 308 no 5 is *Typ* 6, and screwed terminals (as in the lost piece) are only to be expected on *Typ* 6', in other words *c* AD 365–80. Fig 308 no 5, the remains of a foot, decorated with openwork C-scrolls is paralleled by two brooches from the Lankhills cemetery, Winchester (Clarke 1979, 261–2 fig 36, 447, 587) dated to AD 370–90, and 390–400 respectively. Taken together these brooches span the second half of the fourth century: those from Phase Z come from the building platform for Building 10 and the rubble spread to the south of it, from material clearly derived from a very late fourth-century context and redeposited later, or material dropped in the fifth or sixth century itself. Such brooches demonstrate yet again the strongly Roman nature of these deposits.

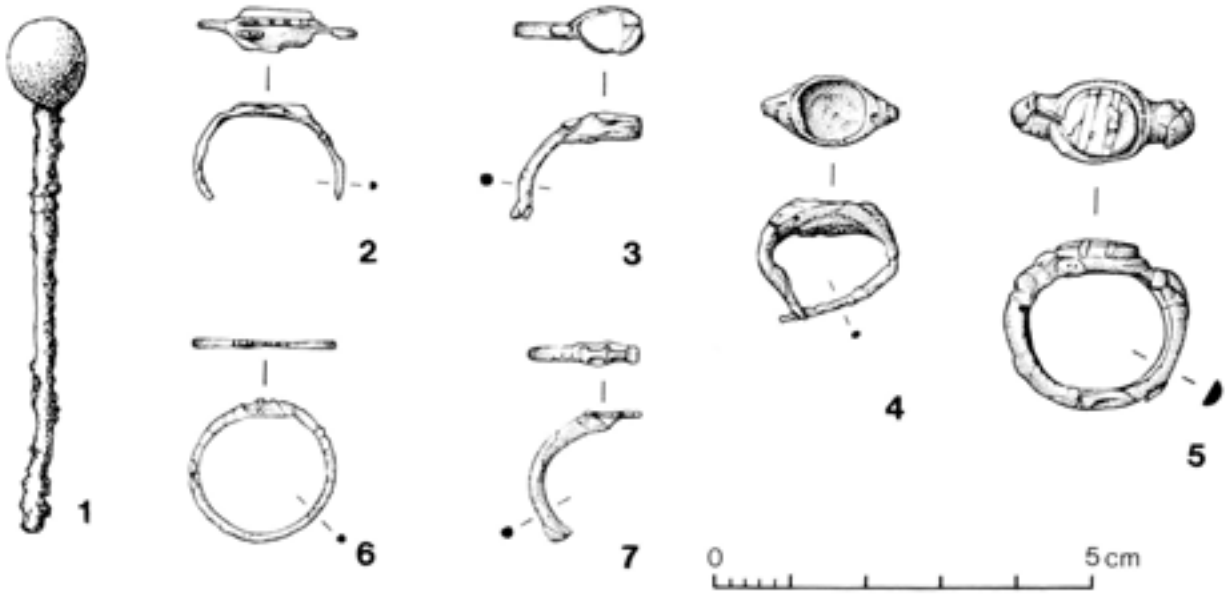


Fig 306 Decorated ironwork, no 1 glass-headed pin, nos 2–7 finger-rings, nos 2, 3, 5, and 7 with added copper-alloy strips (scale 1:1)



Fig 307 Iron styli inlaid with copper-alloy (scale 1:1, photo: AM lab)

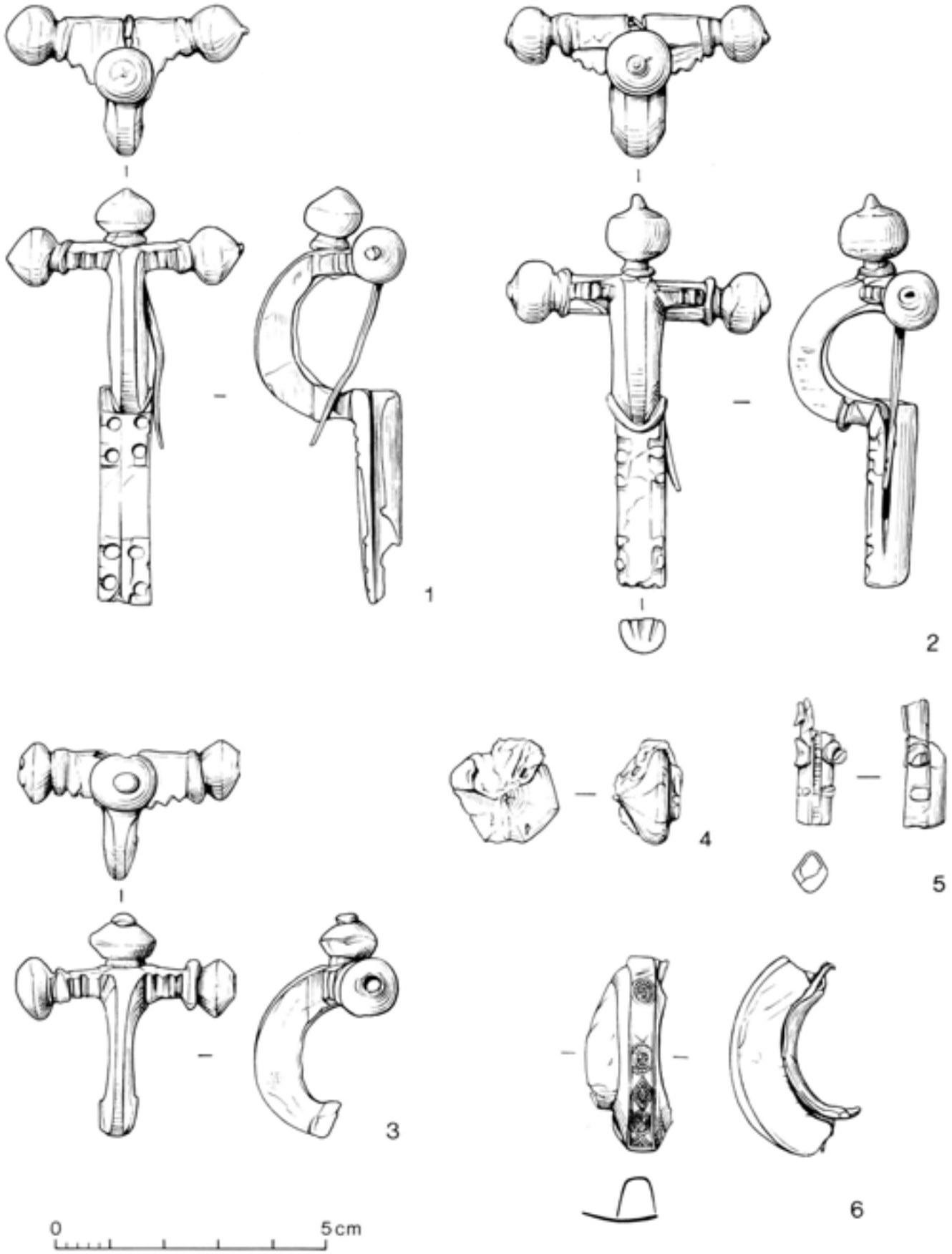


Fig 308 Crossbow brooches, all copper-alloy, no 5 gilt (scale 1:1)

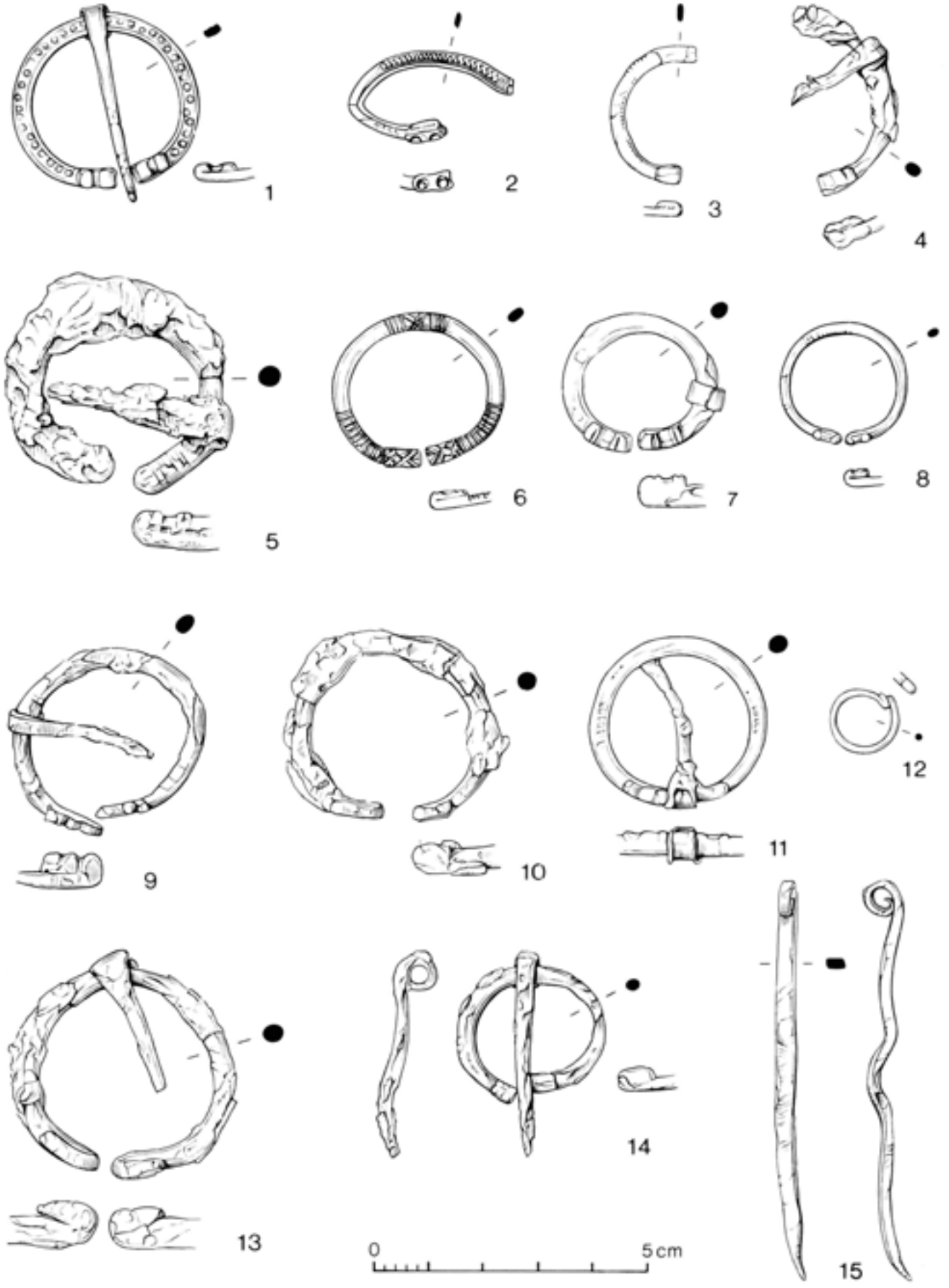


Fig 309 Penannular brooches, nos 1, 2, 3, 6, 7, 8, and 12 copper-alloy, others iron except no 11, copper-alloy with iron pin (scale 1:1)

Crossbow brooches are the final form of high status brooch in the Western Empire and the latest inhabitants of Wroxeter followed Roman fashion to the end.

Penannular brooches on the other hand have a longer date-range and are less specifically Roman having been found in both British and Anglo-Saxon contexts. Mackreth has identified 26 from the baths basilica of which nine are iron or have iron pins. All the later examples are illustrated on Fig 309 with the exception of an iron pin illustrated above as Fig 298, no 3. Penannular brooches are notoriously difficult to date since they seem to have been a preferred British and Romano-British taste from the Iron Age into the early Christian period. Of the brooches illustrated, fourth-century parallels can be found for the flat, stamped hoops (Fig 309, nos 1 and 2), the ribbed hoops (Fig 309, nos 4, 5, 6, and 8), and the terminals of the rest (Fig 309, nos 3, 7, 12, and 13, *see Mackreth, archive report*). He has drawn particular attention to the length of the pins on the iron penannulars (Fig 309, nos 14 and 15 , and Fig 298, no 3). Of the brooch illustrated as no 14 he comments:

> It is excessively long when compared with those on standard penannular brooches of the Roman period, but there is a discernible trend in post-Roman brooches for pins to become longer until they reach almost impossible lengths, culminating in the giant penannular brooches with thistle-topped pins. If long pins are not to be expected in the Roman period, then these pins may be fifth century at the earliest.

Only a handful of the later penannular brooches come from category A contexts or from Layer I/II (Fig 309, nos 1, 2, 4, 9, 10, and 11). All but two are in Layer I/II; the exceptions are Fig 309, no 2 from Phase V in the south aisle and Fig 309, no 4 from Phase Y in the annexe. Phase V in the south aisle predates the great late fourth-century refurbishing of Phase W and would fit the rather generalised fourth-century date suggested by Mackreth.

On the whole the penannular brooches add little to our understanding of the chronology of the site or to the practices of the last inhabitants. All the later brooches have the same terminal type, and neither Fowler's Type A nor Type C are represented although these are the normal types found in Anglo-Saxon cemeteries (White 1988b, 25). This too, underlines the late-Roman nature of the material and the lack of contact with contemporary eastern England.

Other metalwork is equally difficult to date although again most of it sits comfortably within the normal run of late Romano-British types. An exception is the fantastically long pin found deep in a dump sealed beneath the Phase Z paths in the annexe (Fig 310, no 1). This pin has a simple 'protozoomorphic' head and is decorated with corrugated grooves for some 30mm down its stem which is 325mm long. The type, usually identified as Fowler Class E, has been discussed by a number of

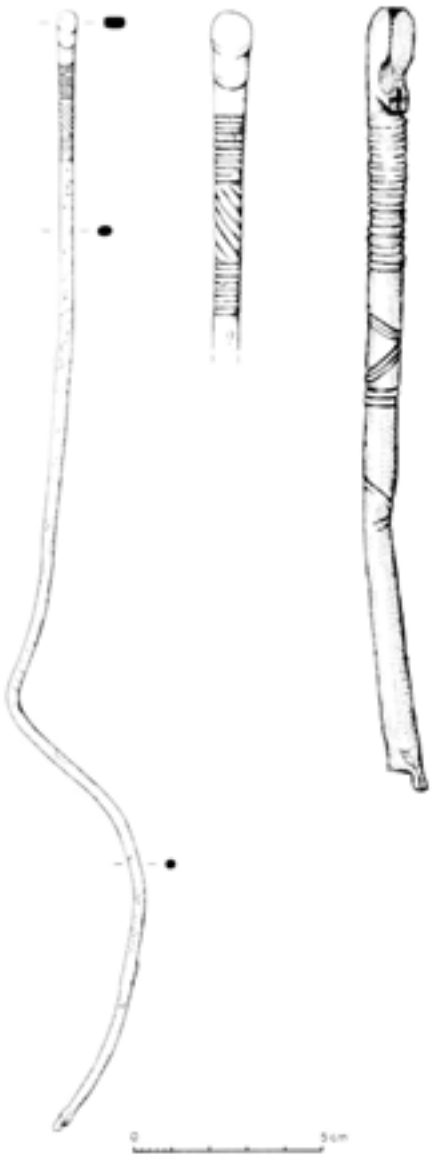


Fig 310 Proto-zoomorphic copper-alloy pins of Fowler 1963 class E (left: scale 1:2, except detail 1:1; right: scale 1:1)

authors (Fowler 1963; Boon 1975; Kilbride-Jones 1980). The head of a second Type E pin was recovered from the baths basilica site, somewhere in the south-west corner of the nave, in Graham Webster's earlier excavation (Site 71) (Fig 310, no 2).

Fowler suggests a starting date for Class E pins in the late second or early third century, based on the pins from Traprain Law in southern Scotland, but she goes on to argue that this simple type, undecorated with enamel and with a protozoomorphic profile is long-lived and that a fourth to fifth-century date would be possible. She explains the long, stout examples from Ireland as part of the loot of Irish raiders (Fowler, 1963, 122). Kilbride-Jones (1980, 8) on the other hand sees the Irish pins as copies of a *Votadinian* prototype and explains them as having a 'longer life in Ireland than was the case in Britain. Irish memories tend to be long and Irish products are often less progressive for the same reason'.

On the basis of the example from Newstead, Boon is also sure that they are Roman in date, originating in the Flavian/Trajanic period and being fully developed in Ireland by the end of the third century, although no Irish examples are dated and only one is provenanced (Boon 1975, 403). In short, the type is not closely dated. Findspots in Britain include Traprain Law, Newstead, and Covesea Cave in Scotland, Chesters, Corbridge, and Halton Chesters on the Wall, Cassington (in an Anglo-Saxon cemetery), Cirencester, Scarborough, and Silchester in England, Margam Beach, Glamorgan, and Caerleon in South Wales, and Crumlin, County Dublin, and five other unprovenanced Irish examples. In other words the provenance is largely British or from the old 'military zone'. Wroxeter is not out of place in such a distribution.

Two factors give us more sympathy with Fowler's later dating for the long Type E pins than the mid-Roman date offered by Kilbride-Jones or Boon. On stylistic grounds we agree with David Brown that there is a relationship between Type E pins, with their proto-zoomorphic heads and closely-grooved sticks, and brooches of the same type, notably Fowler's E and F penannular brooches (Brown 1976, 21). We note too the relationship between the grooved decoration of pin-stick and brooch-hoop with the similar decoration on some of the hanging bowls, including the edges of the *millefiori* mounts of the great hanging bowl at Sutton Hoo, among others, and think that all three are related as a decorative device. Secondly we think that the length of the pin is important, and that the change of form to a lengthened pin is a chronological indicator, bearing in mind similar developments in the pins of penannular brooches. Roman pins are never as long as our example but the long pin is commonplace in Early Christian metalwork, particularly in Ireland, and also, paradoxically in the Anglo-Saxon world. The parallels in length for the Wroxeter pin (whose point is broken) are from Ireland where the Type E pins range from 190mm to 360mm and from Margam Beach where a complete and a broken pin are 457mm and 403mm respectively, leaving our Wroxeter pin at the upper end of the range. In the Germanic world of the fourth and fifth centuries the Fécamp style of pin, also intensively decorated at the head (although without the zoomorphic features), ranges up to 230mm in length (Böhme 1974, 35). We would suggest that long pins are part of the post-Roman world, both in the west and the east and would thus suggest a fifth-century date for these pins.

Are the Wroxeter pins Irish in origin? Or were they the product of a south-western *atelier* serving the late-Roman cities of the Severn, like Cirencester itself (Brown 1976), whose general situation cannot have been very different from that of Wroxeter, although it was nearer to the Anglo-Saxon advance? There is the possibility of a direct Irish connection with Wroxeter witnessed by the CVNORIX memorial stone, dated by Jackson to the third quarter of the fifth century (Wright and Jackson 1968). On the other hand the longer pin is much more slender than its long Irish or South Welsh counterparts. In favour of a local origin is the cluster of material, both pins and brooches from the southern Severn area from late Roman towns, temples, and villas, initially discussed by Savory (1956) and elaborated by Kate Pretty in her unpublished doctoral thesis (1975).

Two further pins with British connections come from the baths *insula*. One was found in the west portico to the *macellum* in the black layer above the portico floor with coins of the House of Valentinian, the equivalent to our Layer I/II. This is a base silver Covesea-type pin with a penannular ring looped through its ring-head (Graham Webster, personal comment). The other, from a Phase Z dump in the North Aisle, is a copper alloy pin with an incised zig-zag decoration along the lower edge of the head plate (Fig 311). Again, similar pins come from Cirencester (Brown 1976, 19) and the Temple of Nodens at Lydney (Wheeler and Wheeler 1932, fig 18:64) but the Wroxeter baths basilica example is better-made and decorated, although not to the extent of the silver and enamel pin from Oldcroft, Lydney (Rhodes 1974).

These four pins, from the baths basilica and the *macellum*, hint at contact with the British world in the old 'military zone' and beyond. Yet they are counterbalanced by the much stronger evidence that the last inhabitants of this part of the city continued to use Roman material and to preserve Roman practices.

The baths basilica area has produced two further groups of objects which are less easy to place in a Romanised context although, unlike the pins, they can hardly be regarded as British: these are the plaster

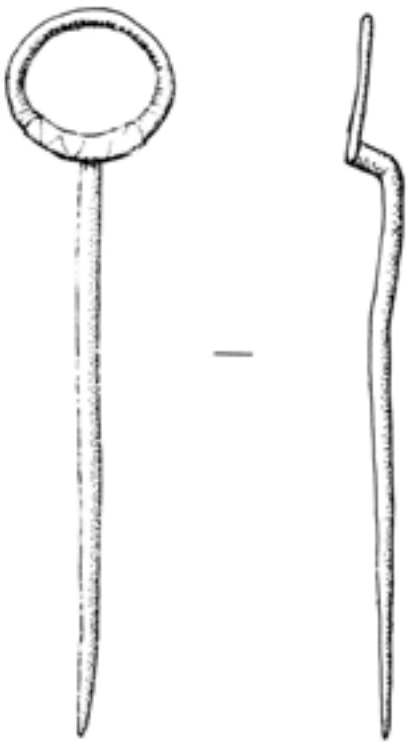


Fig 311 Gilt copper-alloy ring-headed pin (scale 1:1)

'eyes' and the human skulls discussed below. Of the plaster eyes, the majority come from Phases W and Y, and from dumps, which suggests that their origin lies off the site, although if we postulate a single origin elsewhere in the town, such as a temple (see below), they are surprisingly widely-scattered in place and time across the baths basilica area, rather than being concentrated in one spot which we might have expected if they had come in as hard-core. Although they also appear in Phases Y and Z there can be little doubt that they are fourth century or earlier in date.

Thousands of fragments of wall plaster were recovered during the excavation of the uppermost levels of the basilican area. The vast majority were freshly broken and angular in shape, but it was noticed that some were rounded or oval in plan, with small pits or hollows in the centre of their upper surfaces. In addition the backs had often been rounded off as if to make them comfortable to hold in the hand (Fig 312). Among the first to be discovered was Figure 313, no 1, which is convincingly eye-shaped, obviously deliberately made, and with a suggestion not only of pupil and iris but also of a tear duct.

When further examples were discovered, all plaster fragments were examined routinely and those which appeared to be eye-shaped were separately recorded. As can be seen from Figs 313 and 314, they range in size from 20 to 100mm, and from the convincing to the dubious. The criteria used to determine those which had been deliberately made and those which were naturally formed by the breaking up of the plaster were that:
they should be rounded or oval in plan
they should have a central pit or hollow (representing the pupil)
they should have a tear duct
the back should be rounded or its corners smoothed off.

The examples illustrated do not all have all of these characteristics, but most have two or three or more; they would otherwise have been rejected. Figures 313 and 314, nos 1–34 are the more convincing of the collection; Fig 314, nos 35–40 are illustrated to show examples of those which we believe to have been formed naturally or accidentally, especially by the plasterer's practice of laying on the plaster with a circular motion which begins from a small central swirl. This nucleus, when detached from the wall, looks deceptively artificial but lacks the other necessary characteristics listed above. There are 51 other examples, not illustrated, which range from the possible to the dubious. All are catalogued and most are illustrated in the site archive. There seems little doubt, however, that the majority of the examples collected have been deliberately fashioned from fragments of plaster taken from the walls of disused buildings, or picked up from the rubble of demolished structures.



Fig 312 Six votive plaster eyes, three shown on edge to show curvature of the back. This can only have been caused by deliberate trimming. Some of the eyes show pupils and other features

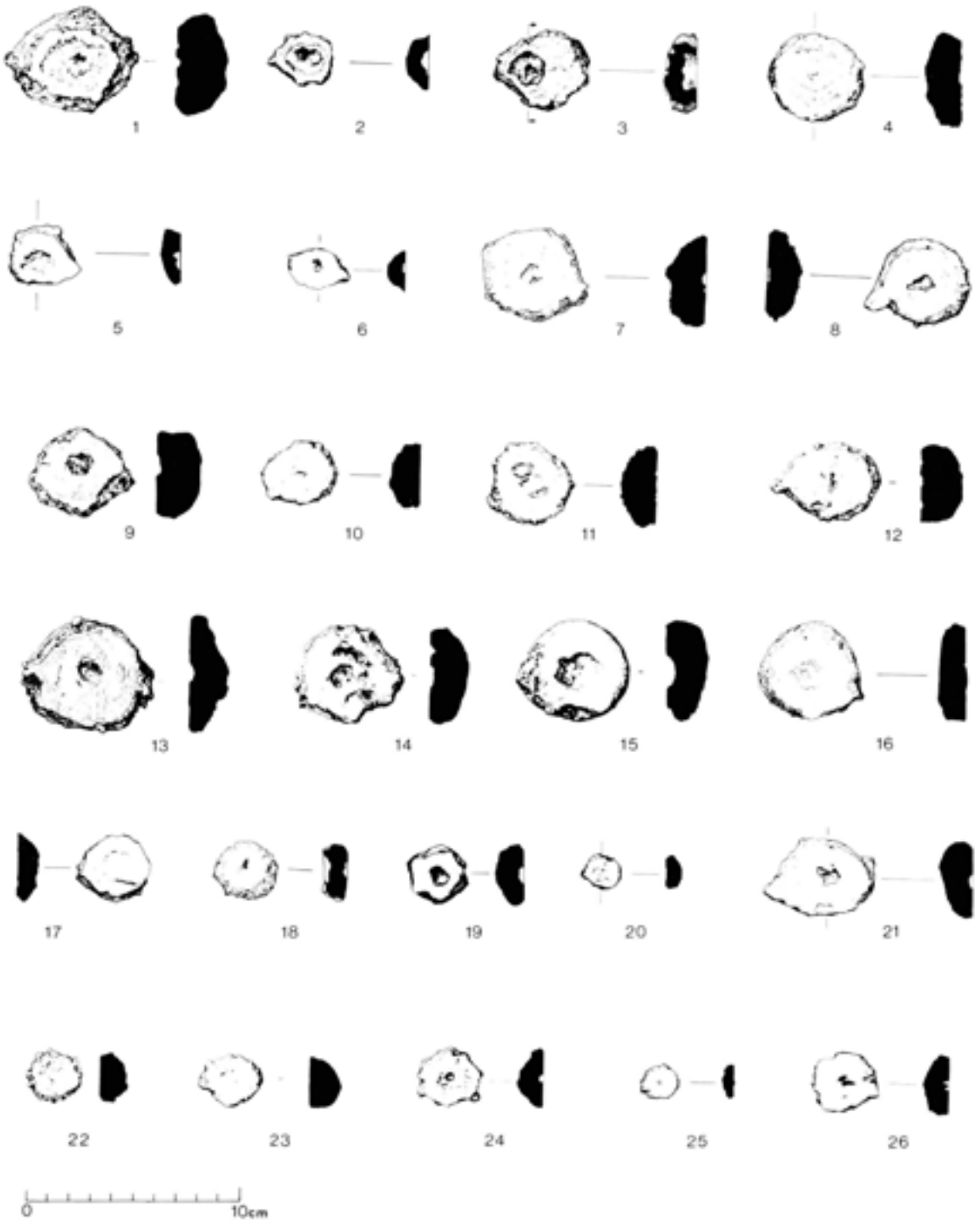


Fig 313 Votive plaster eyes (scale 1:3)

Many of them fit comfortably in the hand, which accidental fragments of wall plaster certainly do not; some are quite carefully made; others are very crude. The range is also very wide, from large and heavy examples to tiny, almost delicate, pieces.

Apart from the general diagnostic resemblances, they vary very considerably in style: they certainly do not seem to be standardised or mass produced. This raises the question of their purpose. In 1970, one of the Wroxeter work staff found a pair of eyes, beaten out of a sheet of gold, on the site of the basilica, in an area which had been dug by prisoners clearing the site (Fig 315). These eyes, which are at present on loan to the British Museum, have been published by Kenneth Painter (Painter 1971) and seem to have been votive eyes which could be attached by means of four small nails to a board or wall. Their closest parallel appears to be from the Temple of Artemis at Ephesus or examples from Mont Beuvray, Oise, now in the Musée des Antiquites, St Germain-en-Laye.

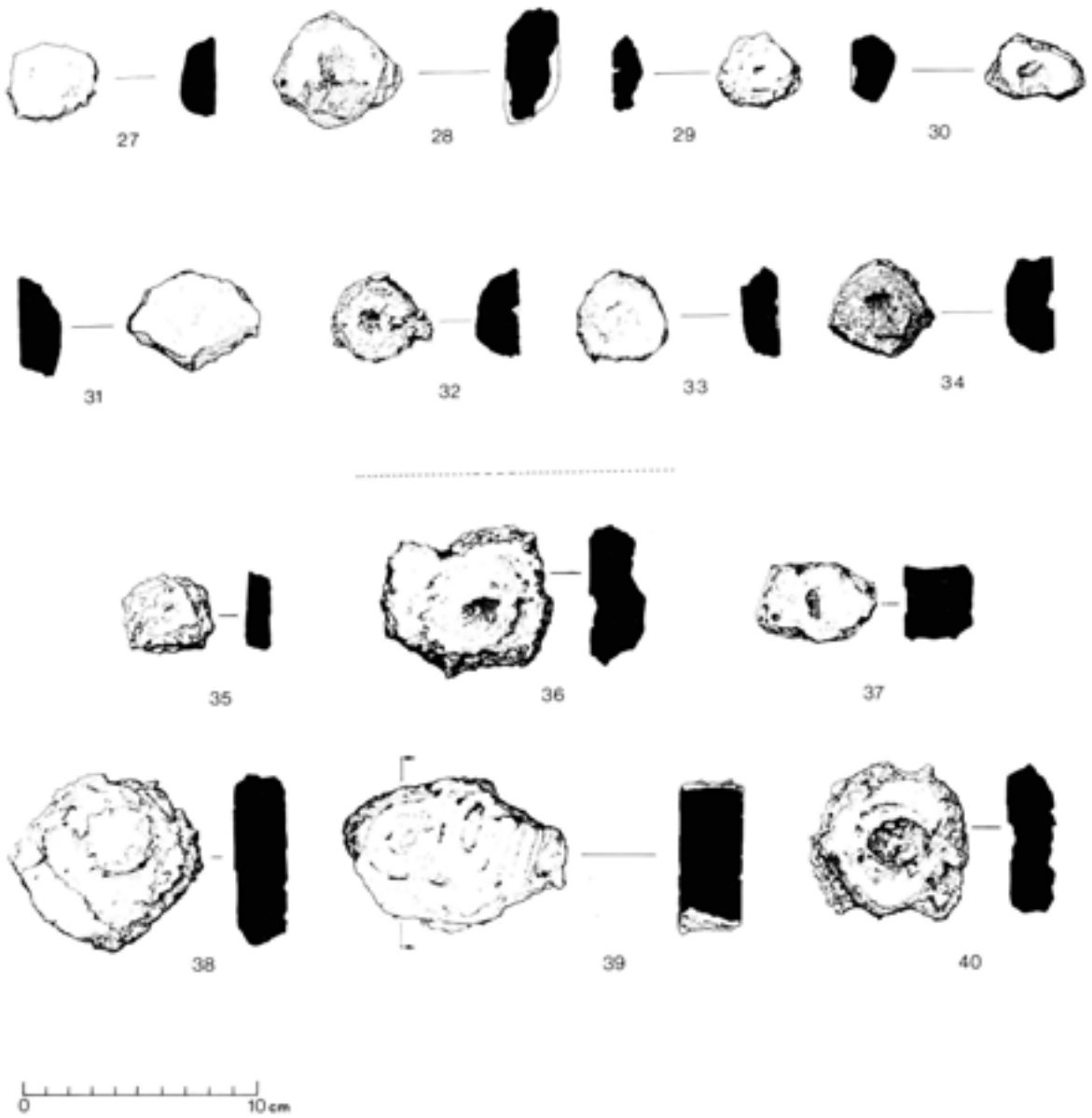


Fig 314 Votive plaster eyes, nos 35–40 are rejected or dubious specimens (scale 1:3)

Later, in 1982, a badly corroded fragment of bronze sheet was found in a dump under the slate layer of Phase Y on the basilica site (Fig 316). This appears to be the half of a pair of sheet bronze eyes originally some 100mm long with small holes at each end, suggesting that it was designed to be tied or nailed onto a pillar or wall, perhaps as an *ex voto*, or perhaps to ward off the Evil Eye.

Their presence on the same site as the plaster eyes suggests that these also had a votive function, as offerings for the relief of eye diseases, or alternatively as cult objects. There was no obvious way in which the plaster eyes could be suspended round the neck or attached to a statue or column or wall, like the sheet metal eyes, but the rounded backs of many of them do suggest that they were held in the hand. *Collyrium* stamps, used presumably for the authentification of eye salves, are well known in Roman Britain (Jackson 1990) and they suggest that diseases of the eye were common. While some eye disorders such as conjunctivitis, or the disturbances caused by migraine, are only temporary, others such as glaucoma, trachoma, or cataracts are much more serious and would be difficult to cure in Roman times. Under these circumstances, recourse to the gods would appear to be the only hope and it is possible that these plaster eyes were used as the sufferers' last resort.

One of the most notable characteristics of the groups is the variety of their sizes and styles. It is clear that they were not mass-produced in some sort of cottage industry and sold at a convenient stall, but that perhaps there was virtue, or added potency, in making your own votive eye. If so, this would accord with the suggestion made by Roger Tomlin that the votive letters from the Sacred Spring at Bath were written by those requesting the intervention of the goddess rather than being written for them by a priest or other intermediary (Tomlin 1988, 98–101). The range of sizes is also very striking, and one wonders whether the small ones were made on behalf of children.



Fig 315 Pair of sheet gold eyes with nail holes for attachment (scale: 1:1)

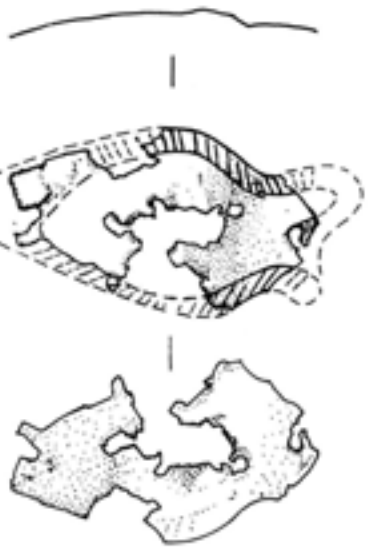


Fig 316 A copper-alloy eye found in the south aisle which may have been one of a pair, as above (scale 1:1)

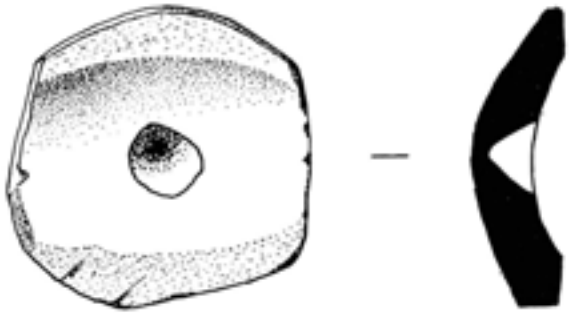


Fig 317 A pottery eye cut from a samian sherd (scale 1:1)

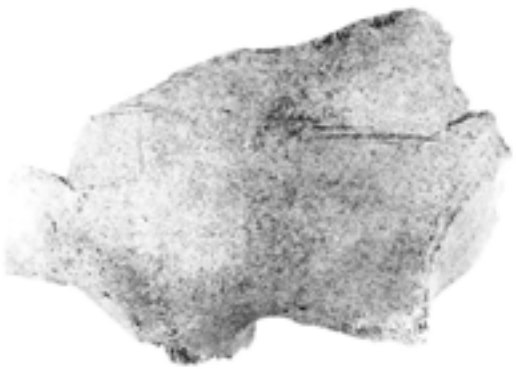


Fig 318 Fragment of a skull showing marks made by a sharp blade which may indicate scalping (scale 1:2)

It will be seen that some have the iris as well as the pupil cut into the plaster surface; it is possible that those which do not had one or both drawn on in paint or charcoal, which has since disappeared. Also notable is the fact that in spite of being alert for these eyes, no other carved parts of the body were found among the thousands of fragments of plaster from the site, though *ex-votos* of all kinds are known from other sites, particularly on the continent (Potter 1985). Nor were there any eyes of terracotta, which are common elsewhere (*ibid*, 31, pl XI, A), though there was an example cut out of a sherd of samian ware (Fig 317). Although superficially like an unfinished spindle-whorl, the careful choice of a curved sherd shows that a votive eye was intended.

It seems that at Wroxeter, perhaps close to the baths basilica, there was a shrine dedicated to the deity who specialised in eye diseases. Two small temples, known from aerial photographs (*see Fig 3*), lie north of the forum on the other side of Watling Street from the baths. These may be the source of the eyes. It is presumably no more than coincidence that the Church at Upton Magna a few miles north of the site is dedicated to St Lucy, patron saint of eye diseases. She is depicted on a nineteenth-century window there carrying her eye on a platter.

Another, and possibly related, category of material were the fragments of human skulls found widely-scattered through the later levels of the site (Table 15, Fig 318, *and appendix 10*). Of the 60 fragments found on the site nearly half are from the nave area of the basilica within the Phase X and Y dumps and levelling spreads which again come from elsewhere in the town. The Phase Z skull fragments were in the platform for Building 10 and mixed into the dumps in the annexe and again must have been collected in the fourth century to be redeposited in the sixth. Only four skull fragments predate Phase X so that the skulls were redeposited later than the plaster eyes and must have originated from a different source (*see appendix 10*).

The material deposited in the Category A contexts of Phase Z, some of which was in active use in the fifth and sixth centuries, is as uncompromisingly Roman as is the material from Layer I/II which is largely derived from those deposits. There are 58 Category A contexts in Phase Z of which 22 are building platforms, including the great platform, D100, for Building 10. Of the remaining 37 contexts in which there were finds, 13 have pottery only. The others have produced 84 identifiable artefacts, not counting coins, pottery, and building debris like window glass, which we consider were in use or were lost in the fifth or sixth century. The coins are not late. In fact there are hardly any late fourth-century coins among the 37 found in these contexts and there is no suggestion that coinage was still useful. Had it been, it is unlikely that the large numbers of coins in the debris around the hearths of the north portico would have remained unscavenged since they could not have been missed in the endless slight disturbances necessary for rebuilding the hearths.

Table 15 Human bone by phase and area

phase	*bone type*	*insula 5*	*precinct*	*annexe*	*nave*	*north portico*	*south aisle*	*north aisle*	*insula 2 street*	*robber trench*
W	*AS*	-	-	-	1	1	-	-	2	-
	AB	-	-	-	-	5	-	-	2	-
	AT	-	-	-	-	2	-	-	1	-
	BB	-	-	5	-	-	-	1	-	-
	OB	-	-	4	1	-	-	-	-	-
	CB	-	-	-	1	-	-	1	-	-
X	*AS*	-	-	1	11	-	-	-	-	1
	AB	-	-	-	-	-	-	-	-	-
	AT	-	-	-	1	-	-	-	-	-
	BB	-	-	-	-	-	-	-	-	-
	OB	-	-	-	-	-	-	-	-	-
	CB	-	-	-	-	-	-	-	-	-
Y	*AS*	-	-	-	10	2	-	-	4	6
	AB	1	-	-	2	1	-	1	-	-
	AT	1	-	-	-	-	-	-	-	-
	BB	1	-	1	-	-	-	-	-	-
	OB	3	-	1	-	-	-	-	-	-
	CB	-	-	1	-	-	-	-	1	-
Z	*AS*	-	2	1	4	1	1	burial	3	-
	AB	-	2	-	-	-	-	-	3	-
	AT	-	1	2	1	-	-	-	1	-
	BB	-	-	-	-	-	-	-	-	-
	OB	-	1	3	-	-	-	-	-	-
	CB	-	-	-	-	-	-	-	-	-
I/II	*AS*	3	-	-	-	-	-	-	-	-
	AB	1	-	-	-	-	-	-	-	-
	AT	-	-	-	-	-	-	-	-	-
	BB	-	-	-	-	-	-	-	-	-
	OB	1	-	-	-	-	-	-	-	-
	CB	-	-	-	-	-	-	-	-	-

Other/unstratified: AS (6); BB (1); OB (2)

AS = *adult skull;* AB = *adult bone;* AT = *adult tooth;* BB = *baby burial;* OB = *other baby bone;* CB = *child bone*

A complete list of artefacts from Phase Z Category A contexts given below shows that they are unremarkable in themselves and form no obvious pattern which would provide a function for any Phase Z building. By far the largest number of Phase Z artefacts comes from the great building platforms laid down in the sixth century and made up of material deposited elsewhere at the end of the fourth century. Much of the material within the platforms demonstrates the consistency of their fourth-century aggregation, particularly B574, the base for Building 6 in the baths precinct, D100, the platform for Building 10, D251, the platform for Building 11, D108 the platform for Building 21 in the south aisle, and D344, part of the platform for Building 14 in the west portico. All of these contain late Calcite-gritted pottery, late glassware of Cool (1995) phase 7 (AD 350–450+) and coins of AD 367 or later. Similar material comes from C187, the trodden surface of a levelling layer in the north portico, dating to Phase pre-Z. The buildings which stood on the platforms were in use at a later date than these late fourth century deposits and both they and their building platforms are not dated by the finds within them.

Inevitably the study of a single class of artefacts by specialists who understandably cannot have the overall stratigraphic framework of the site in view is bound to be affected by their academic objectives. For example Casey and Brickstock have arranged the coins in the normal sequence for any numismatic study of a Romano-British excavation to enable statistical comparisons to be made between the various areas of the site, between the basilica site and other excavations in Wroxeter, and between Wroxeter and other Romano-British sites. They are naturally interested in such issues as telling us about the wider economic and historical framework in which Roman Wroxeter existed. But the stratigraphic picture is that the numismatic material was of very little importance to the understanding of the site and the processes by which it formed. Only one or two coins out of a total of several thousand could be shown to have stratigraphical relevance and thus there is the problem that the later layers easily postdate the coins found within them. The coins from the Category A non-building platform contexts of Phase Z demonstrate this. They relate to the sixth century but of the 37 coins four are AD 250–70, nine are AD 270+, 16 are House of Constantine, two Gratian, three House of Valentinian, and three are illegible.

Although the numismatic implications of the substantial collection of coins from the excavation are significant, we would be inclined to stress the importance of the observation that the coin distributions observed in aggregate within the phases dip abruptly, like the pottery, in Phase X at the end of the fifth to the mid-sixth century, rising again in the renewed activity of Phases Y and Z. The pottery tells the same tale. Standard Romano-British pottery distributions have caused Robin Symonds to reverse the histogram pattern of Phases X and Y (*see appendix 4, Figs 366–73*), but there is no doubt that the true stratigraphic pattern at Wroxeter shows the importance of the dip at Phase X in terms of both pottery and coinage (see Fig 319). The distributions may not follow the normal loss pattern of most Romano-British sites but we believe that Phase X, roughly AD 490–550, is the period at which Wroxeter ceased to receive large quantities of new material from outside; after that we see the deposition of fourth-century material through the sixth century as stocks dwindled and trade dried up. One pointer to this is the sudden increase in the number of mended sherds in Phase Y once new pots were more or less unobtainable (Table 16). Moreover the inhabitants were mending coarse wares as well as fine wares, mostly late fourth-century Black-burnished wares.

Table 16 Mended sherds by phase and ware

phases	*W*	*X*	*Y*	*Z*	*I/II*	*unstratified*	*total*
no of sherds	11	15	47	27	17	14	131
fabric groups	*R*	*BB*	*S*	*GW*	*CG*	*M*	*total*
no of sherds	8	98	8	9	4	4	131

R: *red wares including Severn Valley*
S: *samian*
CG: *calcite-gritted ware*
BB: *black-burnished*
GW: *grey wares*
M: *mortaria*

The analysis of the Wroxeter baths basilica finds mirrors the analysis of the site which precedes this chapter. Just as the pattern of the latest buildings was only revealed by very close attention to minute variations in the rubble so the patterns made by the finds can only be seen when they are dealt with in aggregate, setting aside a qualitative for a quantitative approach. This has allowed us to argue that even with the residual material, the dissection of the dumps can lead to a better understanding of the way in which the site was built up and how the finds within the dumps may relate to activities in other parts of the town. We can see that apparently significant single objects, like the Covesea and long proto-zoomorphic pins, take a new meaning when considered together with the examples from Graham Webster's excavations in the same *insula*.

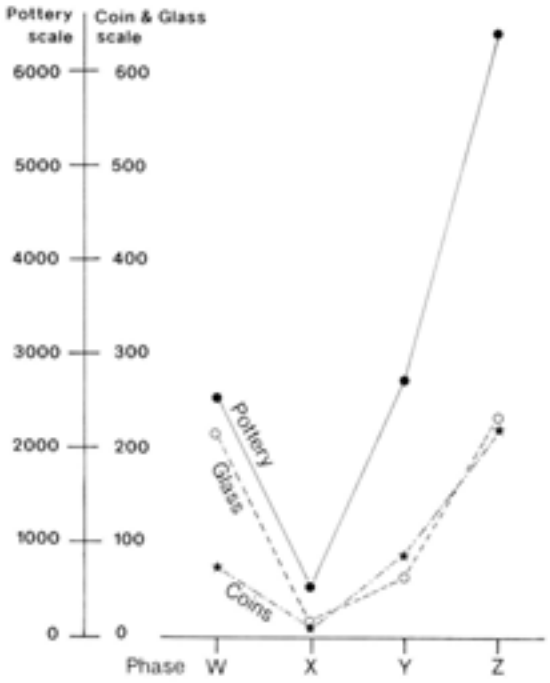


Fig 319 Number of special-finds by phase; note dip during Phase X at the end of the fifth to mid-sixth century (cf Figs 366 and 367)

The baths-basilica finds must be regarded as a subset of those from the whole town, but a better understanding of the last citizens of Wroxeter will not be gained until we can see more material from the latest levels of the town. For that reason, in this volume, we have chosen to concentrate on particular aspects of the finds rather than to produce an exhaustive catalogue. Appendix 1 provides a synopsis of all the material recovered, to show the scope of the small-find evidence.

The structural evidence (*see chapter 4*) shows a pattern of deterioration and refurbishment of a great public building, its decline, dismantling, and eventual replacement by another great building whose function may have been similarly municipal and public, or domestic and private. The finds reveal that as far as we can tell this was carried out by people who continued to follow Roman habits in their choice and use of pottery, their clothes and personal decorations, and their beliefs and customs. There is little to suggest a military presence and virtually no evidence for farming (*see appendix 1*) or rural crafts: merely it seems an urban population eking out a dwindling stock of Roman material, and despite contemporary fashion to east and west, stubbornly and persistently Romano-British to the last.

Identifiable finds from Phase Z, Category A contexts

Pottery, body-sherds from glass vessels, window glass, or unidentifiable fragments not included

Baths precinct

Pebble surface, context B97
pin: copper-alloy, Cool Type IIIB (Fig 332, no 2)

Pebble surface, context B99
bracelet: copper-alloy, Cool Type 25F (Fig 332, no 5)
bead: jet, Bliss Type A5D, cylinder with 2 discs
bead: glass, Guido Type 3, square-sectioned blue
pin or needle: shaft, bone
finger-ring: iron, with copper-alloy inlay (Fig 306, no 2)
nail: iron, disc-head, square-sectioned shaft (Fig 334, no 4)
wedge: iron
coin: Gallienus, 258–68 (Brickstock and Casey, cat no 349)
human bone: part of adult female skull

Pebble floor, context B132
tack: copper-alloy, Bliss Type A, disc-head
bead: glass, Guido Type 6A, biconical blue
pin: bone, Greep Type B1.1a
shaft: bone, pin or needle
plate: iron, perforated
coin: Claudius II, 268–70 (Brickstock and Casey, cat no 432)

Pebble surface, context B149
needle: bone, Greep Type B2, double perforation
coin: radiate copy?, 273+ (Brickstock and Casey, cat no 1161)
vessel: glass, edge of slender blue-green jug handle (cat no G0371)

Pebble surface, context B564
coin: Constantine I, 321 (Brickstock and Casey, cat no 1587)

Insula 2

Porch area, context C30
shaft: bone, pin or needle

Layer under underlying buildings 7, 8, and 22, context C90
spoon: silver, Böhme Type 4 (Fig 334, no 1)
brooch: copper-alloy, small trumpet (Fig 332, no 1, Mackreth, archive, cat no 18)
toilet implement: copper-alloy, ?spoon
sheet: copper-alloy, perforated and tinned
hoop: copper-alloy, penannular, undecorated
pin: jet, Crummy Type 2, cuboid, facetted head (Fig 332, no 4)
bead: glass, Guido Group 7iv
pin: bone, Greep Type A2.2 (Fig 332, no 11)
needle: bone, broken, green-stained
pins or needles: bone, 2 shafts
awl: iron, Manning Type 3A
hook: iron, wall-hook (Fig 332, no 10)
counter?: ceramic, re-used pot base Severn Valley ware
coins: Claudius II, 268–70; Carausius, 286–90; House of Valentinian, 364–78, (Brickstock and Casey, cat nos 422, 1398, 3152)
vessels: glass, rim of blue-green funnel-mouth jar; rim of blue-green bottle, flask, or jar; fire-rounded rim of green funnel-mouthed jar (cat nos G0298, G0437, and G0911)

Worn surface, context C94
pin or needle: bone, shaft
coins: 2 radiate copies, 273+; illegible, third to fourth century (Brickstock and Casey, cat nos 1243, 1251, 3260)

Cobble street, context C99
brooch: copper-alloy, spring
stud: copper-alloy, convex head, lead-filled
sheet: copper-alloy, scalloped edge
bead: glass, Guido Type IA, green segmented disc
pin: bone, Greep Type B10.1 (Fig 332, no 3)
pin or needle: bone, shaft
comb: bone, Greep Type Ibii, grooved decoration (Fig 332, no 12)
arrowhead: iron
knife?: iron, blade and tang
coins: Victorinus, Postumus, 270+; Valentinian I, 364–78 (Brickstock and Casey, cat nos 626, 2863)

Surface of pit fill, context C406
binding: copper-alloy, riveted, perforated strip
vessel: glass, shoulder blue-green prismatic bottle (Cat no G0590)

Floor of building, context E221
finger-ring: copper-alloy, Cool Type 11A, undecorated (Fig 332, no 6)
nail: copper-alloy, domed head (Fig 332, no 13)
counter: bone, Greep Type 2, dished (Fig 334, no 5)

Nave

Worn rubble path, context D85
buckle-prong?: copper-alloy
vessel: iron, shallow dish, everted rim

Rubble floor of Building 32, context D120
coins: Constantine I, 321–3; Theodora, 337–40 (Brickstock and Casey, cat nos 1591, 2315)

Area of worn rubble, context D132
coin: Constantine I, 332–3 (Brickstock and Casey, cat no 1859)

Area of crushed sandstone, context D208
intaglio: cornelian, oval, Capricorn swimming left (Henig 1974, no 664/5) archive cat no 12 (Fig 331, no 2)
coin: Valentinian I, 367–75 (Brickstock and Casey, cat no 2793)
vessel: glass, cracked-off rim of green cup or beaker (cat noG0773)

Extensive rubble spread, context D283
brooches copper-alloy, crossbow (Fig 308, no 1) crossbow (Fig 308, no 2)
bracelet: copper-alloy, Cool Type 1
stud: copper-alloy, flanged, with lead filling
binding copper-alloy, broad sleeve or handle (Fig 333, no 2)
chain: copper-alloy, 2 pieces, one with figure-of-eight links, the other with S-shaped links (Fig 332, no 8)
strip: copper-alloy, tinned
bracelet: shale, undecorated
spoons: bone, Greep Type A4, axe-terminal and Greep Type A2, rat-tail (Fig 334, nos 2 and 3)
handle: antler, Greep Type A1.1 (Fig 333, no 3)
mount: bone, Greep Type C1
pins: bone, Greep Type B3.1 and Greep Type B1.1a
pin or needle: bone, shaft
needle: iron, rectangular perforation
key: iron, tumble-lock, L-shaped
hoe: iron, blade and socket
buckle: iron: D-shaped loop, square plate
catapult bolt: iron, Manning Type 1
snaffle-bit: iron, 2-link
nail: iron, Manning Type 2
plaster eyes: one Type 1, two Type 2
counters: ceramic, reworked Calcite-gritted ware and reworked Severn Valley ware (Fig 333, no 1)
counters?: ceramic: four reused bases, three colour coated ware and one red ware
coins: Claudius II, 268–70; Constantine I, 330–5; Constantine I, 330–3; Constantine I, 335–6; Constantius II, 340; 'Constantius II', 353+; two House of Constantine, 335–41; two of Gratian, 367–75; illegible third or fourth century (Brickstock and Casey, cat nos 424, 1679, 1766, 1830, 2534, 2587, 2665, 2682, 3081, 3103, 3246)
vessels: glass, cracked-off rim of green conical truncated beaker; two fire-rounded, out-turned rims of green hemispherical bowls or cups; lower body wall of green, thick-walled bowl (cat nos G0755, G0818, G0828, G0952)

North portico

Worn rubble, context C77
counter?: ceramic, re-used base Oxford ware

Worn sandstone path, context C92
coin: Constantine I hybrid, 330–1 (Brickstock and Casey, cat no 1670)

Crushed mortar path, context C465
strip: iron

Worn rubble, entrance to Building 11, context D317
bead: jet, Bliss type 7, double-disc
bead: shale, crude hoop, diameter 10.5mm (Fig 332, no 7)
pin or needle: shaft, bone
coin: Constans, 346–8 (Brickstock and Casey, cat no 2356)
vessel: glass, amber-coloured body sherd (cat no G1084)

South aisle

Area of rubble, context D103
pins or needles: shafts, bone, two
strip: iron, perforated
plaster eye: Type I
human bone: fragment of adult male skull
coin: Constantine I, 330–5 (Brickstock and Casey, cat no 1777)
vessel: glass, tubular pushed-in base-ring of colourless vessel (cat no G0210)

Area of compact silt and rubble, context D104
bracelet: shale, undecorated
lock: iron, head of padlock bolt (Fig 332, no 9)
joiner's dog: iron
nail: iron
coins: 'Tetricus II', 273+; illegible third or fourth century (Brickstock and Casey, cat nos 1051, 3214)
vessel: glass, pontil-marked, concave base of blue-green vessel (cat no G0486)

Clay floor and platform, context D307
coins: two of Constantius II, 348–50 (Brickstock and Casey, cat nos 2557, 2561)

West portico

pebble patch, context D742
coin: 'Tetricus II', 273+ (Brickstock and Casey, cat no 1085)

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7 Archaeology and history: the site in its setting

The background and role of the baths basilica

The original basilica, Phase S (Fig A6)

The baths basilica (Building 75) formed one of the main components of the new town baths built in Wroxeter as part of a massive expansion of the city in the early second century. This complex will be discussed in its entirety in the volume on the baths and *macellum* (Ellis, forthcoming). Despite the fact that deposits underneath the floors of the basilica were not examined in any detail, it is clear from the excavations carried out on the baths by Graham Webster that the basilica was built over part of the legionary fortress, which was in use between about AD 57–90 (Webster 1988a). This military occupation was followed by an early civil phase, covering the years between about AD 90–120, which remains poorly understood. The baths excavations also appear to show that in about AD 120, possibly coinciding with Hadrian's visit to Britain in AD 121–2 (*SHA Vit Had* 11.2), the foundations of a public baths building were laid in *insula* 5. Detailed examination of the dating material shows that there was a brief hiatus after the main elements of the baths were laid out and that the building was finished in about AD 150–60 (Faiers 1990, 258–65). Earlier excavators (Kenyon 1940, 184) have suggested that some changes of detail in the overall plan represent evidence for an early forum on the site, as on the other side of Watling Street where Atkinson excavated an unfinished baths complex beneath the Hadrianic forum (1942, 25–54). However, this is not likely, and it is more probable that the halt in building the baths was a result of concentrating on the construction of the forum on the opposite side of the road. Building work on the forum seems to have finished by the end of AD 130 (Atkinson 1942, 179), leaving about 20 to 30 years to build the baths. This fits well with the construction time for the much larger forum-basilica in London which was roughly contemporary with the Wroxeter baths complex and took 20 to 30 years to complete (Brigham 1990, 93).

The plan of the baths, which may be classified as an axial half-symmetric row type, following Inge Nielsen (1990 **2**, 20) is familiar from the north-western part of the Empire, where it was invariably used for monumental baths occupying an entire *insula* (Nielsen 1990 **1**, 81 n 58). The baths-basilica variant arose from the need to compensate for the colder, damper weather of the region by roofing over the exercise yard, or *palaestra*. Nonetheless, it is clear that even in the more clement areas of the Empire, roofed halls were popular in baths of all sizes. A recent survey of North African baths (Yegül 1992, 400–404) shows that the roofed '*palaestra*' was commonplace, and could serve as an entrance hall, a meeting place, an exercise hall, a changing room, or even a *frigidarium*. Given such a variety of functions, it is not surprising that the design of the buildings varied considerably, with the personal tastes of the architect, the finances available, and the size of available plots all undoubtedly playing their part. All the various forms, even a simple rectangular hall without an internal colonnade, could still be called a basilica (Zienkiewicz 1986, 163–4) and it may well be that it was the function of the room rather than its architectural form which gave it its name. This may upset the architectural purist, but is incontestably the case with other rooms in Roman baths, such as the *caldarium* or *frigidarium*, which can vary enormously in shape and size whilst retaining their function and thus their name. The basilica at Wroxeter was undoubtedly designed to house specific activities; these will have defined its status, and are fully discussed below.

The background to baths basilicas has recently been traced by David Zienkiewicz (*ibid*, 162–4). He notes that the earliest British examples of baths with attached basilicas are found in legionary contexts, from the Flavian period onwards. The earliest known example in Britain is at Chester and is possibly dated to AD 79 by an inscription (Petch 1977; Mason 1990, fig 2), although such an early date has been questioned (Blagg 1980, 30–1). The basilica at Caerleon was started in about AD 80 and was apparently in use before AD 100–10 (Zienkiewicz 1986, 158–9). It seems very likely that the basilican plan adopted by the Roman army for the roofed *palaestra* was based on the *principia*, another building where it was necessary to provide space for many people under a roof. As an architectural form, the basilica was ideal for this purpose as it had an extremely basic plan which could be constructed in many different styles and materials. In essence, it comprised a large rectangular building divided into a nave and flanking aisles, sometimes with an external portico. It was also a building which had become familiar throughout the western half of the empire as a standard part of the forum of a planned town (Todd 1985), a fact which had implications for the availability of architects competent to erect such buildings (below). These same factors permitted its ready adoption for Christian churches in the later empire.

The closest parallel for the Wroxeter baths, with the basilica and attached baths arranged in an L-shaped fashion, is found at Chester. Both complexes are closely comparable in size, and the L-shaped arrangement allowed the baths to be very economically fitted into an *insula* (Mason 1990, fig 1). Given that the plans are very similar and that the legion at Chester had only comparatively recently left Wroxeter, it is pertinent to ask whether *legio XX* in Chester supplied engineering services and perhaps architects to help build the baths at Wroxeter. Such support might suggest Imperial backing for the project, as may be detected for the forum.

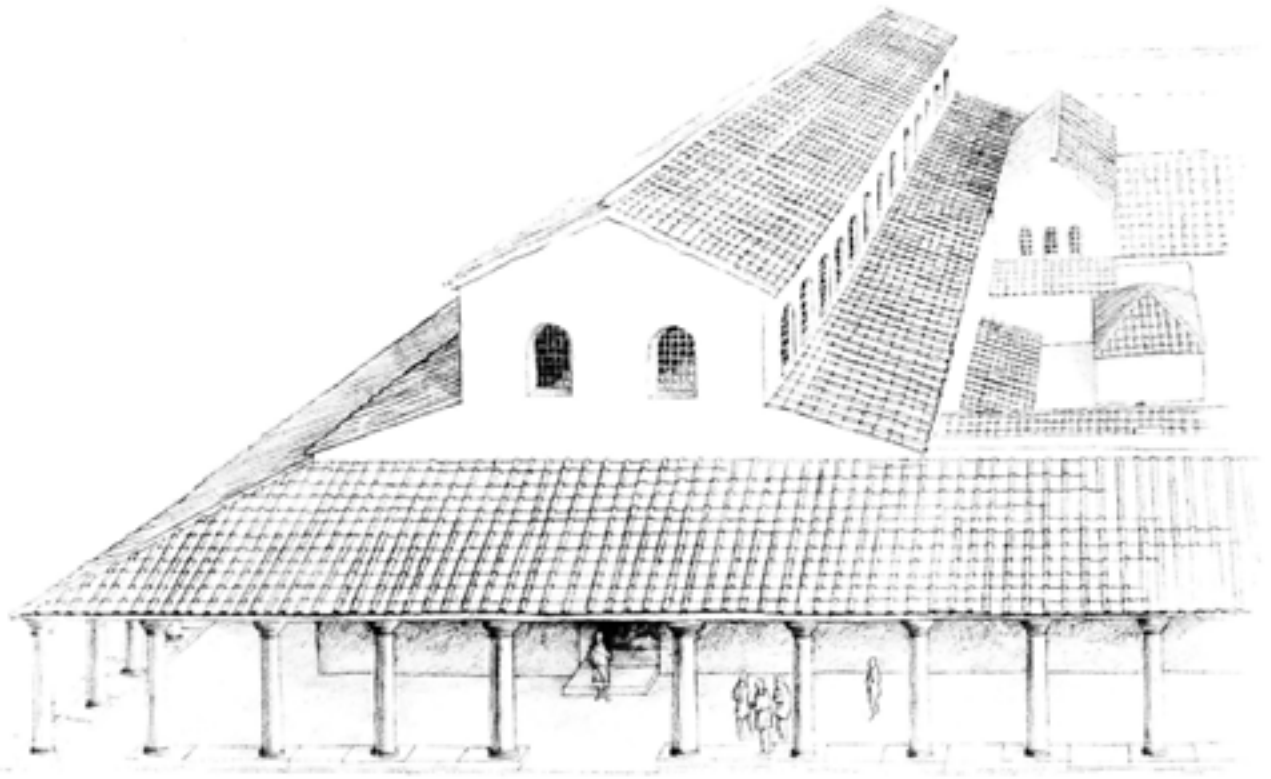


Fig 320 Reconstruction of the baths basilica, looking east. The building with the triple windows is the frigidarium *whose north wall is now the Old Work. (Drawn by H Bird and P Scholefield)*

This latter building was built in the remarkably short time of 8–10 years, following the demolition of the underlying nearly-completed baths in about AD 120 (Atkinson 1942, 24), and its completion was marked by an inscription which, it has been suggested, was lettered by a master craftsman brought in from abroad for the purpose (*ibid*, 179). In contrast, it seems that the construction of the baths complex took some 20 to 30 years to complete. Further, the hiatus after the laying out of the ground plan suggests that those responsible for the construction of the baths had hit unforeseen difficulties. The differing constructional histories of the forum and baths hint that, even if legionaries did help at Wroxeter, their assistance was intermittent at best. Although they might have been able to provide some technical assistance, for instance in quarrying, transport, or engineering, legionary craftsmen could not have been relied upon for a continuous presence, especially considering the huge scale of the military engineering being undertaken at this time on Hadrian's Wall. It is perhaps more likely that beyond basic assistance, the town was ultimately responsible for its own affairs and that both baths and forum were constructed by civilians. Nonetheless, it is possible that there could have been some Imperial assistance for the town in the form of tax remittance or other similar privileges, which are well attested throughout the empire (Millar 1977, 420–34). If, as has been suggested, Hadrian did visit the town in AD 122 and used the occasion to foster *Viroconium* as the most westerly example of a Roman planted town (Webster 1988a, 140–3), then it might well be that the town council received favoured status and aid during the emperor's lifetime. This would have allowed the forum to be completed rapidly and the baths to be laid out. However, after his death in AD 138, such assistance would have been lost and the pace of the work would be slowed considerably because the town would possibly have had to find its own funds. The lack of willpower to finish ambitious projects such as these is characteristic of the Romano-British elite, in contrast to their neighbours on the continent (Millett 1990, 78–85; Blagg 1990).

Despite the fact that very little of the original basilica remains standing, it is clear that so massive a building would have made an overwhelming impression when first constructed, situated as it was on the western fringes of the empire in a region of small-scale tribal settlements with round houses, four-post buildings and earth ramparts (Fig 320). Very little of the fabric of the building has survived, and almost nothing remained of the decorative detail such as the wall plaster, and so it is often impossible to say whether what was excavated was original to the basilica. However, the mosaics found *in situ* in the aisles show good design and a high standard of workmanship. Unfortunately, it was not possible to establish whether the original nave floor

was merely *opus signinum* or whether it too had a mosaic pavement, as wear had been so great by the time that the floor was sealed beneath repairs that hardly any of the original *opus signinum* survived. The architectural details are likewise imperfectly known but well executed remains of Attic bases and Roman Tuscan capitals from the portico show the sort of technical competence that could be expected from skilled local craftsmen (*see appendix 2*).

The role of the basilica is more difficult to assess. It is usually thought of as a covered *palaestra*, for use in times of bad weather and during the winter, although how such a huge space was kept warm is not clear. It is likely that in the initial phase of the baths the open courtyard south of the basilica was an alternative, fine-weather *palaestra*. The advantages of this arrangement were manifold. The courtyard had its own monumental entrance running between the *macellum* and the shops and latrine, it contained an open-air plunge pool (the *natatio*), it lay in a part of the *insula* that would get the heat of the afternoon sun and not be overshadowed by the baths block and, finally, there was an easy access to the baths via the central doorway in the south wall of the baths basilica. On fine days, therefore, most people would probably have opted for the outdoor *palaestra*. The large covered *palaestra*, the basilica, would then have filled other roles. Principal among these was as a place to socialise, by no means the least of the functions of bathing in the Roman world, but activities appropriate to an indoor venue, such as weight-lifting or ball games, could also have been carried out. In inclement weather, even outdoor events could be staged in such a large building, with running being an obvious candidate. These sports could have been limited to the nave allowing the usual pastimes to continue without interference in the aisles. It is even possible that booths could have been set up in the building to sell food, drink, and other goods, but there is no archaeological evidence for this and it is more likely that such booths would have been restricted to the external porticoes. The later decline in the status of the external *palaestra* is not only a reflection of the poor climate in the north-western provinces but is part of a general change of taste seen in the Mediterranean region in the later Empire where external *palaestrae* went out of fashion in favour of large, covered halls (Nielsen 1990 **1**, 81–2).

Attached to the east wall of the basilica, but integral with the main structure, was a rectangular building generally referred to as the annexe (Building 71). This was divided into two equally-sized rooms by a cross wall, and had two doorways into it from the basilica. No exact parallels are forthcoming and it seems clear from the awkward line of the basilica's east wall that the annexe was an addition to the original plan. It is thought that it was a possible *apodyterium* (changing room), but as none of the original floor or internal fittings survived this must remain speculation. Other possible uses for it include an anointing room (*unctorium*), a cloakroom attended by a *capsarius*, and the office of the *balneator* or general custodian (Nielsen 1990 **1**, 127–30). The north wall of this annexe, essentially a continuation of the north wall of the basilica though on a slightly narrower width, extended eastwards beyond the annexe as a free-standing wall and then turned southwards at a point 12m from the eastern edge of the *insula*, thus forming an extensive courtyard east of the annexe and baths. This was probably the service area, judging by the lack of masonry structures here and the restricted public access from the basilica. A parallel is given by the large service courtyard at the Fortress Baths, Lambaesis (Yegül 1992, 216–7, fig 244). The strip between the eastern courtyard wall and the north–south street between insulae 5 and 6 was left without even a portico, in contrast to the other three sides of *insula* 5. This large unroofed courtyard area, which appears to have had a pebbled floor, might well have been used for temporary stabling of carts and animals brought in by traders and those attending the market in the forum. The porticos found on the baths and forum facades are part of longer colonnades found running along both sides of Watling Street (Bushe-Fox 1913). Such colonnades are uncommon in Britain, but are well known in other cities in the empire. They would thus have added considerably to the grandeur of the design and would probably have been used for street markets, suggesting that the commercial heart of the town was centred on the road between the forum and the baths and on the side roads running at right angles to it, but that beyond this, there was little commercial activity. Indeed, apart from the *macellum* and the two associated lock-up shops, the *insula* shows a striking lack of the rented-out shops and taverns which are such a feature of baths *insulae* in Italy and elsewhere (for example the Baths of Neptune in Ostia, and the Stabian Baths in Pompeii; Nielsen 1990 **2**, fig 66, 75) showing that even in the centre of the new town the level of commerce must have been relatively slight.

Evidence for the water system within the basilica was minimal. A possible pipe inlet was detected in the south-east corner of the basilica and water pipes may have extended beneath the floors along the north face of the south wall, perhaps crossing through the wall at a point just to the west of the present Old Work to empty into the western plunge pool. Later pipe trenches also followed this route (see below). The clearest evidence for water systems came, however, from outside the basilica where a stone gutter ran along the edge of the north portico parallel with the street between *insulae* 5 and 2. Immediately to the north, buried within the make-up of the east to west street, ran a water pipe made of wood, with the sections joined by iron pipe collars. At the eastern end of this pipe, there was a plank-built water trough or drinking fountain. A similar pipe was found crossing the service area of the baths in a north-west to south-east direction.

Repairs and modifications to the basilica, Phases T, U, and V (Fig A7)

Once the basilica had been built, responsibility for its maintenance would have fallen upon the *curiales*. The revenue for such work would have been derived from local taxation, such as land rents, interest on capital held by the town, charges for the use of the baths, and even a local 'baths tax' which could be levied when needed (Nielsen 1990 **1**, 122–3). Further revenues might also have been derived from leases on stalls either in the basilica or on the porticos. However, if there was any shortfall the money would have to come out of the personal capital of the *curiales* (Jones 1964, 732). During the early empire, this was not a great problem as there was a rapid growth in the economy of the province and there might well have been enough money coming in to pay for the upkeep and use of the baths. Fuel costs for the baths could have been kept to a minimum by using coppice woodlands on the town's own land, and the town would have supplied the water to the baths thus avoiding one of the most expensive running charges (Nielsen 1990 **1**, 123; Webster and Hollingsworth 1959).

Initially maintenance would probably have been a minor problem. The basilica was not heated and there was no internal drainage system thus avoiding two potential problem areas. The only major structural repairs would have been to the roof which would probably need retiling every 100 years or so. Repainting and general running repairs would have been necessary, but the only evidence of the maintenance programme to survive was seen in the floors. In the north aisle, changes in the pattern and designs of the surviving mosaics show that panels A and B (and possibly C, D, and E), at the east end of the aisle had been relaid in a style which differed slightly from that of the original mosaic. Two periods of repair might then be deduced from panel E which, unlike the other repairs, differed radically from the earlier blue and white geometric designs by introducing guilloche and *tesserae* of ceramic tile. The siting of the repairs clearly reflected damage caused by traffic using the east doorway in the north wall and the north door into the annexe.

The floors then show a relatively long period of neglect, long enough for the mosaics in the aisles to be almost totally destroyed. This destruction may not have been solely due to wear, however, as the *ordo* may have decided to take up the mosaic rather than repair it. The underlying *opus signinum* would have been perfectly adequate as a floor. It was clear, however, that parts of the floor had suffered worse problems than wear, since in the north aisle sections of mosaic up to 2m long had collapsed into underlying subsidences. No attempt was made to lift and relay the mosaic where this had happened. Instead, the hole was backfilled with the mosaic still in place. It may have been these structural problems which ended the use of mosaic floors in the basilica, rather than wear. In the south aisle, heavy wear to the mosaic around the main doorway into the *frigidarium* was dealt with by inserting an extra threshold stone into the corner of the mosaic panel closest to the door. Immediately west of this, where the underlying *opus signinum* had been exposed, a large patch of ceramic tiles was cut into the floor. Beyond this, damage to the mosaic was filled in with a crude *opus signinum* patch. Thus the closer the repair was to the *frigidarium* doorway, the more enduring the material chosen for it. In the nave, no repairs were identified before the full-scale reflooring with areas of herringbone tile, and it must be assumed that the original floor continued in use, although some repair probably had to be carried out in the area around the west doorway.

The first major repair to the internal floors of the basilica involved laying down a total of 500m^2 of herringbone-tile floor in the nave, south aisle, and north aisle. The two largest areas of tile floor were at the east end of the nave, and in the centre and western end of the south aisle. Two smaller areas were also found, at the west end of the nave and in the centre of the north aisle, both forming patches immediately inside doorways. The patch in the north aisle appeared to conform to the projected panel lines of the mosaic floor and it is thus possible to suggest that much of the mosaic still remained intact when the herringbone-tiles were laid. Clearly, the south aisle mosaic was in a much poorer condition as it was almost completely replaced by the new floor. Some care had to be taken in laying the floor to make sure the tiles were no higher than existing doorway sills. There was one major anomaly in the floor level in the nave where the western edge of the mortar make-up for the eastern area of herringbone-tile floor had been left unfinished and standing proud of the floor to the west. It is possible that this was originally masked with a timber step. Unexpected breaks in the regular patterns of laying out the tiles showed that the south aisle had been laid beginning at the east end whereas the nave had been laid in two east to west strips back to back. A date for this type of reflooring was not obtainable as it was left *in situ* at the end of the excavation but a comparable secondary herringbone-tile floor in the *macellum* was dated to the late third century or later by a coin in its make-up, and it is likely that this date can be applied to the tiles in the basilica. Certainly, the deterioration of the mosaic floors in the aisles and two periods of repair which can be identified in the north aisle suggest that considerable time had elapsed since the mosaics had originally been laid.

The manufacture and laying of these large areas of herringbone tiling represent major repair work, and it is not inconceivable that the basilica was reroofed at the same time since the building would by now have been around 100 to 150 years old. In any case, the work of relaying the floor may be taken as evidence that those responsible for the maintenance of the basilica and baths were adopting a more active though pragmatic approach to its upkeep.

Instead of reflooring the entire basilica, selected areas were refloored on the basis of the degree of wear to which they were exposed. Thus all but one of the major doorways was provided with an area of herringbone tiling, while the south aisle and east end of the nave were refloored throughout presumably because they were the most frequently used routes to the baths and public latrine. The dating of this type of flooring to the late third or early fourth century fits it into a period of greater investment in public works prompted by the re-establishment of Imperial control over Britain after the Carausian episode and demonstrating the renewed prosperity of the empire under the settled rule of the tetrarchy (Perring 1991, 109–12; Williams 1993, 31–2).

After this major effort there was a period of relatively small-scale repair, some of which is difficult to understand. This includes in particular a long trench cut into the southern edge of the nave floor which extends from the herringbone-tile patch at the east end to the west wall of the basilica. The trench was backfilled with rubble and earth which subsequently became worn *in situ*. This must have been an unsightly feature in the floor and the suggestion that it was an *ad hoc* repair made to reinforce the crumbling edge of the nave floor does not answer the problem. How was such a feature masked, and why was such drastic work necessary?

In the south aisle, a complex series of small stakeholes was twice cut into the herringbone-tile floor with a long interval between the cutting of the first series and the second. Again, the purpose of these features was not clear. One might suggest scaffolding especially if roof repairs were required from time to time, but the irregularity, small diameter, and shallowness of these holes makes it difficult to reconstruct any load-bearing structure. An alternative explanation might be that some lightweight structure, perhaps some kind of internal fitting, was built against the south wall of the basilica, dismantled, then renewed sometime later, but the nature of the structure (Buildings 72/73) is still difficult to envisage.

More substantial postholes were dug in the nave. Again these are impossible to make sense of as scaffolding posts or anything else since they show no coherent patterns. In the north aisle, a large rectangular, shallow pit was excavated into the *opus signinum* foundation of the ?removed mosaics. The function of this feature too is unknown, but possibly it represented some kind of fixture, such as a semi-permanent stall. To the west of this, the first bay of the north aisle was cut off by a wooden partition which was later replaced by a stone wall. This created a small room (Building 61) of unknown function. Perhaps this was where the *capsarius* sat to collect entry fees to the baths. Since the other doors were apparently unmanned this seems unlikely, and the annexe is a better choice for such an office given its proximity to the *frigidarium* doorway. Finally, in the region of the *frigidarium* doorway, water pipes set within a series of localised floor patches were laid over the remains of the mosaic floor. It is not clear where the pipes came from or where they were taking water to. Dating evidence for these phases was limited to a penannular brooch from the south aisle which Donald Mackreth assigns to the fourth century (Fig 309, no 2).

The annexe showed a much more complex sequence of development than the basilica. The original floor was worn back to the concrete subfloor, then extensively patched with a mortar and sandstone rubble skim, while at the same time the cross wall between the two rooms was demolished. In the next phase the cross wall was reinstated and the southern room was given over to some industrial process involving a series of interconnected pits and gullies associated with a small wattle storage bunker, Building 74. The north room presumably continued to be used for its original function. The brief industrial use being over, the southern room was subdivided, with a small stone-built room, Building 69, constructed in its south-east corner. This new room and the rest of the south room were refloored in beaten earth. Meanwhile, the north room appears to have remained unchanged. These repeated changes in the form and use of the south room are unusual and difficult to understand. If the annexe was the *apodyterium*, or played some other fixed role in the use of the baths, why was it necessary to change its layout so frequently? Might this be tied to larger cultural changes, shifts in which social or gender groups used the baths, and when? Or perhaps the industrial aspect might indicate that the annexe had never played a part in the ritual of going to the baths, but had always been the base of the maintenance staff.

The last refloorings (Phase W) (Fig A8)

The rather piecemeal attempts at repair in the early to mid-fourth century were replaced by a much more comprehensive approach during and after the last quarter of the fourth century. The basilica was refloored throughout three times, with innumerable episodes of patching and mending between the major repairs. In keeping with the established repair methods, however, the materials used for the floors were very varied. In places smooth beaten earth or mortar floors on a thick crushed sandstone make-up had been laid down, but where heavier wear was expected pebbles were used, with larger cobbles or blocks of sandstone inside the doorways and along anticipated paths. In spite of the use of rather unlovely surfaces over much of the interior of the basilica, the presence of earth and mortar floors show that the building was still roofed, and the fact that all the floors and patches were kept clear of surface rubbish shows that the basilica must still have been maintained as a public building. Further evidence for the continued public use of the basilica can be seen in the astonishing degree of wear on the successive floors, particularly close to the entrances.

It is quite impossible to be precise about the length of time needed to produce these worn surfaces, since any calculations have to depend on a number of interrelated factors: the estimated numbers of people crossing the floors, their footwear (Roman hob-nailed shoes will wear surfaces quicker than, for example, the soft leather soles worn universally in medieval times), and the relative hardness or softness of the stones used (the sandstones are softer than the cobbles, the herringbone -tiles lying somewhere in between). However, observation suggests that such wear cannot be achieved in only a few years. An exact analogy has been found in the temple precinct at Bath where Barry Cunliffe's meticulous excavations recovered a sequence of six worn rubble surfaces which, from coin evidence alone might date to 350–410 but which, as he points out, are unlikely to have worn to the observed degree within the postulated 60 year sequence (Cunliffe and Davenport 1985, 74–5).

One way of determining the speed of wear on the surfaces found at Wroxeter might be by comparing the excavated surfaces with parts of the consolidated baths adjacent to the basilica and open to the public. Until recently all visitors to the site passed over the wall footing rebuilt in about 1955, since it was the only way into the baths area. The footings are made of the local sandstone, reusing rubble found during the excavations and thus identical to that used in the late reflooring of the basilica. The annual number of visitors has been about 25,000, and each would pass over the wall footings twice, making, by 1990, *c* 50,000 journeys annually which multiplied by 35 years gives a total of *c* 1,750,000 journeys. Yet the surface of the sandstone blocks is not as worn as the floors made of the same material in the basilica (Fig 321). However one considers these figures, and even taking into consideration the nailed soles involved in the Roman period, it seems impossible for such worn surfaces to have been created in less than three or four decades. Indeed, the dating evidence for Phase X appears to indicate that Phase W may have lasted from 75 to 100 years.

It is certain that the basilica was used at this time by crowds of people on what must have been a regular basis. The evidence of the paths, particularly the diagonal shallow hollow-way leading to the doors in the Old Work, proves that many of them were entering the *frigidarium*. However, evidence of the blocking of the two doors into the *tepidarium* and the *caldarium* beyond (Fig 322) possibly in about AD 300 raises the question of why so many people went into the *frigidarium*? One answer is that the two flanking *sudatoria* were still in use providing a smaller, two-part baths block. Another suggestion (below), is that by this time the *frigidarium* had acquired another function entirely.

It can be demonstrated stratigraphically that the reflorings extended throughout the interior of the basilica and its external porticos, so it is apparent that those who were maintaining the floors and presumably the fabric of the building were co-ordinating a series of





Fig 321 above: view east across the western baths suite into the main tepidarium*; u marks an area of wear in one of the walls rebuilt in the early 1950s.*
below: detail of the worn sandstone blocks in the tepidarium *wall.*

periodic repairs. The finding of a coin of Gratian dated AD 367–75 within the make-up of one of the earliest sections of the major floors (D1557) provided an unequivocal *terminus post quem* not only for the floor, but for all subsequent developments within the basilica. The length of time between the laying of this floor and the abandonment of the reflooring programme is a matter for debate, but it is clear that the basilica was still roofed, and heavily used at the end of the fourth century and probably throughout the fifth. The implication of this sustained reflooring is that during this period the authority responsible for the building had access to sufficient funds to carry out major repairs, whereas the period between the laying of the herringbone-tile floor and the great reflooring, corresponding to the time of the House of Constantine, was in contrast noticeably impoverished and characterised by *ad hoc* maintenance.

This discrepancy may be the result of Imperial policy over local taxation. As already discussed, in the early empire local taxation was administered and collected by the *ordo* of the town. Increasingly the imperial government began to interfere with this system,



Fig 322 Main tepidarium *of the baths, looking west. This photograph, taken in 1859, shows, to the right, the blocked doorways between the* frigidarium *and* tepidarium, *more blocked doors can be seen in the background*

and under Trajan, the office of *curator rei publicae* was created to supervise municipal finance and spending for the Imperial government (Ward-Perkins 1984, 15–16). Although the post was normally filled by a local man and was initially seen as being merely one of the higher rungs of the civic *cursus honorum*, the status of the post was quite different from other local government posts in that the appointment was in the control of the emperor, and not the *civitates*. From the end of the third century, every town would have had a *curator* who was effectively chief magistrate of the town, although he was appointed probably on the recommendation of the town council (Jones 1964, 726). This meant that the chief magistrate for the town was answerable to the governor of his province, and ultimately to the emperor, and not to the fellow members of the *ordo*. In any case, by the end of the third century, the widespread effects of inflation and disruption in Imperial rule had left town councils disinclined to shoulder the burden of public munificence (Ward-Perkins 1984, 24–37). Indeed, as already noted, it is even doubtful whether the native elite had ever been completely committed to the Mediterranean custom of public works as a demonstration and obligation of status (Millett 1990, 81–3). The combination of local elites who were unable, unwilling, or uninterested in competing to embellish the towns, combined with the controlling presence of the *curator* who owed his office not to his fellow *curiales* but to the emperor, dealt a mortal blow to the concept of personal civic generosity, although the death was more lingering in some parts of the empire than others. This problem was exacerbated by the fiscal policy of the Imperial government which tended to throw more of the burden on to the individual *curiales*. Both Constantine and Constantius II had seized local tax revenues for the use of the state, including for the first time the returns from lands attached to temples which the town would usually administer. This policy was reversed by Julian during his brief reign but reimposed by Valentinian and Valens. It soon became apparent, however, that the emperors would have to restore some of these monies to keep the towns going. Initially the amount repaid was variable but inefficiency and corruption meant that often the money did not materialise at all. Finally, in AD 374, a fixed amount of one third of the rents from civic lands was refunded and the administration of the lands was returned to the towns. At the same time, an equal proportion of the civic tax revenue was refunded (Jones 1964, 732–3), a decision reiterated in a law of Arcadius and Honorius promulgated in AD 395 which stated that one third of the revenue from farms belonging to a town should be used for the repair of public works and the heating of baths (*Codex Theodosianus* 15.1.32; Phaar 1952, 427). This policy meant that, after about 50 years of uncertain funding, the *curator* responsible for the town's maintenance could rely on an annual income again and once more carry out public works. The problem with such a system is that the town would be at the mercy of the whim of the *curator*. If he was corrupt or uninterested, the money set aside for the repair and maintenance of buildings would end up being used on other projects. Even if the *curator* was conscientious, other more important tasks, such as reinforcing the town wall with bastions, might be given a higher priority. In the case of *Viroconium*, it seems fairly clear that, after a lean period in the early to mid-fourth century, some of the revenue returned to the town after AD 374 was put to use in a programme of continuous maintenance of the baths basilica, and possibly of the baths as well.

The repair of baths was always popular with the inhabitants of a town and there are many parallels for the restoration and maintenance of baths in other areas of the empire at this same time (Yegül 1992, 322–3). Some of these accounts marry well with the evidence seen both in the basilica and in the baths themselves. For example, the account of a governor of Campania who restored the baths of *Antium* (Anzio) in AD 379–82 (*Corpus Inscriptionum Latinorum* X no 6656):

> The baths were sordid in their ruinous state and dangerous in their structural insecurity, and the threat of collapse frightened people and kept them away. I repaired them by removing all the decay of old age, and by rendering them structurally sound.

Such public-spirited acts would help to gain support from the townspeople and would arguably have had more impact than in spending money on repairing the forum or town walls.

At Wroxeter refurbishing extended beyond the interior of the buildings, and the *insula*'s drainage and water supply was overhauled. The water pipe to the north of the stone gutter was replaced by a new one and about two thirds of the stone gutter was removed and replaced with a timber box-drain which fed into the remaining section of stone conduit. This particular renewal was a failure and the stone channel soon silted up, forcing the water to cut a new course to the north through the debris which had built up at the edge of the street. Such activities immediately bring to mind the similar evidence seen at Verulamium in the fifth century (Frere 1983, 226). It seems probable that this is the period when the service area or precinct of the baths was resurfaced with a pebble floor containing two water pipes, which may have joined up with the pipe along the southern edge of the east to west street. The water pipe within the basilica, along the south wall, was probably also renewed each time there was a major reflooring.

In the annexe, the upsurge in maintenance was reflected in a complete change to industrial use. Both the north and south rooms were pressed into service, indicating that this part of the baths was no longer used by the public, and various radical alterations took place, including the removal of the roof. A doorway was knocked through the cross wall, connecting the rooms for the first time, and the floor of the north room was levelled with a thick dump so that it was at the same height as the south room. This dumping extended partly into the south room through the new doorway. Two open-fronted lean-to structures, Buildings 59 and 60, were then built against the north and east walls of the northern room. No evidence remains of their function, but they were too flimsy to offer anything other than basic shelter. In the south room, the small corner room was demolished down to about three-courses height and a hearth was built against the remains of its walls. Close by the hearth lay a block of burnt *opus signinum* and a pit filled with charcoal, suggesting that the hearth had been industrial. It was in use long enough to be renewed. The annexe then underwent another of its periodic changes of form, though not of function. The cross wall was levelled and the two lean-to buildings reconstructed, along much the same lines as before. This time we have more evidence for the activities which took place within them. Both buildings had hearths and once again associated finds indicate that these were industrial. Small casting pits were cut into the ground outside the buildings. A trowel was found in the debris of one of the hearths, and mortar had been mixed in a hollow in the floor of one of the lean-tos. Mortar also seems to have been mixed in Building 67, a small structure built to shelter a barrel set into the ground. The most obvious activity in the annexe in these sub-phases, however, was the preparation of materials to be used as floor patchings in the basilica or elsewhere in the baths. The evidence for this consisted of numerous small deposits of leftover building material: sandstone for reuse, hardened mortar and *opus signinum*, tiny dumps of *tesserae* and tile chippings, and areas of mortar mixing. Clearly, the annexe had been turned over to the sole use of a clerk of works engaged fulltime in repairing and maintaining the baths.

The building yard phase, Phase X (Fig A9)

It seems reasonably clear that after a period of continual repairs to the basilica decline set in, although the building was not totally abandoned. Instead, the east end of the building became the focus for a group of lightweight wattle walled structures (Buildings 54–6). Building 54 seems to have been used for metal working. Associated with these was a hearth, a pit used for slaking lime, and a deeper pit of unknown function cut right through the basilica floor. In the annexe, slaked lime was spread out to dry in the south-east corner, and a hearth was built north of the southern doorway. In the northern half of the annexe, the shelters of the previous phase were demolished and two new doorways were knocked through the north and east walls. The northern door gave access to Buildings 57 and 58, put up on the north portico. Again, their function is unknown, but they are associated with an oven. The importance of the annexe seems to have declined, either because operations previously confined to the two small rooms could now spread into the basilica itself, or simply because the attempt to maintain the basilica was over. Both suggestions imply that the basilica had gone out of use as a public building. Dramatic evidence for this was found in the area to the east of the *frigidarium* doorway. Here, the floor levels of the south aisle, by now about 0.5m thick, had been entirely quarried away down to the soft mortar sub-floor. The inference seems to be that the floors were quarried to provide material for use elsewhere, perhaps in the maintenance of the smaller baths suites to the south of the basilica. The resulting quarry hole was then partially backfilled with earth and rubble and Building 54 was built over it.

The erection of several buildings at the east end of the basilica might suggest that its roof had been removed, forcing those using its shell to construct shelters for themselves. Whether this was actually the case is difficult to determine but two pieces of evidence hint that the roof did survive, albeit in an unsatisfactory and unsafe condition. First, there is no evidence for the weathering of the floor surfaces at this level. The buildings were constructed on soft silts in the north aisle and nave and these, when wet, would have required paths or duckboards laid upon them, evidence for which was not found. Second, in the subsequent phase, Phase Y, the basilica floor was covered with roofing slates. If these did not come from the basilica's roof, it would be difficult otherwise to account for them. Additionally, the evidence for the burning of worm-ridden oak timbers in the same phase suggests the clearance of a decrepit building, or its roof. These two facts tend to support the theory that the roof was not finally dismantled until Phase Y.

Only on the porticos does there seem to have been some attempt to maintain the existing public function. On the north portico, the original pebble floors had become badly damaged by subsidence and running water (presumably because the drain or a water pipe had become fractured or blocked). Instead of levelling the surface, the portico floor was restored by building an extensive timber boardwalk suspended over the various hollows on joists, so that pedestrian traffic would have been able to move freely along the north edge of the *insula*. The two doorways in the north wall of the basilica were still in use, but access was perhaps restricted to those working in the structures erected inside the basilica. The boardwalk seems to have been designed specifically for those people approaching the baths from Watling Street. It went no further than the eastern door in the basilica wall, and access further east was blocked by a small oven and Buildings 57 and 58. The presence of Building 58 also demonstrates clearly that the portico colonnade must have been at least partially dismantled in this phase since the north wall of the building was founded on several of the stylobate blocks and overlay column positions.

On the west portico, the change was mainly a matter of a shift in emphasis, with commercial use taking over completely from access. The roof was dismantled, and perhaps the columns were removed, then two large post-built buildings, Buildings 63 and 64, were constructed on either side of the western door of the basilica across the entire width of the portico. Although these two buildings left the west door of the basilica accessible there was little evidence that the doorway was actually in use. Building 63 contained a large bread oven which would suggest that these buildings were simply more substantial versions of the booths which had probably been sited under the colonnade roof in earlier phases. An identical oven was found by Donald Atkinson on the opposite side of Watling Street on the east portico of the ruinous forum, and was dated by coins to the end of the fourth century or later (1942, 108–9; pl 29B).

The slightly contradictory picture painted here seems to indicate that although the basilica was still in use, it was no longer used by the general public. Instead, only those working within the small buildings at the east end were allowed access. The activity being carried out at the eastern end of the basilica is similar to the work carried out in the annexe in the previous phase and may indicate that maintenance was going on elsewhere in the baths, although the basilica was becoming ruinous. This suggests that the *frigidarium* door was now only a service door and it may have been partially blocked this phase. The main access to the baths was now from the external *palaestra*, south of the baths basilica. Unfortunately, it is not possible to determine when the public baths went out of commission, but the main baths suite seems to have been sealed off in the early fourth century (Webster 1991, 55) leaving the two smaller subsidiary baths in use. These might well have remained in use until the end of this phase given that the evidence at the east end of the basilica suggests maintenance work being carried on nearby. Elsewhere, alterations seem merely to have been made to prevent the baths basilica becoming a danger to the public. Since most of the basilica seems likely to have been out of bounds this only involved dismantling the portico roof and removing at least some of the external colonnade.

Coins of the late fourth century, the latest on site, show that this phase cannot have been earlier than the very end of the fourth century but a radiocarbon determination on a hearth at the east end of the north aisle and a remanent magnetic date on the bread oven on the west portico indicate a much later date (see dating discussion below). After this phase, coin dating is of no practical use at Wroxeter as the site has no fifth century coinage, other than the unverified example identified by Casey (1974).

Partial dismantling of the basilica, Phase Y (Fig A10)

After what seems to have been a comparatively short period of use, the buildings at the east end of the basilica were demolished. This was followed by the demolition of much of the basilica itself, including the roof, clerestory, gables, and possibly the colonnades. The interior then underwent a fundamental change of use and the floor surfaces were completely buried under a layer of dumped soil covered with roofing slates. The only structural activity seems to have been at the west end of the south aisle where a small square building, Building 52, was constructed on a mortar platform.

Although the actual demolition was done with care and caused little damage, some of the details of the process can be reconstructed. The roof was taken down and any timbers not reusable were burnt. (Charcoal from within the basilica in this phase was exclusively of oak, some of which still showed signs of woodworm and other decay, and can be assumed to have come from the roof timbers.) Most of the roofing slates must have been taken away for reuse, but damaged or unneeded slates were put to use surfacing the earth dumps that now floored the basilica. The slates were not scattered randomly but were found in concentrations, particularly around doorways. Exceptions were the west doorway in the south wall and the main west door to the basilica, which were fronted with more hard-wearing rubble surfaces. It seems likely that the clerestory was taken down and the internal colonnade removed, though there is no evidence for this. The gable ends of the building would also have had to have been demolished, as a safety measure.

The porticos also seem to have been cleared of buildings and abandoned. On the west portico a rough rubble path was laid up to the west door, which seems to have been reduced in width. On the north portico a certain amount of dumping took place at the east end,



Fig 323 Reconstruction of the baths basilica site after the roof was removed (Phase Y). The rough paving and worn rubble surfaces suggested that the space was still used by many people but only one structure was identified. The site may have been used as an ad hoc *market. (Drawn by P Scholefield and P Barker)*

but it is possible that the timber boardwalk was still in use to the west. Any columns still standing along the porticos will have been removed, and at least some of the stylobate blocks in the west portico colonnade were robbed out at this point.

Despite the destruction, the shell of the basilica was left with its external walls still standing though probably lowered, and it seems once again to have become a public space (Fig 323). There was little sign of any structural activity within the shell but the paths and worn surfaces clearly show that there were still people walking through it, and the worn rubble surfaces associated with the latrine entrance seem to indicate that some of the public facilities of the town still operated. For some reason a new door was knocked through the south wall, giving access to the passage between the latrine and the shops. The carefully selective demolition of the roof and colonnades and the laying of paths make it clear that there was still an authority in control and concerned to keep the building safe and useable, even if only as an open space.

This begs the question of the function that the basilican area now served. It must be assumed that the baths, if not disused, certainly had no functional connection with the former basilica, yet there was clearly public use of the space. Possibly, the wide expanse of the basilican area became an open market. The forum, on the other side of Watling Street, was by now presumably long-deserted and the enclosure formed by the basilica's walls would be an ideal replacement. Access was controlled by the limited number of doorways into the basilican area, the larger of which may have been partially blocked, and, although there was no evidence for tables and stalls, there was certainly at least one permanent structure in the south aisle. This might be interpreted as a municipal office or even a tax collection point. Certainly, if the population still continued to exist at Wroxeter, which from the evidence of the later great rebuilding it did, it will have been paying taxes in kind (*annona*) rather than in money. Inevitably this will have significantly boosted local production of goods (Esmonde Cleary 1993, 9–10).

The peripheral areas of the site before the great rebuilding

Very little can be said of the areas outside the baths basilica and its porticos in the earlier phases since none of them were excavated down to their original floors. Walls or earlier archaeological trenches have severed these areas from the basilica and it is impossible to be sure how the sequence of events in the respective areas relate. The three peripheral areas are relatively small, and without stratigraphic links to other parts of the site it would be extremely rash to attempt to tie the rise and fall of buildings here to major historical events.

The most fully investigated area was the strip of land between the east precinct wall and the north to south street delimiting the eastern edge of *insula* 5. Here, the earliest level reached was a fine pebble floor, which may have been contemporary with the construction of the baths in the mid-second century. This was sealed by a complex series of linear tips lying north to south which had been deposited from the base of the wall back to the street. This dumping contained a few sherds of late third/early fourth-century pottery and some late third-century coins. On top of these dumps was a complex of industrial features. Closest to the wall, and roughly parallel with it, was a series of deep, rectangular pits connected by timber-lined gullies. It was clear that these were associated with some water-based industry like tanning, fulling, or dyeing but no firm evidence was recovered for the process carried out in them. At least two parallel sets of pit and gully systems were found. Between the pit and gully systems and the street was a large furnace, renewed at least three times and changing axis on each occasion. This was associated with fragmentary evidence for two structures, Buildings 2 and 3, both of which sat on rather than in the ground. The best preserved of these structures, Building 3, showed evidence for internal partitions and bow sides as well as a possible hearth. The buildings and associated processing were separated from the street by a wattle fence which ran the full length of the site. These structures, and the associated furnace were demolished, and pits and gullies backfilled, and replaced by another bow-sided structure, Building 1, also subdivided by internal partitions and containing a tile hard-standing.

At the eastern end of *insula* 2 a similarly complete sequence of activity was discovered. The earliest structure found was part of a clay wall, assumed to be evidence for a building, Building 62. This was all but buried by a dump on which was built a small industrial furnace. The furnace was given a *terminus post quem* by a coin of the mid-fourth century. Sealing these features were several interleaved dumps into which had been cut an extensive pit and gully system. This consisted of a large, deep circular soakaway pit lined with stone roofing slates, which had a rectilinear series of gullies draining into and from it into small soakaways. West of this pit were two small clay-lined pits which may have been settling tanks. After these features had been filled in and the surrounding area levelled, a large and distinctive structure, Building 36, was constructed. The evidence for this consisted of a south wall of at least seven closely spaced square pits filled with alternate layers of clay and cobbles, and a west wall of one square pit identical to those in the south wall, two post-pits and the top of the early clay wall. A possible door lay between the two postholes. This must have been a massive timber building, possibly colonnaded, though no evidence was found for its use. Contemporary with this building, several sherds of Palestinian *amphorae* possibly dated from the late fourth to seventh centuries were found in the backfill of the settling tanks. Finally, the building was demolished and a spread of yellow clay with a path set into it was laid out. At the northern end of this path was a rubbish pit.

In the service area of the baths, to the east of the annexe, the earlier deposits were looked at rather than excavated and so it is difficult to assess the information here. Nonetheless, two major phases can be suggested. The first involved the laying of a pebble surface. Beneath this surface, but contemporary with it, were two water pipes. This phase was dated to the later third or early fourth century by pottery. Large areas of this floor gradually subsided, and in the next phase the surface was levelled with the dumps of mixed deposits laid as a wet slurry. This levelling immediately preceded the late rebuilding phase.

Demolition of the basilica and the great rebuilding

Preparatory work, Phase pre-Z

The slow and gradual decline of the basilican area was abruptly brought to a close by a decision to reuse the site in a radically new way. It is assumed that the site was now acquired by someone in authority for their private use, a process demonstrated by the unequivocal archaeological evidence for the selective demolition of parts of what remained of the basilica and the subsequent reuse of the site for a set of timber buildings of some grandeur which were carefully planned and consistently well designed. Although by now beyond the remit of imperial government, the *curator*, or whatever other authority was still running the town, is assumed to have adopted a policy that was already being recognised by the emperor in areas that were still under imperial control. This was the disposal of the site of a public building to a private citizen (Jones 1964, 733). The imperial rescripts are clearly legitimising an existing practice and in reality it is probable that in most cases the land had already been seized. The emperor was concerned that the sale of these sites should benefit the city, the money being used to maintain public buildings, but in the case of *Viroconium*, it is unlikely that money was still in use or that there were any such buildings left in a fit state to maintain.

The most substantial element of the demolition involved the removal of the north wall of the basilica from at least the east doorway to a point just to the east of the north-west corner, a stretch of wall some 60m long and about six metres high. The robbing was uneven, stopping at some points at floor level and in others penetrating to a depth of over 1m. Nonetheless, the wall was taken down with some care as only one small fragment of the upper part of it was found to have fallen and impacted itself onto the north aisle floor. The stone from the wall appears to have been kept for reuse as hardcore in the platforms of the buildings laid out in the next phase (below). At the same time as the demolition of the wall, the east to west street to the north was partially quarried out to a depth of about 1m, the spoil from this operation being sifted to separate the cobbles from the matrix. The gravelly matrix was retained to create a new street surface. The robbing of the street was not total, lengths of cobbled street being left at both the west and east ends, but it was clear that there was a fundamental change of purpose though we have no way of knowing what this was. It was also noted that there was a clear relationship between the street robbing and the laying out of the two major buildings of the next phase implying that the basilica's demolition and the creation of the gravel street were all part of the same overall design. It is also likely that the final robbing of the stylobates of the north portico occurred at this time and before the cobble street was dug away. Once the street had been excavated and sifted, the resulting trench was then carefully backfilled with the finer spoil, the bulk of material being increased by including within it some organic matter, possibly midden material. Careful excavation of the infill of this broad trench showed that it had been built up by tipping baskets of gravelly spoil from alternate sides of the trench and then levelling these out to form a slight camber. The new surface was slightly below the level of the original street and access at either end was presumably provided by wooden steps, the abrupt junction with the remains of the cobbled street making wheeled access impossible. Since the trench dug into the cobble street had been backfilled from both sides, it is clear that this backfilling, and the consequent creation of the gravel street, whatever its purpose, had taken place after the robbing of the north portico colonnade stylobates, but before the construction of Building 10 and the buildings on the southern edge of *insula* 2, since there could have been no obstruction to basketing from either side.

Further east, the remains of the north portico to the north of the annexe and precinct saw a period of intense occupation involving the construction and use of a large number of hearths which were divided into four sub-phases by dumping and levelling. Generally, these hearths were made of ceramic or micaceous roofing tiles and experiments showed that these would soon break up in the heat of a fire. This would suggest that each hearth was being used for only a few firings and was then being abandoned, to be replaced by a new one in a slightly different position. Thus, despite the four sub-phases, it is unlikely that the hearths were in use for a long time. Carbonised grain and quernstone fragments round the hearths suggest cooking, probably of some kind of rye bread, though there was no evidence of any structures round or over them so that presumably the cooking went on in the open.

There is little doubt that the work discussed above had been planned before it was carried out. The robbing of the north wall was carefully done and the debris was not left on the site. The digging out of the cobble street seems especially puzzling. This must have involved a considerable degree of effort and it was clear that there was an overall design in mind. The primary aim appears to have been to create a smooth street surface which must have been for pedestrian use only but it is possible that a major parallel aim was the collection of large amounts of cobble and stone for use elsewhere. The hearths on the north portico are also difficult to account for but it seems most likely that they were used by the workers carrying out the robbing of the wall, the construction of the buildings of the next phase, and the construction of the street. Given a large workforce, this sub-phase need not have lasted more than a year or so.

The great rebuilding, Phase Z (Fig A11)

After the preparation of the site a number of rectilinear rubble platforms and other foundations, all for timber buildings, were laid out in what was clearly a preconceived development (Fig 324). The largest of the platforms, which measured 114*pM* by 53*pM*, had its northern edge laid out roughly 80*pM* from the south wall of the former basilica so that its north wall was two-thirds of an *actus* from the south wall. Two large pad-stones placed symmetrically on either side of the centre line of the platform were spaced at an interval of 11*pM*. In addition, the pad-stones, which must represent evidence for a substantial porch, were sited so that those using the central doorway in the south wall of the basilica would have been facing the door of this large building when they entered the site. The platform, which formed the bulk of the evidence for this building, was constructed from carefully laid, freshly-broken rubble packed with painted plaster and mortar. Some of the painted plaster was reassembled and proved to have come from a vaulted ceiling suggesting that the baths were also being demolished. The platform was constructed so that the natural slope of the site was in part compensated for, the highest point being the north-east corner. Two areas of heavily packed laid rubble at the south-west and south-east corners are thought to represent projecting wings and it was clear that between the porch and the facade of the building there must have been a planked verandah. Of the internal arrangements of the building placed on this platform there was no evidence but it was apparent from the almost total lack of structural detail that it must have been timber-



Fig 324 Reconstruction of the baths basilica site in Phase Z, circa 400 years after the baths basilica was built. (Drawn by P Scholefield and H Bird)

framed, and the size and massive construction of the platform suggests that it was two storeys high.

Between the facade of the large building and the south wall, the area of the former south aisle was divided into rectangular platforms of rubble and silt with a vertical scarp on the northern side. These platforms were regularly sized, each being about 28*pM* long and 8*pM* wide. In all seven platforms were found, with a definite gap between them at the central doorway in the south wall, but only six of them are considered to have carried buildings (Buildings 17–21, Building 27, and Building 28). Another gap probably existed in front of the main doorway into the *frigidarium*, with another possible platform to its east which later disturbance probably removed. Structural evidence within the platforms was limited but evidence for earth-fast posts and timber framing was noted and the westernmost platform had been subdivided. The probability that the entrance to the *frigidarium* was kept clear in this phase strongly suggests that this part of the baths was still in use, though probably not for its original function.

To the north of the platforms on the south aisle and on either side of the main building were two other platforms. That to the west, the foundation for Building 11, was a long, rectangular area of rubble packed with mortar, with the western half enclosed by the fragmentary remains of a low wall. Since the fabric of the wall was unmortared, it is assumed that this was a dwarf wall on which a timber-framed superstructure was placed. A wide doorway was noted in the long north wall. The eastern half of the building appeared to be constructed largely of earth-fast posts and may have been open sided, like a *loggia*. The shorter west and east walls abutted the north-west corner of the basilica and the large timber-framed building respectively. On the platform to the east of Building 10 was a masonry building, Building 31, constructed against the east wall of the basilica. The walls were of freshly-quarried yellow sandstone bonded with mortar, unlike all the other buildings of this phase, and the floor was again of mortar-packed rubble. To the east of this building, the former annexe had a series of paths leading to various doorways in the walls but was otherwise apparently unoccupied. The southern part of the east wall, giving on to the precinct, may have been demolished at this time.

Outside the basilican area, numerous other buildings were constructed. On the site of the west portico three sub-phases were detected consisting of buildings on either side of the main doorway and, in some phases, a building at the southern edge of excavation (Buildings 14, 25, 29, 32–4, and 37–9). One of the buildings in each sub-phase was sited so as to partially block the main doorway, which had anyway been narrowed by a rough blocking wall of masonry and architectural fragments.

This restricted entrance was reflected in the basilican area by a diagonal worn path fenced on one side which started at the northern half of the main door and appeared to lead to the long rectangular Building 11. Some of the buildings on the west portico showed evidence of associated hearths containing large amounts of carbonised grain.

To the north, on the east to west street, there was evidence for another group of buildings. The surviving cobbled street at the west end was initially fenced off on its southern side but this fence was later replaced by a small building which may have had an open front and seemed to have been sited to control access onto the street. On the pedestrianised area of the street, there was evidence for at least six booths of varying size, Buildings 12, and 40–44. Most of these were represented by upstanding areas of the gravel matrix of the street which had been left after the general erosion of the surface by wear. It seems likely that these are a secondary development (they were constructed after the initial camber had been partially eroded), encroaching on the street after its primary use had changed or been abandoned. The parallels which spring to mind are the development of *souks* on the streets of North African and Near Eastern towns, or the encroachments of buildings on the market places of medieval towns in Britain. It should be noted that the stalls or booths were on the southern side of the street, with evidence that in this second phase, the eastern end of the northern half of the street was covered by a boardwalk similar to that which had covered the north portico in an earlier period (Phase X, above). The cobble street at the east end of the site showed no evidence for buildings other than on its northern edge where some of the *insula* 2 frontages had encroached onto it. Otherwise, the surface of the street was gradually buried under various dumps and worn rubble paths.

The area of the portico to the south, which in the previous phase had been the site of the hearths of the construction workers, had now been abandoned, as is shown by the collapse of a section of the north wall, large areas of fallen plaster, and faunal evidence which suggest that it had become grassed over.

South of the portico, the precinct or service area of the baths contained a sequence of up to four separate buildings (Buildings 6, 23, 24, and 68). Three of them were built leaning against the north precinct wall and were constructed either on earth-fast posts or on sill-beams. There was also, however, one large free-standing building of mixed construction with a massive porch, which was placed parallel to the east precinct wall. These buildings were associated with various gravel paths, surfaces, and fence lines. A series of refuse pits was dug in the area near the south room of the annexe.

Outside the precinct, on the eastern edge of *insula* 5, there was little evidence for occupation. The earlier sequence of industrial buildings had gone, and the area was by now probably grassed over. The only feature was a deep clay and timber-lined pit, probably a cistern, close to the street.

The southern frontage of *insula* 2 was examined in detail and again more than one sub-phase was found. The first sub-phase consisted of a row of seven buildings (Buildings 45–51), divided into two blocks by a terrace, but otherwise built as closely spaced independent units on plots of similar size. Further east, at the extreme east end of the site, lay another building with an elaborate porch, Building 35. Most of the buildings conformed to a width of 6m, or 20*pM*, with some variation around that measurement. This phase was then replaced by five more widely spaced buildings (Buildings 7–9, 13, and 15), three of which had elaborate porches on pad-stones very similar to the arrangement seen in the main building on the basilican site.

Fronting the east side of the north to south cobble street, on *insula* 6, there was also considerable evidence for buildings which unfortunately could not be fully investigated because they lay outside the available area. Their method of construction, however, closely followed that found on the southern edge of *insula* 2 and it appears that the great rebuilding spread into this *insula* as well. This assumption is reinforced by the evidence from a small excavation on the side of the Ironbridge Road (B4380) where the modern road crosses the southern edge of *insula* 6 (Fig 4). Here, it was apparent that a large stone structure had been levelled and replaced by a timber building based on a shallow post-socket and a timber-slot (Barker 1968).

North of the basilican excavation, in the north-west corner of *insula* 2 (Fig 4), a small excavation on the site of an extension to Wroxeter Post Office (now Wroxeter Stores) demonstrated that in the latest phase of occupation there, a timber building had encroached onto Watling Street between *insulae* 2 and 16 (Barker and Perry, forthcoming). This would suggest that the great rebuilding extended over much of *insula* 2.

In *insula* 9, to the south of the baths *insula*, the excavation of a town house in 1952–3 produced evidence for a mortar-packed rubble platform and tile-lined beam slot (Kenyon 1980, 15, pl 3). Thus the replanning and rebuilding extended into *insulae* 2, 6, and 9. It is also possible that it also extended westwards on to the forum which, with its vast enclosed courtyard, would have been a prime site for such a development (Atkinson 1942, 110–11). Since about 50% of the forum remains unexcavated (Donald Mackreth, personal comment) it would in future be possible to test this theory. Even without the forum or any other *insulae* being involved it is clear that the final rebuilding was far more extensive than simply the construction of a private demesne by a single individual.

This conclusion is reinforced to a certain extent by the evidence from the frontages on *insula* 2. Unlike the buildings in the immediate vicinity of Building 10 which did not appear to be domestic and can be argued to have been sited in a strict relationship to the main structure, the buildings on *insula* 2 were more individual. This can be argued from their porched facades and probable two-storey height.







Fig 325 top: Barkerville, British Columbia, looking south on Main Street, 1868 (1868)
centre: Barkerville, British Columbia, Main Street after the fire of September 16 1868 (1868-92)
bottom: Barkerville, British Columbia, Main Street (1902).
(Photos reproduced with the permission of British Columbia Archives and Records Service, Victoria, British Columbia, Neg nos 94113, 10110, 13677)

These photographs may show what sixth century Wroxeter looked like as they demonstrate the possibilities that exist for timber buildings on relatively slight foundations. There are some features here, notably the planked verandahs, porches, and two-storeyed buildings, which are paralleled at Wroxeter, especially on the insula 2 frontages

The provision for timber boardwalks and verandahs suggests a street frontage not unlike those seen in the frontier towns of the western North America, here represented by early photographs of Barkerville, British Columbia (Fig 325). The Wroxeter houses were built on plots of a predetermined width with their gable ends facing onto the gravel street and the main body of the building running back along the plot in a fashion well-known from medieval burgages. The differences in constructional methods might hint at different ownership for each plot, and their overall grandeur and substance suggests that they housed an elite group or possibly high status artisans. Certainly in their second phase these buildings were very substantial and recall earlier buildings known from the excavations of Bushe-Fox (1913, 1914). What must be postulated is the revival of the whole city centre in a changed form for perhaps as long as a century before it was finally abandoned. This is not simply a flash in the pan, but a major phase of the city's life which had hitherto escaped detection.

From the brief description of the evidence given above, three obvious points arise. One is that the person, or persons, responsible for the reorganisation of the site had a plan in mind which involved turning what had been a public site into an essentially private one. This exclusive nature is indicated primarily by the plan of the main building (Building 10) which, it is clear, has its parallel in Roman villa plans, but more especially by the way that the main building and its ancillary structures were arranged so that the principal entrance faced into the basilican area rather than onto the east to west street to the north (see Fig 324). In addition, some of the ancillary buildings were sited so that existing doorways into the basilican area were wholly or partially blocked. The west door was blocked by three separate structures, Buildings 29, 34, and 38. In the case of Building 29, getting into the basilican area would have meant having to pass through Building 29 first. One of the four doorways in the south wall was completely blocked, by Building 21, another may or may not have been accessible through Building 20, and there is a possibility that the service door at the east end of the aisle might have been blocked by another, lost building. The demolition of the north wall and the placing of Buildings 10 and 11 over the line of the wall blocked access from the north, except perhaps beyond the east end of Building 10, where there may have been a gap of 10m to 11m between the wall of the building and the surviving stub of the north wall of the basilica. Building 11 had a definite northern entrance, associated with a bridge of gravel laid over the backfilled robber trench between the buildings and the east to west street but there does not seem to have been an entrance in the north wall of Building 10. It is also thought that the small open-fronted Building 26 at the west end of the east to west cobble street was placed to control access onto the pedestrianised area of the street. The only original doorways which were apparently still

in unrestricted use were the door in the south wall directly opposite the porch of Building 10, those in the east wall and probably the entrance to the *frigidarium*. Of these, the only door easily reached from a functioning street was the door in the south wall, which was linked through the baths courtyard to Watling Street. As already noted, the use of the doorway opposite the porch of Building 10 was obviously intended to create an immediate impression of grandeur on the visitor.

Second, the reorganisation of the site did not just affect the site of the basilica. The almost complete destruction of the later levels in the baths precludes any definite conclusions about the possible use of any of the rooms of the baths in association with the buildings on the basilica site but there is a strong probability that the *frigidarium* was in use in this phase. The basis for such a view is the survival of the Old Work as a standing wall, alone among the stone walls of Wroxeter, suggesting that the *frigidarium* remained as a useable building despite the periods of intensive stone robbing elsewhere in Anglo-Saxon and medieval times. Its survival may suggest a post-Roman function which afforded it some protection from despoilment. Given its east to west orientation and vaulted roof it could have have been used as a church, a predecessor of the early Anglo-Saxon church of St Andrew in the south-west corner of the town. This suggestion is prompted partially by the possibility that the western plunge pool could have been reused as a font and on the occurrence of about 12 burials within the surrounding hypocausts (Wright *et al*, forthcoming). The late and post-Roman reuse of public buildings as the focus for a small church and associated cemetery is paralleled in other Roman towns, for example St Paul in the Bail, Lincoln (Jones 1993, 25–7) or the Jewry Wall, Leicester (Kenyon 1948, 8).

An alternative use for the *frigidarium* could be as a granary, a possibility suggested by Wright's report of the finding of 'a room full of burnt wheat' (BM Add Mss 33.347 fol 4; 14.3.1859; 1872, 121). Clearly, the *frigidarium* with its solid floor, thick walls, wide doorway, and vaulted roof would have made an ideal granary, but this use of the building cannot be dated and might well be as late as medieval times. A possible blocking wall in the *frigidarium* doorway might also relate to the use of the building as a granary. Additional evidence for a change of use of the room came from the main doorways in the south wall of the *frigidarium* which led into the *tepidarium* and were blocked at some time (see Fig 322). This may have occurred as early as AD 300 to judge from the date of the latest pottery in the main *praefurnium* dump (Webster 1991, 55) and may be associated with the abandonment of the main *tepidarium* and *caldarium* in favour of ancillary hot rooms to the east and west. However, if the *frigidarium* had been converted into a granary at this early date, then it might well represent a collection point for the late Roman system of *annona* or taxation in kind (Jones 1964, 448–62). These possibilities of late change of use are reinforced by the fact that the main doorway into the *frigidarium* seems to have been kept clear of any buildings.

In addition to the reuse of the basilican area, the former baths service area, not previously in the public demesne, was also apparently turned over to other uses involving a complex series of substantial buildings, which may have been agricultural or industrial in character. These too may have been used for the storage of *annona*. The redevelopment was extended into *insulae* 2 and 6 as well, although here the buildings were clearly residential in character with evidence for carefully thought out and controlled planning being especially evident in *insula* 2 (above).

Third, the organised nature, scale, and scope of the redevelopment indicates that the patron who sponsored or demanded the reorganisation of this major site in the late Roman town centre was a person of authority, and moreover someone brought up in a late Roman cultural tradition. There is evidence for at least 36 timber-framed buildings, some probably of two-storey height, and one (Building 10) not only two-storeyed but apparently with a towered facade, as well as a masonry building and smaller wattle and daub shacks. Even if many of the timbers in the new buildings had been salvaged, a large amount of extra timber would have been necessary, along with carters, joiners, and other craftsmen to carry out the work. Before the erection of the buildings the rubble platforms had to be constructed, the north wall of the basilica demolished, and the inexplicable and laborious construction of the gravel-filled street carried out, all requiring enormous time and effort. This again stresses the planned nature of the operation.

As has been discussed in chapter 6, there was no artefactual information about the function of the various buildings recovered in this phase, although some suggestions may be made on the basis of their size, construction, and position on the site. The largest structure, Building 10, is assumed because of its plan to be a large residence (villa) and Building 11 to its west is clearly some sort of gatehouse into the compound. Other possible gatehouses include those situated around the doorway in the west wall (Buildings 29, 34, and 38), and the isolated building on the west end of the cobble street (Building 26). The large detached structure in the service area, or precinct, of the baths, Building 24, is interpreted as a barn because of its unusually large and wide porch, as may have been the other buildings here which lean-to against the north wall. Some of the other buildings were apparently residential, especially those on the frontage of *insula* 2, but only two, Buildings 34 and 37 on the west portico, showed evidence for associated hearths for heating or cooking food, and this could have been evidence for a continued commercial function on the former portico. The lean-tos in the south aisle, which had very regular dimensions and faced onto the frontage of Building 10, might well have been storerooms for the owner of Building 10, but it should be stressed that there was no positive evidence for either hypothesis.

The small structures on the surface of the pedestrianised section of the east to west street were almost certainly booths or stalls for selling goods as they were too small for any other purpose. These might have been descendants of earlier booths operating from the former north portico.

A significant aspect of the late timber buildings has been the realisation that the layout of this whole development was the work of a trained surveyor working *in more Romanorum*, together with an architect who was aware of architectural developments in late Roman Britain and elsewhere in the empire. The ground plan of Building 10 shows it to have been a rectangular platform with projecting wings whose character was certainly massive. The obvious parallel for this plan is that of the so-called winged-corridor villas of the Roman period (Hingley 1989, 47–51; fig 21) and certainly this is how it has been interpreted by other archaeologists (Webster 1991, 132–3). Generally, however, these are restored without towers at the corners, and a closer parallel is suggested by villas in the Trier region (Wightman 1985, 258) such as Nenning (Wightman 1970, 145–7; Ward-Perkins 1981, fig 154) or that shown on a Trier fresco (Wightman 1970, pl 6b). Other parallels can be cited from North Africa in particular (Dorigo 1971, pl 146) as well as in Pannonia (Mócsy 1974, 300, fig 49). As Wilkes has pointed out (1986, 63–6), the tower-facade villa is one that was extremely popular in the Late Empire and the appearance of a ground plan consistent with the style here in *Viroconium* emphasises the *Romanitas* of the overall design. Until recently, evidence for tower-facade villas in Britain was rare but the reconstruction of the Littlecote villa with massive masonry towers, a verandah, and a first-floor gallery shows that such buildings were very probably being constructed in Britain at the end of the fourth century. Indeed, Bryn Walters has argued that the Littlecote villa was one of a group of late Roman villas sharing a number of exotic, Mediterranean plans (Walters, personal comment) which were located within the province of Britannia Prima. He also ties this to the trade in North African *amphorae* which seems to have been centred on the south-west and south of Britain and shows, therefore, direct archaeological contact between the Mediterranean and *Britannia Prima* (Thomas 1993, 93–6). The Palestinian *amphora* found on one of the peripheral areas of the Wroxeter site may be graphic evidence for continuing contact with Cirencester, capital of Britannia Prima and a major market for luxury goods. Other luxury trade links with Cirencester are also known in the form of a late-fourth-century mosaic pavement found in 1827 at Wroxeter near the church of St Andrew, which is of a design derived from the *Corinium* Saltire school (Cosh and White, forthcoming), and the long pins found in the annexe and in Site 71 which may be related to similar examples made in Cirencester (*see chapter 6*). In addition, as argued above, it is likely that the administration of much of the revenue for the town had been in the hands of a provincial *curator civitates* who reported to the provincial governor based in Cirencester, so it is perhaps not surprising to see those responsible for the replanning drawing their idea for the new villa from the same area. Alternatively, the continuing but occasional trade could be filtering down from the entrepôt at Meols, on the Wirral coast, which is known to have produced material of an appropriate date, including a sixth-century Menas flask from Egypt (Bu'Lock 1972, 34–5, pl 2). Recent isolated finds of Byzantine coins from the Wirral (Rob Philpott, personal comment), and the probable importance of Chester throughout the period as a port help to emphasise such connections.

Thus the picture is of a wealthy and powerful man able to command the resources of the population of the town and probably its hinterland. If we accept that the magnate responsible for this major development is likely to have been Romano-British, rather than a Mediterranean immigrant, we can suggest two possible social groups likely to produce individuals who could develop an exclusive, central domain within a late Roman town and its territory. The first is the existing civil government, with an emerging magnate drawn either from the members of the former *ordo*, or possibly even the *curator* of the town or one of his family; the second is the church.

We know from the evidence of Gildas in *De Excidio Britanniae* that a class of *tyranni* or Christian sub-kings arose in Britain, particularly in the west, and that they ruled well-established kingdoms by the early sixth century (Pretty 1989, 174–5), and recent research has identified the possible extent of the *territorium* of such a post-Roman kingdom based on Wroxeter (Bassett 1992a, 13–23; see below) though its status is not known. The independent witness of the Anglo-Saxon Chronicle records the overthrow of the kings of Bath, Cirencester, and Gloucester at the Battle of Dyrrham in AD 577 and the defeat of the British kings at the Battle of Chester in about 616. The shadowy figure of Vortigern, linked with Powys, to the west of Wroxeter, is said to have ruled as *tyrannus superbus* from the early fifth century, while other figures had claims not to royal but decurial status, like St Patrick's father or the family of Ambrosius Aurelianus. Any of these would serve as a model for a late Roman, Christian magnate taking over the government of an established territory after the collapse of centralised provincial Roman government in Britain.

The Early Christian Monument commemorating one Cunorix, with its Irish formula dating to the late fifth century (Wright and Jackson 1968; Fig 326), has been seen by some as demonstrating the presence of Irish mercenaries employed in the town either by the city fathers of Wroxeter, or by a *tyrannus* (Morris 1973, 125; Webster 1991, 129–30) though there is no firm evidence for this and there could be other, less warlike explanations for this presence.



Fig 326 Late fifth century tombstone of Cunorix found on the eastern rampart of the town in 1967, reading CVNORIX MACVS MA-QUI COLINE

Although contemporary with the events discussed here, his tombstone was found on the eastern rampart of the town and nowhere near the baths basilica site.

It has been argued elsewhere (Phillips and Keatman 1992) that Wroxeter has connections with 'King Arthur' because the occupation of the site overlaps with the dates postulated for the historical 'Arthur'. There is no shred of evidence for such a connection and indeed it seems likely that the great rebuilding of Phase Z post-dates 'Arthur's', and probably Gildas', deaths.

A secular ruler may be the wrong model and we might look instead at the possibility that Wroxeter formed the centre of a late Roman diocese with an episcopal villa at its heart. The network of late Romano-British Christian centres in the west of Britain, taken over by later Anglo-Saxon kings and their bishops has been discussed elsewhere (Bassett 1989, 228–9), together with the possibility that Wroxeter with its important early Anglo-Saxon church and minster formed an Anglo-Saxon Christian enclave possibly with links back to a small post-Roman British church (Bassett 1992b, 35–9). Nevertheless whether a sub-king, ruling magistrate, or bishop occupied the shell of the basilica there is little doubt that here is the archaeological witness to an historical process hitherto unattested: the establishment of private magnates at the end of provincial government.

Dating discussion: the last building, a burial, and abandonment, Phase post-Z

(Fig A12)

The last building to be constructed on the site before its desertion was a long slightly bow-sided structure, Building 4, which lay in the north-western corner of the site parallel to the east to west street, and close to Watling Street. It was post-built with a suspended timber floor, was divided by a cross-passage, and had an outhouse (Building 5). Its foundations were cut directly into the rubble platform of Building 10 so there cannot have been time for a soil cover to develop. It appears therefore that its construction follows immediately on the demolition of Building 10.

A *terminus ante quem* for the abandonment and demolition of Buildings 10 and 11 at the end of Phase Z is given by the burial of a young man (*see appendix 10*), aligned north to south, whose grave was cut into the rubble platform of Building 11, south-east of Building 4. The relationship of this burial and the other post-Z feature, Building 4, if any, was not clear but the burial is clearly one of the last events on the site. This skeleton provided a radiocarbon date of Cal AD 620–740 at 1 sigma and Cal AD 600–790 at 2 sigma (Birm-1045; 1340±60 BP).

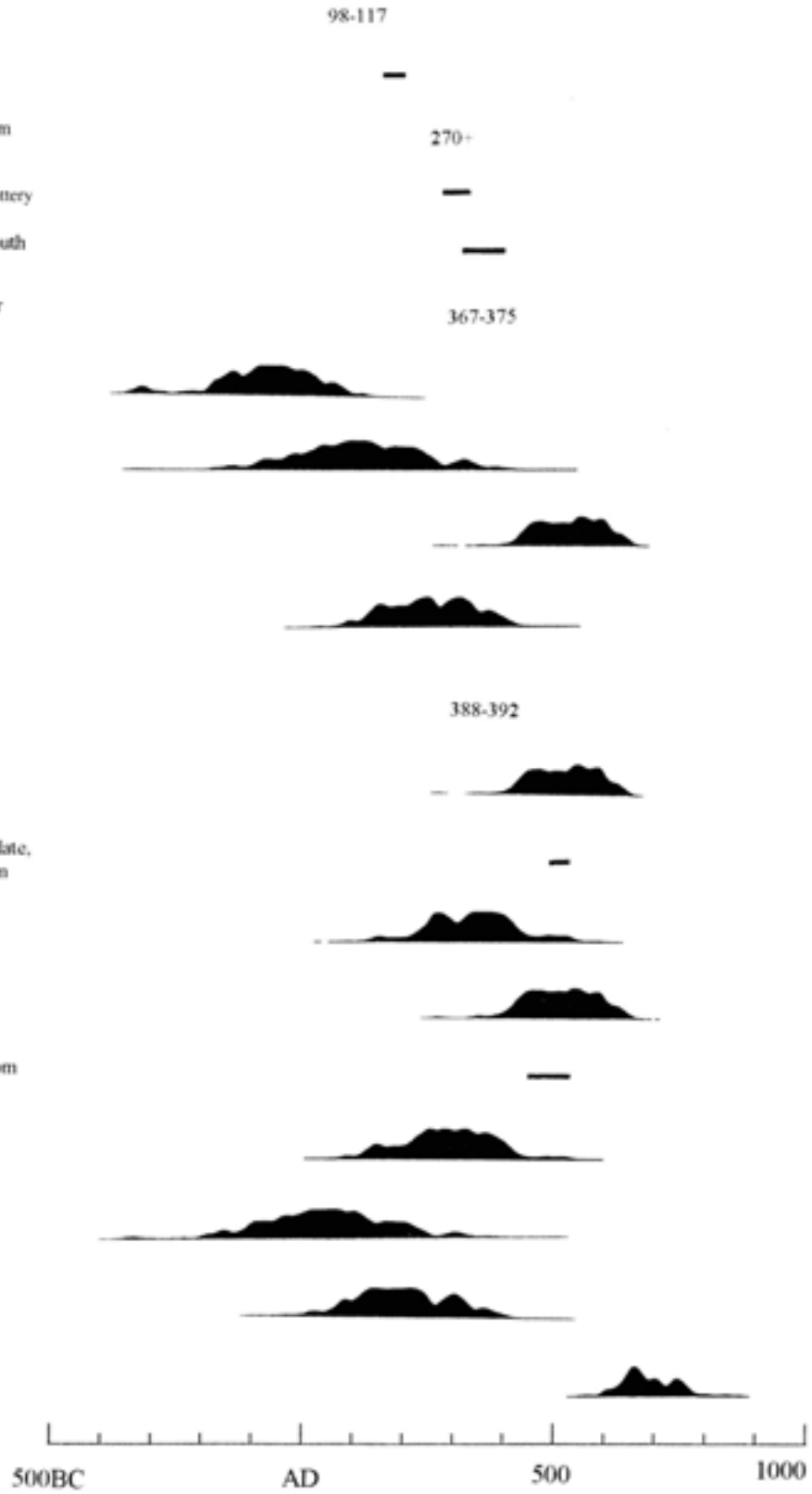
Although the relative chronology of the basilican area is certain, since it is derived strictly from the stratigraphic sequence, there is considerable difficulty in assigning absolute or calendar dates to phases after the beginning of Phase W since we are reliant on scientific and especially radiocarbon determinations which embody considerable leeway (Table 17). To these basic scientific dates we can add the more subjective modification of an estimate of the phase lengths according to surface wear, evidence for structural renewal, and other factors. There is little real certainty in this, however, and it is essential therefore to establish the broad parameters of the phases here rather than suggest what we feel to be the 'correct' dates. The dates of phases before Phase W are more reliant on coins, pottery, and other artefacts which, in the second to fourth centuries, pose fewer dating problems on a site like *Viroconium*.

A second factor to consider is that the dating material discussed here has been extrapolated across large areas of the site on the basis of proven links in the stratigraphy, even where no continuous physical link exists. Thus the coin found within the make-up of the nave floor in Phase W has been extrapolated to date all of the primary Phase W floors throughout the basilican area even though these floors do not physically link up with the nave floor. Confidence in being able to do this lies in the strict stratigraphic sequence established independently in each part of the basilica which has enabled us to identify horizons occurring at the same stratigraphic level (*see chapter 4*).

For the peripheral areas of the site, the dating problems are even more complex since only Phase Z can demonstrably be shown to have been tied in archaeologically to the basilican area. For the earlier phases,

Table 17 Summary of dating evidence

Phase	Dating evidence
S (beginning)	Coin of Trajan under nave floor
	Antonine Samian from portico dumps
T	Coin date of Macellum floor
U	Late 3rd–early 4th c. pottery
V	4th c. brooch, from south aisle
W (beginning)	Coin of Gratian under nave floor
	Birm-1239b 2050±70BP
	Birm-1239a 1900±100BP
W (end)	Birm-1187 1520±60BP
	OxA-1580 1770±70BP
X (beginning)	Coins of Arcadius & Valentinian II, from portico robber trench.
	Birm-1181 1520±70BP
X (end)	Remanent Magnetic date, from west portico oven
Y	OxA-1578 1690±70BP
	Birm-1186 1530±70BP
	Fowler-type E pin, from the annexe
Pre-Z	OxA-1579 1730±75BP
Z	HAR-5629 1940±100BP
	HAR-5628 1810±80BP
Post-Z	Birm-1045 1340±60BP



Notes: the probability distributions have been calculated using OxCal (v2.1) (Bronk Ramsey 1994), and the usual probability method (Stuvier and Reimer 1993; van der Plicht 1993; Dekling and van der Plicht 1993). The calibrated date ranges listed have been calculated using the maximum intercept method of Stuvier and Reimer (1986). They are quoted at 95% confidence (2 sigma) and in the form recommended by Mook (1986), with the end points rounded outwards to 10 years. All calibrations have been calculated using Stuvier and Person (1986).

each area has its own chronology whose relationship to the basilica's is uncertain. Thus, rather than obscure an already complex dating discussion, the dating evidence for each phase of these discrete archaeological areas is not presented here although the full details can be found in the main text.

Phase S: A single worn coin of Trajan from beneath the nave provides a *terminus post quem* of AD 98–117 for the construction of the basilica. Kenyon found Antonine samian in the dumps beneath the north portico which would indicate a slightly later, mid-second century date.

Phase T: No direct dating evidence was forthcoming for this phase but all the areas of herringbone-tile floor tiling were shown to be secondary, as they were in the *macellum* nearby. The *macellum* herringbone-tile floor was given a *terminus post quem* by a coin of Tetricus II of 270–3 and this suggests a comparable *terminus post quem* for the basilica's herringbone-tile floors.

Phase U: Small quantities of Oxford, Nene Valley, and Calcite-gritted wares suggest a late third to early fourth century date for this phase.

Phase V: Three coins were found in this phase, the latest of which gave a *terminus post quem* of AD 249–51. A penannular brooch from the south aisle was dated to the fourth century and small amounts of Oxford, Nene Valley, and Calcite-gritted wares also indicate a late third to fourth century date.

Phase W: This phase must have begun after 367, the earliest minting date of a coin found beneath the nave floor. Two radiocarbon determinations from D2226, at the east end of the nave produced dates of Cal BC 350 – Cal AD 90 and Cal BC 160 – Cal AD 350 (Birm–1239b, 2050±70 BP and Birm–1239a, 1900±100 BP). These may be disregarded since they both predate the coin. For the end of the phase, a radiocarbon determination from a human skull fragment in the nave gave a date of Cal AD 80–420 (OxA–1580, 1770±70 BP) and another on charcoal from the latest north portico surface, D483, gave a date of Cal AD 410–650 (Birm–1187, 1520±60 BP). Given that the date of the skull fragment barely overlaps with the date from the north portico it may be disregarded, allowing the *terminus post quem* of AD 410 for the end of the phase to be taken from the charcoal.

Phase X: As noted, the radiocarbon determination on the previous phase provides a *terminus post quem* for Phase X of AD 410, thus superseding the latest stratified coins on the site, of Arcadius and Valentinian II dated 388–92, from the north portico robber trench. Another radiocarbon determination, on a hearth in the north aisle (D541), gave a date of Cal AD 410–650 (Birm–1181, 1520±60 BP), identical to the determination from the end of the previous phase. Some refinement of this date was provided by a remanent magnetic date of *c* 500–550 from the oven, D371, on the west portico which determines the end of the phase. Phase X thus began after AD 410 and ended between AD 500–550.

Phase Y: Two dates were obtained from Phase Y, both radiocarbon determinations. The first was from a human skull fragment found in the micaceous slate surface D100F–2 which was dated to Cal AD 140–540 (OxA–1578; 1690±70 BP). The second, of Cal AD 390–660 (Birm–1186, 1530±70 BP), came from a sample of charcoal in dump D762 on the west portico. Again, dates prior to 500 can be ruled out since the oven D371 was stratigraphically below the Phase Y sample. Phase Y thus dates between 500–660. A long pin from the annexe found in this phase belongs to the fourth or fifth centuries but this is too broadly dated to be useful.

Phase Z: This is the only phase which can be archaeologically demonstrated to have extended over the whole site, including the peripheral areas. Four radiocarbon determinations were made in this phase. One, of Cal AD 110–440 (OxA–1579; 1730±75 BP), was obtained from a human skull fragment in the north wall robber trench, D116, and provides a *terminus post quem* for Phase Z since it belongs in Phase pre-Z. However, since this pre-dates the remanent magnetic determination of the west portico oven (see Phase X), it may be discounted. Two radiocarbon dates, of Cal BC 190 to Cal AD 330 and Cal AD 20–410 (HAR–5629, 1940±100 BP and HAR–5628, 1810±80 BP) from charred beams within the Phase Z2 west portico surface were even earlier and may also be disregarded since they too lay stratigraphically above later radiocarbon and remanent magnetic determinations. The fourth radiocarbon determination, of Cal AD 600–790 (Birm–1045, 1340±60 BP), was derived from the Phase post-Z burial which thus provides a *terminus ante quem* for Phase Z of AD 790 (at 95% probability).

This bald dating outline demonstrates that there is considerable overlap between the various dates but that there is a general progression through time (Table 17). The crucial dates are the coin in the Phase W floor, the remanent magnetic date for the end of Phase X, and the radiocarbon date for the Phase post-Z burial.

The archaeological evidence showed that there were three complex and long-lived sub-phases in Phase W and that Phase X was apparently of much shorter duration. We would argue that the wear on the surfaces in Phase W and the complexity of the floor patching suggest a minimum length for each sub-phase of at least 25 years, giving a dating bracket of *c* 367–450 for this phase. Phase X could then in theory last from *c* 450–500/550 (the upper and lower ends of the radiocarbon dating in Phase X being truncated by the remanent magnetic date for the oven). However, the archaeological evidence suggests a much shorter time span of perhaps 20 years, with the phase therefore beginning between *c* 480 and *c* 530. This implies that Phase W continued until then and therefore has a total length of over 120 years (after *c* 367–480/530). This accords with the archaeological evidence described above.

Phase Y thus begins after *c* 500 (see above). Archaeologically, it appears to have been of short duration, though perhaps slightly longer than Phase X. If the date bracket of Phase X is *c* 480/530 to *c* 500/550 then that of Phase Y is perhaps *c* 500/550 to *c* 530/580, though since we have no firm dating evidence for the beginning of Phase Z this is quite uncertain.

Phase Z, the great rebuilding, and the most important phase in the late history of the site, may thus have begun between *c* 500 and *c* 580. The only firm date we have for this phase is a *terminus ante quem* for its ending, the burial cut through Building 11. The radiocarbon date for this burial lies between 640–690 at 1 sigma, 600–790 at 2 sigma. If Phase Z thus began between *c* 500 and *c* 580, the minimum duration for Phase Z is 20 years. This does not realistically allow time for the building, occupation, renewal, and desertion of this complex of major buildings which, being timber-framed, could well have stood for a century. On the other hand, it seems unlikely to have lasted long into the eighth century, overlapping with the Anglo-Saxon occupation of the area. The grave, though hard to define, was not filled with a large proportion of topsoil, suggesting that it was cut soon after the abandonment of Building 11 and before a deep soil cover had evolved or accumulated. On these grounds, therefore, a date range for Phase Z of between *c* 530/580 to *c* 650/700 is suggested.

Clearly, this rather vague dating scheme is unsatisfactory for those who would like closer dates for the chronology of the region but we feel that to push the dating evidence too far or to attempt to construct too rigid a framework with such material would be unwise.

There is no evident reason for the site's desertion. There was no sign of fire, or of the massacres assumed by nineteenth-century antiquaries on the basis of the skeletons found in the hypocaust of the baths (Wright 1872, 68–70). Only the one stone structure, Building 31, had collapsed and been left *in situ*, though it is possible that the other buildings, of timber, had simply been abandoned and cleared away over a period of years by local people in search of building timber or firewood. It seems likely, however, that the major timbers from the larger buildings, such as Buildings 10 and 11, were retrieved for use elsewhere. The strong impression is of systematic abandonment of the site, with removal of all the larger timbers and the portable furniture and effects.

What was the reason for this apparently unhurried departure? Dating suggests that the desertion may roughly have coincided with the Anglo-Saxon occupation of the area, so perhaps Wroxeter was abandoned as part of an agreed withdrawal, or simply because it has no natural defences and those in control of the town felt increasingly vulnerable not only to the slow colonisation of the land further east but also to raids from the Irish Sea. The town was surrounded by a substantial bank and ditch, but there is no evidence that it ever had masonry walls (Barker 1985, 109–114). The alternatives which would face the inhabitants would be either to create a smaller defensive circuit, within which the presumably reduced population could continue to live and from which they could control their territory, or to move to a less vulnerable site or sites elsewhere. Such a process may well have been accelerated by plague or epidemics such as the *mortalitas magna*, recorded in the *Annales Cambriae* as being in Gwynedd in AD 547 (Morris 1980, 45), which may have significantly reduced population levels in a crowded settlement such as this.

It has been argued elsewhere (Pretty 1989) that in the Tribal Hidage the existence of the *Wreocensaete* supports the possibility of a polity based on the territory of Wroxeter, just as the *Magonsaete* may have taken their name from Magnis (Kenchester) south of Hereford, a conclusion reiterated by Steven Bassett (1992a, 20) despite etymological difficulties (Gelling 1992, 82). Wroxeter's status in the sixth and seventh centuries would certainly have been ambivalent, lying as it did on the borders of Mercia and Powys. Traditionally, the poem *Canu Heledd*, preserved in the Red Book of Hergest, has been taken to be an account of the violent destruction of British power in the Wroxeter area at the end of the seventh century. Recently, however, it has been suggested that although the places referred to in the poem may be genuine, its historical context is inaccurate and alludes to contemporary troubles in the late ninth or early tenth century between Mercia and Powys (Rowlands 1990, 138–40). This would account for the anachronistic English place-names in the poem, such as Baschurch, and, significantly, Uricon, the English name for the Wrekin (Gelling 1992, 75). If the poem had genuinely been written in the sixth or seventh century then the placenames would have been given in their British forms. The political realities of the sixth and seventh centuries seem to have been quite different, with the British kingdoms of Gwynedd and Powys united in alliance with the English kingdom of Mercia against a common foe, Northumbria. Throughout the first half of the seventh century, this alliance, led principally by Cadwallon of Gwynedd and Penda of Mercia, fought with the Northumbrian kings both on their own territory, at Chester *c* 616, *Meigen c* 630, *Maeserfelth/Cogwy* (?Oswestry) 641, and at Wall, date unknown (Gelling 1992, 73), and on the Northumbrians' land (Hatfield Chase 633 and River *Winwaed* 655; Rowlands 1990, 122–36). The involvement of Powys and Gwynedd in Mercian campaigns is recorded in another early Welsh poem, *Marwnad Cynddylan* (*The Lament for Cynddylan*) which Jennifer Rowlands considers to have been written close in time to the historical events *(ibid)*. This poem records the death of Cynddylan in a battle which she identifies with the disaster at the river *Winwaed*, near Leeds, where Penda also lost his life. Other campaigns no doubt went unrecorded. Penda's son Wulfhere continued the war against Northumbria, invading the kingdom in 674 but being defeated and it is likely that he continued the alliance between the Mercians and the British.

Despite their respective victories, neither the Mercians nor the Northumbrians seem to have been able to assert more than a transient hegemony over the other side. Nevertheless, while the threat of conquest continued an alliance between the Mercians and the British was in the interests of both. However, after the defeat of Northumbria at the Battle of *Nechtansmere* in 685, Northumbrian power began to wane and Mercia began its major period of expansion, a development which was bound to have an impact on relations between the English and British.

Given this strong alliance between the Welsh and the Kingdom of Mercia throughout the seventh century, it must surely be inconceivable that there was an aggressive campaign of settlement by the English in Welsh territory (*ibid*, 137–8). Nonetheless, there is little doubt that settlement was taking place and that Shropshire and Cheshire passed to Mercian control during this century, though probably by mutual agreement (Gelling 1992, 77). Presumably, therefore, Wroxeter became part of the Mercian kingdom at this time. Certainly, the tradition preserved in both *Marwnad Cynddylan* and *Canu Heledd* that the land around the Tren (Tern) formed the eastern boundary of Powys would place Wroxeter in an anomalous position on its border (*ibid*, 73–4). The transfer to Mercia may have been facilitated by the structure of the proto-kingdom of Powys which, it seems, was formed of several polities acknowledging an overlordship or king (Rowlands 1990, 125). If so, a reconstruction of the specific boundaries of the polity containing Wroxeter and its hinterland would be of considerable interest. An illuminating paper by Steven Bassett (1992a) proposes that the territory comprised two main elements, Cound and Ercall, the former becoming fossilised in the later diocesan boundaries between Hereford and Lichfield (Fig 327). Cound comprised the block of land south and west of the Severn at Wroxeter with its topographical limits being formed by the natural boundaries of Wenlock Edge, the Lawley, the Long Mynd, Lyth Hill, and Sharpstone Hill, all of which dominate the skyline from Wroxeter's town centre (*ibid*, 16–17). Ercall is more difficult to trace as, unlike Cound, it does not have easily defined topographical boundaries. Its extent is thought to be defined by the place-name Ercall which occurs at three widely-spaced locations to the north and east of Wroxeter, most notably on the lesser hill to the north of the Wrekin. The name means a bare hill of gravel (OE *Earcalutv*) and it is postulated that it is used not only for the hill itself but also to describe the territory around it, in the way that the *Wreocensaete* are named after Wroxeter (*ibid*, 20). The territory of Ercall is reconstructed with a southern boundary on the Severn including the minster parishes of Wroxeter, Wrocwardine, Ercall, and Edgmond. All lie within the river basin of the Tern and Bassett suggests that the original boundary between Mercia and Powys, the eastern boundary of Ercall, lay on the major watershed between the river systems of the Severn and Trent, which runs on the eastern edge of Edgmond parish. To the west and north the boundaries are even more vague but taking river watersheds into account once more, he postulates that the minster parishes of Shawbury, Hodnet, and Prees which also sit within the basin of the Tern would have been included. Significantly, this would exclude the Berth at Baschurch on the Perry river system (*ibid*, 21–2). An attractive facet of this theoretical reconstruction is that Ercall could be seen to be identical to the territory referred to by the Welsh as Tren in the *Marwnad Cynddylan* and *Canu Heledd*.

If Bassett's reconstruction is correct then the sacrifice of Wroxeter and its hinterland by Powys becomes more understandable. By giving up the vulnerable territory east of the Severn, Powys secured its boundary on a major river at little cost to itself. It is likely that by this time, the centre of power was at *Pengwern*, a site referred to in the *Canu Heledd* but whose location is unknown. Presumably, however, it must have been in a strong position and it is commonly identified with either Shrewsbury (but without any certainty; Gelling 1992, 75–6) or the Berth at Baschurch (Fig 328). Certainly, both sites are easily defended and the area of the Berth has produced evidence for post-Roman occupation in the form of a fifth to sixth-century carinated bronze cauldron and other late Romano-British bronze vessels which were found in the nineteenth century by the causeway leading to the Berth (Smith 1907, 324; Hawkes 1951, 186). More recently, Roman pottery has been found there showing that the site may well have been reoccupied at the close of the Roman period (Gelling and Stanford 1967, 82–3; Morris and Gelling 1991, 62). However, there are many other defensible places closer to Wroxeter, some of them, such as the Wrekin itself, already fortified, and further work may yet reveal post-Roman occupation at one or more of these sites. It is worth adding that it might be very difficult to identify such occupation because of the virtual absence of pottery and other datable material in the region in the post-Roman centuries (Vince 1988) though some possibly post-Roman pottery has been identified in excavations at Wroxeter church and perhaps at the Berth (Moffett 1989, 11–12). Further support for the identification of the Berth as *Pengwern* may be given by the tradition recorded in the *Canu Heledd* that Cynddylan was buried at the churches of Bassa, almost certainly Baschurch (Gelling 1992, 75).

Mercian settlement, when it was consolidated, seems to have ignored Wroxeter. Instead the cropmark (Fig 329) showing apparent timber halls of Yeavering type at Frog Hall, Upton Magna, 2 miles (3km) from Wroxeter may indicate that the early Mercian centre lay north-west of Wroxeter (St Joseph 1975). When the Mercians eventually established an urban stronghold, they chose Shrewsbury, first mentioned in 901 (Ekwall 1951, 400; Gelling 1992, 164–7) but possibly established in the eighth century on marginal land (the Scrub of the town's name) within Wroxeter's territory (Bassett 1991, 17–19).

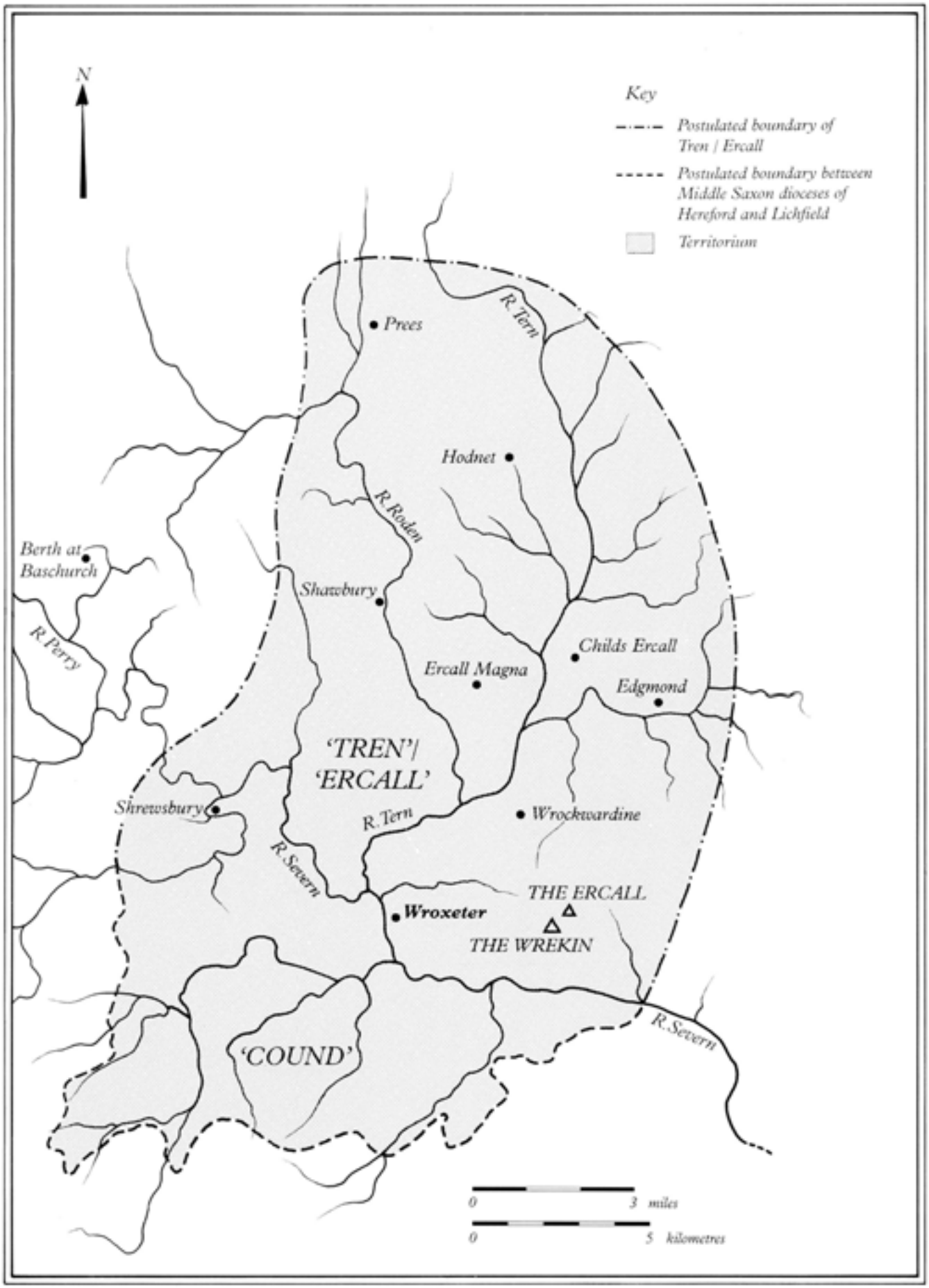


Fig 327 Reconstruction of the territory of post-Roman Wroxeter (after Bassett 1992a)



Fig 328 Aerial view of the Berth at Baschurch, possibly the site of Pengwern. (Photo: Chris Musson, reproduced with the permission of the Clwyd-Powys Archaeological Trust)



Fig 329 Aerial view of the possible Anglo-Saxon Yeavering-type site at Frog Hall, Atcham, 2 miles north-west of Wroxeter. (Photo: reproduced courtesy of Cambridge Committee for Aerial Archaeology)

From there, on a steep hill defended by a meander of the Severn (Fig 330), they could dominate the surrounding countryside and the river. The town of Wroxeter, established within the peaceful order of Roman Imperial rule, could not hope to survive the changed political realities of the post-Roman period.

Although the bulk of the area within the defences of Wroxeter eventually reverted to farmland, it is probable that a small settlement survived and developed in the south-western corner of the town, at the crossing of the Severn where, perhaps as early as the seventh century, the present church of St Andrew was founded on the site of a British predecessor (Bassett 1992a, 17–19). If the *frigidarium* of the baths had been converted into a church then presumably at some point, probably on the abandonment of Building 10 and its dependent buildings, the ecclesiastical centre moved down to the river crossing. It has long been suspected that there may be an early British church under the present building but recent excavations found no structural evidence, although some early post-Roman handmade pottery was discovered, of a type absent from the excavation of the basilica but possibly paralleled at the Berth (Moffett 1989, 11–12). The status of any such putative early church is totally uncertain. It is known that there were four priests in residence at the time of the Domesday survey and this might hint at earlier arrangements (Bassett 1992b, 35–39).

Probably from the late seventh century onward, the site of the basilica reverted to rough pasture, disturbed only by periodic stone robbing. One of these episodes is demonstrated by the presence of a good quality gilt-bronze strap-end of the late ninth century found in the south aisle colonnade robber trench (see Fig 297). This Saxon robbing fits in well with the fact that the earliest walls of at least two churches nearby, St Andrew's, Wroxeter and St Eata's, Atcham, have Roman ashlar masonry in them, and a late Saxon decorated cross shaft still survives, now set into the south wall at St Andrew's (*ibid*, fig 17). However, the baths and the baths basilica were not the only sources of stone in the city, and stone temples (Bushe-Fox 1914) and the forum opposite the baths (Atkinson 1942) were also heavily robbed.

There was very little medieval pottery on the baths basilica site, and no firm evidence of medieval robbing, so it is probable that the centre of the city was left derelict for centuries. The earliest unequivocal dating evidence for the later use of the basilican site is from the mid-eighteenth century, when a scatter of sherds in the



Fig 330 Aerial view of Shrewsbury showing the high ground on which the town is placed, enclosed by a loop of the river Severn. The Anglo-Saxon burgh was probably at the top of the hill. (Photo: Chris Musson, reproduced with the permission of the Clwyd-Powys Archaeological Trust)

topsoil suggests that part of the field was ploughed, or at least cultivated. Certainly, watercolours of the late eighteenth century show the field north of the Old Work under the plough. On the 1842 tithe map and apportionment (SRO 2656, 16–17), the field's name is given as Near Old Works. The field boundary shown ignores the ruins on the site and shows that the baths themselves were within the field. However, given the height of the surviving masonry, it seems unlikely that the ruins of the baths were ploughed and presumably the area immediately to the south of the Old Work remained as a patch of rough pasture set within the ploughed field.

The nineteenth century saw the first of the archaeological investigators whose trenches did so much to confuse our understanding of the site. By then, a considerable amount of topsoil had accumulated to protect the uppermost archaeological layers, leaving only the Old Work above ground as a reminder of the former glory of the town.

Implications of the evidence

The impact of the extraordinary archaeological sequence which has been described here will undoubtedly have been lessened by the familiarity which academics have had with the site from interim reports over the last 20 years (Barker 1975, 1979a) and it may well be desirable to signal some of the more important implications of the evidence for further discussion, in particular some assessment of the historical importance of the late occupation of the site. In addition to the historical implications we also feel that there is an equally important archaeological aspect to be considered.

The archaeological implication rests on dating and the excavation strategy adopted. As has been discussed at length, the absolute dating evidence for the archaeological sequence on the site is minimal, a single coin, a brooch and a long pin, a few sherds of pottery, a handful of radiocarbon dates, and a remanent magnetic date comprise the full list. Many may question the way that these dates have been extrapolated across the site. Our confidence in being able to do so lies in the fact that we have been fortunate enough to have been able to see all the surviving evidence and, we believe, have been able to demonstrate the unity of phasing across most of the site. It would need only one or two pieces of dating evidence to be missing from the sequence to have rendered it much less convincing, forcing us to rely instead on the shakier grounds of judging the rate at which surfaces were worn, replaced, and buried.

This salutary lesson in the pitfalls of dating post-fourth century levels has already been signalled by Richard Reece in two important papers which will be further discussed below (1980, 81–3; 1989, 232–3). He too points out, as we have done, that it is the length of the stratified sequence on this and other similar sites which is the most important aspect in favour of late dating. It has been particularly alarming to see how little reliance can be placed on conventional dating methods usually taken as standard in the Roman period. Such considerations make it abundantly clear how risky it is to postulate a gap of as short as 20 years in the life of any site at this period (Brooks 1988, 107–8).

The artefactual analysis of the site (*see chapter 6*) shows that the inhabitants of post-Roman Wroxeter either continued to use Roman artefacts with little modification other than occasional repair, or were using artefacts made from perishable materials as replacements. In artefactual terms, they are invisible.

Regrettably, such conclusions extrapolated to all late Roman sites signify that extensive periods of post-Roman use have not and never will be recognised without corroborative dating evidence, either from artefacts brought in from other cultures (such as the Anglo-Saxons) or through scientific techniques. Even if such dating evidence is found, however, it may well be that its significance could be underestimated due to the fact that it was not possible to examine a large enough archaeological area to put it into context. Such arguments cannot be used to claim that all sites producing late Roman evidence necessarily continue deep into the post-Roman period. It does emphasise, however, the importance of the fact that dating evidence only provides a *terminus post quem* and an estimate of the life of particular surfaces or buildings is merely guesswork.

The historical implications comprise two main elements. First is the significance of Wroxeter in the continuing debate about the survival or continuity of urban life into the post-Roman period, and second is the question of the meaning of the Wroxeter evidence in relation to post-Roman occupation in the immediate geographical area and in the rest of Britain in general.

Discussion of the fate of Roman towns in the post-Roman period has in recent years tended to come to the conclusion that towns ceased to exist soon after AD 400 (Brooks 1986, 1988; Esmonde Cleary 1989, 144–54). The debate has often been muddied by a confusion between the continuity of urban life and continuity of occupation within a town's site (Brooks 1986, 7–9) but a recent survey of the evidence has set three criteria which should be met to prove continuity:

> continuity and maintenance of standing buildings from at least the fourth to the seventh century
>
> buildings renewed on top of the other on the same site with the earliest to date not later than the fourth century and the latest no earlier than the seventh century
>
> 'prolongation and overlap', that is, a situation where activity within the town could be shown to last into the mid-fifth century and early Anglo-Saxon settlement or cemeteries might be of a date to overlap with this and so might be used to argue for a continuous use of the site. (Brooks 1988, 99–100)

It will be argued below that the baths basilica excavations have met the first two criteria while the third criterion can only apply to towns in the south and east of Britain.

Perhaps more useful is the recognition that urban settlement was not static but changed in character through time. A recent classification (Dark 1993, 22, n 101) has defined four stages in the development of Roman towns through the first millennium AD:

> Stage 1: the Classical city
> Stage 2: the late antique town
> Stage 3: the polyfocal administrative centre
> Stage 4: the medieval town

On this model, the late antique town is characterised as having a larger, low-status population, often with a military unit stationed in it and encircled by a wall. It has both temples and churches but need not have a forum, baths, or mercantile activity, its economy being largely self-sufficient. The polyfocal administrative centre need only have elite residences and religious buildings. It will have lost both its productive role and large population and will be closely integrated with its rural hinterland. As applied to Wroxeter, this model would place Phases W–Y inclusive in Stage 2 and Phases Z and post-Z in Stage 3 with no subsequent Stage 4 (see above).

Such a model might well answer many of the objections of other archaeologists, most of whom accept the fact of post-Roman occupation at Wroxeter, at least on the baths basilica site, but who now tend to debate what that occupation signifies. For some the great rebuilding phase represents no more than:

> 'a small administrative village...almost a medieval Lord's hall, with houses for retainers, and some administrative machinery. By no stretch of the imagination can it be called a Roman town....'
> (Reece 1980, 84).

Simon Esmonde Cleary appears to concur with this suggestion and speculates on whether the occupants of the structures of the great rebuilding were farming within the walls of the (deserted) town (Cleary 1989, 153). Others see the occupation in a slightly different light, arguing that:

> 'the degree of organisation involved in their construction suggests it was the headquarters of some powerful British chieftain and his retinue'
> (Ottaway 1992, 117).

Common to all these interpretations is the thesis that there was occupation, but it was not really urban in character. It is difficult to judge the correctness of this since excavation outside the area of the baths *insula* has been so limited, although small-scale excavations such as the road-widening (Barker 1968) and Post Office excavations (Barker and Perry, forthcoming) demonstrate that late occupation is not confined solely to the baths *insula*. Earlier excavators too have found similar evidence in other *insulae*. Kathleen Kenyon excavating to the south of the baths in *insula* 9 in 1952–3 found:

> 'a large and quite irregularly pitched foundation of rough pitched stone. Across it ran a double course of tiles pitched in edge at an angle'
> (Kenyon 1980, 15)

The photograph (*ibid*, pl 3) shows part of a mortar-packed platform divided by a beam-slot identical to those seen on the baths basilica site. Donald Atkinson, excavating in 1923–6 on the forum in *insula* 4, west of the baths, found 'an extensive patch of sandstone blocks...54 by 13 feet...mostly set on edge and roughly laid in mortar' on the east side of the internal courtyard. Again, slots are noted to be in association with the blocks which in turn abutted the fallen drums of the colonnade. Atkinson dismissed the idea that the slots held beams since 'their edges were not regular and their floors [were] uneven'. Nonetheless he notes that 'its appearance was somewhat suggestive of a standing for horses, such as was often constructed during the last [1914–18] war' (Atkinson 1942, 110–11). Certainly the fact that Bushe-Fox did not notice post-Roman occupation south of the forum on *insula* 8 should come as no surprise given the methodology of the time; absence of evidence is not evidence of absence.

Nonetheless, we would argue that there are features about the evidence recovered on the baths basilica site which point to a continuance of urban life on the terms generally accepted. First, we would point out that the maintenance of the baths basilica in its original form (*pace* reflooring) until the end of the fifth century argues that the administration responsible for the building did not abandon it until that date, even if it no longer functioned in its original capacity. Second, in the next phase, Phase X, although the interior of the building was, we have argued, handed over to private use, the porticos continued to be maintained and in use, probably as some sort of market. The buildings inside the basilica appear to have been used by workers maintaining masonry structures nearby, as evidenced by lime spreads, hearths, and pits. This does not necessarily imply town life, but it does suggest specialist artisans who were not actively employed in food production and who may thus be classified as urban dwellers. Third, in Phase Y there is clear evidence that a decision was taken to dismantle carefully the basilica's roof and the pave the building's interior, perhaps so the site could be used as an *ad hoc* forum. Quite who took this decision is another matter and, without further evidence, one that is unresolvable.

Finally, following the demolition of the basilica, the site passed into the hands of, probably, a powerful magnate of some kind (secular or ecclesiastical) who then reorganised the site for his or her own use (Reece's 'administrative village'). But, as has been made clear, not all of the buildings appear to belong to the main construction (Building 10). Those within the confines of the former basilican area, including the west portico

and baths precinct, can be seen as part of the Building 10 complex and there is no objection to seeing these as the elements of an 'administrative village'. One can possibly discern storage facilities, guardhouses, and dwellings among the peripheral buildings and Building 10 itself is large enough to have functioned both as a residence and as an administrative structure. But beyond *insula* 5, the evidence is quite different in character. On the gravel street an *ad hoc* street market seems to have grown up (perhaps the descendants of booths formerly operating in the shell of the baths basilica?) and on *insula* 2, and probably 6, we have evidence for substantial dwellings which, had they been found in a medieval town, would be described as burgages. In Roman towns such structures are usually termed strip-buildings and are interpreted as the houses, shops, and workshops of artisans (Esmonde Cleary 1989, 75–8). Neither category of building can be described in the remotest sense as agricultural and the existence of both implies a truly urban way of life.

Wroxeter thus appears to be the earliest positively identified post-Roman town (or the latest late-Roman town). Quite how it functioned is impossible to determine but its administrative structures may well have grown directly out of their late Roman predecessors. As has been pointed out (Esmonde Cleary 1989, 140–1) the demise of the late Roman town in Britain may be tied up with the collapse of the monetary system. The coin evidence from Wroxeter suggests that it was no different from most of the rest of Britain with regular coin supplies declining rapidly after 383–8. The ending of conventional taxation would have been disastrous for towns since they relied on the trade generated by taxpayers (*ibid*). Nonetheless, Wroxeter appears to have weathered the storm, presumably because it switched to payment of taxes in kind (equivalent to *annona*). Such a transition may well have been made easier by barter which, in the apparently relatively unRomanised tribal canton of the *Cornovii*, could for centuries have been an important element in the local economy. The removal of central authority may even have benefited the administrators of Wroxeter since the bulk of taxes collected before the collapse of Roman Britain had been paid into Imperial coffers. To believe, therefore, that the removal of a central administration meant the end of the taxation system is perhaps naive. Those who took over the reins of power at Wroxeter, and perhaps elsewhere, could not afford to lose the considerable benefits that taxation brought and wherever possible they will have kept such systems going. In doing so, they will have encouraged agricultural production and low-level trade, although on the (lack of) evidence from Wroxeter, such trade cannot have been more than local. The picture that emerges is of an isolated, self-sufficient urban community, holding onto its territory and exploiting it as it had done throughout the Roman period but with few, if any, links with the outside world.

Perhaps the most important question to consider now is whether the urban continuity seen at Wroxeter is an isolated phenomenon. It seems clear that many towns do show signs of occupation into the last decades of the fourth century and beyond, including both dwellings (Brooks 1986, 81–2) and public buildings (*ibid*, 82–4). The problem lies not with demonstrating evidence of occupation but in the unreliablity of the dating. As shown above, conventional dating by coins and pottery can only provide a *terminus post quem* and we may well be underestimating the longevity of many of the structures identified. A good example of this may be provided by the evidence from Canterbury which so closely parallels Wroxeter that it is worth quoting in detail here. On sites Marlowe II and III, the public baths complex became disused in the mid-fourth century. Within the shell of this building, timber buildings were put up. A portico on the south-west side of the baths was periodically flooded with silts from a broken sewer pipe within the adjacent road. These silts preserved traces of a framed timber building built on the street and extending across it almost to the edge of the sewer thus nearly blocking the street. The sewer may have been covered over to allow its use as a pathway. The building appeared 'to have been a form of timber verandah with a planked, narrow corridor and internal partitions perhaps for shops or stalls' (Blockley and Day 1979, 270). A coin of Theodosius (388–402) was found on the silt underneath this building. Inside the adjacent masonry portico a new floor was laid contemporary with the timber structure and the area was divided into a row of shops. This was then replaced with a pebble and tile floor subsequently buried by another layer of silt (Brooks 1988, 103–4). The whole sequence is said to be 'unlikely to have continued beyond *c* 425–30' (*ibid*) but the grounds for this conclusion are not clear and a later date cannot be ruled out.

Such evidence helps to bolster the argument that Wroxeter is not an isolated case and it may well be that other towns, particularly in the west but also Verulamium and Canterbury, will in future provide more concrete evidence for occupation into the post-Roman period. Cirencester, Bath, Exeter, and Chester are perhaps prime candidates and it may be that continuing occupation in towns in the west was the norm rather than the exception. Wroxeter also appears to suggest that such communities may well have been very isolated from each other. Post-Roman towns would not have been especially attractive to magnates, except perhaps for their tax revenues, since given the limited resources available they were virtually indefensible though the church probably continued to function there. Indeed, the clergy may well have controlled life in towns, a role that they certainly took on with enthusiasm in Gaul (Herrin 1989, 72–5). The main problem left to resolve now (although some possible solutions have been proposed above) is not whether town life survived into the post-Roman period, but why Wroxeter was abruptly abandoned in the seventh century.

We may finally consider the significance of the evidence from the baths *insula* in the wider context of the archaeology of western Britain in the post-Roman centuries.

Unlike the more easterly areas of England, there is a considerable time-span, of up to three centuries, between the end of Roman Britain proper and the political and military hegemony of Germanic peoples which ultimately brought the area under English control. This allowed the development of a different society, and of different institutions, albeit (as at Wroxeter) owing much to the Roman past.

Although Wroxeter and perhaps other towns apparently continued in existence, it seems clear that the centres of power were elsewhere. As already pointed out, the towns of Roman Britain were indefensible and there is considerable evidence, here as elsewhere in Europe, for the re-occupation of hill-forts by chieftains or magnates and their retinues (Dark 1993, 164–9). Locally, one may cite the Berth at Baschurch (above). Such hill-top sites as Dinas Powys in South Wales, Cadbury Congresbury in central Somerset, and Tintagel in Cornwall are independently dated not only by occasional metal finds or science-based determinations (as at Wroxeter) but by ceramics (*amphorae* and tableware) imported from the Eastern and Central Mediterranean and Western Gaul. These are witness at once to an extended exchange system, to direct contact with other Christian societies, and to the wealth being accumulated by western magnates (Thomas 1993, 93–6). As has been pointed out in chapter 6, such material did not find its way so far up the Severn as Wroxeter, nor to its hinterland which again perhaps emphasises the relatively low status and isolation of the occupation at Wroxeter.

It so happens that in the last three or four decades there has been much research into these western sites, and Wroxeter may now take its place alongside them as a major Dark Age nucleus and (unlike them) one which is more firmly rooted in the *Romanitas* of earlier centuries. The archaeology of this period has however a wider agenda than the administrative centres of a ruling class. Sites lower in the settlement hierarchy are at present difficult to locate, principally because of the artefactual problems discussed above. A further major source of information about the whole population is, however, that of cemeteries. These are again elusive in the West Midlands and the Marches, but examples have been found further west, such as that at Cannington in western Somerset, with skeletal remains representing over a thousand people, dated to the fourth to eighth centuries AD (Rahtz 1968, 194–5). This cemetery may show the transition from a pagan to a Christian society and highlights another major theme, the fate of Roman temples and their possible Christian successors. The sequence at the major site of Uley in the Cotswolds extends through to the seventh century, and there are seventh-century finds too from the temple site at Pagans Hill in north Somerset (Woodward 1992, 112–23). The church at Tintagel has produced sixth-century material in association with early graves and memorial stones and there is a possible early monastic site on Glastonbury Tor (Rahtz 1993, 54–60).

Wroxeter may thus be seen as a major addition to the evidence concerning a wide range of archaeological and historical problems in the west, which form a massive agenda for future research into the transition from Roman Britain to England, but one which it would be inappropriate to pursue further in this volume. The excavation of the baths basilica has, however, highlighted the need for a survey of the whole settlement pattern for the Wroxeter region. A start has been made with the programme for a hinterland survey (Buteux, Gaffney, and White 1993) and ultimately one may hope for such studies in the whole of the non-Germanic west.

THE APPENDICES

As discussed in chapter 6, the bulk of the finds recovered on the baths basilica site did not relate to the structures discovered. Nonetheless, it was felt that it was important to offer some account of the bulk finds which, although not directly relevant to the baths basilica or the buildings which followed it, give some account of the town and its environment. Such information is doubly important given the lack of previous modern reports on the pottery, coins, bone, and other environmental finds from Wroxeter. While these substantial reports supply a basic statement of the range and quantity of the bulk finds, the conclusions about the town as a whole can only be interim and partial since the context and dating information of the baths basilica finds, beyond that of belonging within the Roman town, is of little value without material of an earlier date, which was inevitably lacking from the baths basilica site. This shortcoming will undoubtedly be partially rectified by the publication of the material excavated by Graham Webster on the baths and *macellum* sites (Webster, forthcoming; Ellis, forthcoming) but we earnestly hope that it may be possible at some time in the future to compile a comprehensive catalogue of material from the whole of the Roman town so far excavated. There is no doubt that until this is done, the enormous potential of the finds data for understanding the economy and development of this important Romano-British centre will not be realised.

These appendices include a synopsis of all the finds from the baths basilica site including objects of gold, silver, copper-alloy, iron, lead, bone, glass, jet, shale, stone, ceramic, and pipe-clay, excluding the pottery, coins, vessel glass, architectural stone, and environmental evidence which is discussed in the following appendices.

A THE ARTEFACTS

Appendix 1: Small finds

by Kate Pretty

The purpose of this appendix is to provide a basic categorisation and quantification of the bulk of small finds recovered between 1969 and 1990. Roman finds experts will be able to gauge the scale and scope of the material and consult the Level III archive for more detailed information, including drawings and photographs. About 7000 objects are listed

The bulk of the material was examined by Angela Bliss between 1985 and 1989, assisted by Ellie Hughes. Susanne Haselgrove, Hugh Borrill, Kate Pretty, and Tjeerd van Andel also worked on the archive. The team used published classifications where they had a national scope and established Wroxeter-based typologies where the material diverged from, or was significantly different to, national patterns or local typologies elsewhere. For example, since the finds from Wroxeter are mostly broken rubbish, we have been constrained to use typologies that do not require complete objects for the establishment of the type.

The objects below are listed by function and by type where possible. We have grouped them by material and purpose, putting similar artefacts together in the manner used by Nina Crummy at Colchester (Crummy 1983) as this seems a reasonable way to treat the baths basilica finds, which must similarly stem from the town as a whole (*see chapter 6*). The functional groupings follow those established in chapter 6 for ease of comparison. A small selection of objects from Category A contexts is illustrated in Figures 332–4.

Personal equipment

Jewellery and personal effects

(2716 objects)

Dresspins and hairpins

There are 584 examples in silver, copper-alloy, bone, jet, shale, glass, and glass with iron, Fig 332, nos 2–4 and 11:

silver and copper-alloy, Cool 1983 (CL), 41 examples: CL1 (1); CL1D (1); CL2C (2); CL3A (5); CL3B (2); CL5A (2); CL5C (1); CL6 (1); CL7 (1); CL10 (1); CL17 (9 including 1 silver); CL19 (1), (Covesea pin, *see Fig 311*); CL20 (2 including 1 silver); CL26 (4); CL28 (8 including 2 Fowler 1963, Type E, *see Fig 310*); and 57 wound-wire headed pins (*see Fig 296*)
bone, Bliss 1989 based on Greep 1983 (GP), 478 examples: GPA1.1 (36); GPA1.2 (2); GPA2.1 (20);GPA2.2 (122); GPA2.3 (3); GPA2.6 (1); GPA3.1e (24); GPA3.1f (7); GPA3.1g (1);GPA3.1h (1); GPA3.2 (2); GPA4.1 (7); GPA4.2 (1); GPA6 (1); GPA8.1 (1); GPB1.1a (169); GPB1.1c (3); GPB1.1d (10); GPB1.1e (2); GPB1.1g (2); GPB1.1h (3); GPB2.1 (4); GPB2.2 (1); GPB2.4b (1); GPB2.5b (3); GPB3.1 (18); GPB3.2 (10); GPB4.1 (11); GPB7 (2); GPB8.1 (2); GPB8.2 (1); GPB8.8 (5); GPB10.1 (2); uncertain (10); and 29 broken examples and fragments of nearly 1000 shafts
jet, Crummy 1983 (CR), 42 examples: CR1 (1); CR2 (14 *see Fig 302, no 9*); and 27 shafts
shale, 21 examples: GPB4.1 (6); plus 15 shafts
glass, 1 with globular head
glass and iron, 1 (*see Fig 306, no 1*)

Bracelets

There are 550 examples in copper-alloy, bone, jet, shale, and glass:

copper-alloy, Cool 1983 (CL), 169 examples: CL1 (38); CL2 (2); CL3 (1); CL4 (4); CL5 (6); CL8 (1); CL13 (9); CL15 (5); CL16A (3); CL17A (4); CL18 (5); CL19 (14); CL20B (2); CL21A (1); CL21C (1); CL21D (2); CL21E (1); CL22A (21); CL22B (3); CL22C (1); CL23B (1); CL23C (1); CL23E (1); CL23F (1); CL25A (3); CL25B (5); CL25D (1); CL25E (2); CL25F (1); CL25G (1); CL26A (4); CL27B (1); CL28 (1); CL31 (2); CL33 (2); CL34 (2); CL35 (2); CL37 (5); and uncertain (9)
bone, Greep 1983 (GP), 85 examples, including 6 in ivory: GP1 (9 including 2 ivory); GP2 (21); GPA1 (3); GPB4 (3); GPB5 (2); GPB7 (4); and uncertain (43 including 4 in ivory)
jet, Bliss 1989, 8 examples: 6 undecorated; 1 with ring-and-dot; 1 edge-notched
shale, Crummy 1983 (CR), 289 examples: CR1 (5); CR2 (10); CR3A (6); CR3B (9); CR3C (6); CR3D (13); CR4A (5); CR4AB (4); CR4B (6); CR4BA (1); CR4BD (1); CR4C (7); CR4D (4); CR4DB (1); CR6 (1); and 210 undecorated examples
glass, 1 example: Kilbride-Jones 1938, KB2; blue-green with twisted blue/white rib

Beads

There are 858 examples in glass, jet, shale, bone, coral, amber, gold, brass, emerald, and variscite:

glass, Guido 1978 (G), 400 examples: G GP5 (3); G GP6 (16); G GP7 (67); G GP8 (2); G GP9 (4); G1A (25); G1B (45); G2A (11); G2B (33); G2C (1); G3 (76); G4 (11); G6A (26); G6B (12); G7 (9); G8 (6); G9 (1); G10 (7); G12 (1); G13 (3); G14 (16); miscellaneous including exotica (9); and uncertain (16)
jet, Bliss 1989: 430 examples: barrel-shaped A1A (11); A1B (10); A1C (39); globular A2A (5); A2B (2); diamond-faceted A3 (9); A4 (12); cylindrical A5A (14); A5B (123); A5C (21); A5D (56); disc-shaped A6 (6); A7 (6); segmented cylinder A8A (17); A8B (2); A8C (7); A8D (15); A8E (5); A8F (11); A8G (3); double-perforated BIA (6); B1B (14); B2 (23); B3 (1); exotics CA (4); CB (2); and uncertain (6)
shale, Bliss 1989, types as jet, 14 examples: A5A (1); A5B (1); B1 (6); B2 (1); B4 (4); and B5 (1)
other materials *identified by Marjorie E Hutchinson*, 14 examples:
gold, 1
emerald, 1
coral, 5
amber, 2
variscite, 1
copper alloy, 1
bone, 3

Brooches

There are 181 examples in copper-alloy and iron, see Mackreth 1991:

Colchester (1); Colchester derived (10); headstud (1); trumpet (9); late La Tène (2); Aucissa-Hod Hill (2); knee (8); crossbow (7); plate (12); penannular (21); springs (18); pins (90)

Finger-rings

There are 95 examples of rings, 29 loose *intaglios*, and 11 loose glass gems, in silver, copper-alloy, iron, lead, bone, glass, jet, and shale, see Cool 1983 (CL):

copper-alloy, 57 examples: CL1 (1); CL2 (1); CL4 (6), (3 with *intaglios*); CL11 (2); CL12 (4); CL13 (5), (1 with *intaglio*); CL14 (2); CL16 (2); CL17 (3); CL20 (4); CL21 (1); CL22 (2); CL23 (1); CL24 (2); CL26 (2); CL28 (1); uncertain (12); and fragments (6)
iron, 6 examples (*Fig 306, 2–7*): CL13B (1); CL19 (1); CL22A (1); CL22B (1); CL26 (1); and uncertain (1)
lead, 1 example: broad hoop with circular, empty bezel
bone, 5 examples all undecorated
glass, 16 examples, some may be pendant hoops for ear-rings
jet, 7 examples
shale, 3 examples

Intaglios

There are 33 examples, 4 in rings, (*see above*)

agate, 2
cornelian, 22
glass, 1
jasper, 3
paste, 5



Fig 331 Intaglios: no 1 jasper, context I/II (scale 3:1); no 2 cornelian, context D208 (scale 4:1)

Gems

There are 11 examples, all glass or paste

Ear-rings

There are 17 examples of these, all copper alloy, Allason-Jones, 1989: AJ1 (1); AJ2b (3); AJ2c (1); AJ2d (1); AJ2e (1); AJ2f (2); AJ2g (4); AJ3 (1); and AJ6 (3)

In addition there are a 86 other examples of small hoops:
copper-alloy, 75
jet, 7
shale, 4
some of these may be rings, ear-rings, or parts of personal or domestic equipment

Pendants
There are 14 (non-military) examples in copper-alloy, bone, jet, and shell:

copper-alloy, 2 examples: 1 perforated disc; 1 bell
bone, Greep 1983 (GP), 7 examples: GPD2 (1); GPD4i (4); 1 perforated eagle claw; 1 small carved phallus
jet, 4 examples: all fragmentary, globular (1); phallic (1); perforated wedge (1); part medallion (1)
shell, perforated cowrie shell from baby burial (NB 1 *Turritella* shell, unperforated, from another baby burial)

Necklaces and fine chains
There are 30 examples in gold and copper-alloy, some with glass beads:

gold, 3 examples: hook terminals, 2 very elaborate
copper-alloy, Cool 1983 (CL): 12 terminals (8 hooks, 4 eyes); links, CL1A (8); CL1B (1); CL2A (1); miscellaneous (5)

Buttons and studs
There are 7 examples copper-alloy and bone, Fig 332, no 13:

copper-alloy, button and loop fasteners, Wild 1970, 2 examples: Vc (1); XIII? (1)
bone, Greep 1983: button and loop fasteners, GP2 (1); dumb-bell button (1); toggles, GP5 (2); stud (1)
for other decorated studs and buckles see weapons and tools below

'Bootlace-ends'
copper-alloy , 18 examples, 1 containing leather. They may not be Roman.

Toilet and medical implements
(138 objects)

Toilet-spoons
There are 22 examples in copper-alloy and bone:

copper-alloy, 20 examples: undecorated with flat bowl (11); decorated (7); unclassified (2)
bone, Greep 1983 (GP), 2 examples: GPB1 (1); GPB3 (1)

Tweezers
There are 32 examples in copper-alloy and iron:

copper-alloy, 31 examples grouped by length: Group A 39–45mm (4); Group B 51–60mm (11); Group C 64–71mm (5); fragments (11)
iron, 1 example

Nail-cleaners
There are 7 examples in copper-alloy, after Crummy 1983 (CR):
Simple, CR4 and 5 (4); elaborate, CR6 (1); unclassified (2)

Spoon-probes and probes
There are 9 examples in copper-alloy: one spoon-probe and eight probes.

Other medical implements
There are 28 examples in copper-alloy: identifications, based on Riha (1986), include scalpels, spatulae, parts of surgical implements, a pestle, and handles.

Mirrors
There are 11 fragments in tinned or silvered copper-alloy

Combs and comb-cases
There are 16 examples in bone, Greep 1983 (GP):

Combs: GP1abi (1); GP1aiibi (1); GP1aiii (1); GP1b (1); GP1bii (3); GP1 (1); and 6 teeth
Comb-cases: Bone strips with iron rivets, decorated with ring-and-dot ornament (2)

Palettes
There are 7 examples in micaceous flagstone and shale.

Stirring-rods
There are 3 examples in glass, of Isings 1957, Form 79.

Pyxides
There are 2 examples in bone.

Strigil
There is 1 example in iron.

Weapons and military equipment
(324 objects)

Horse trappings
There are 30 examples in copper-alloy and iron:

copper-alloy, Bishop 1988 (BP), 9 pendants: cavalry equipment (5), non-military? (1), rosettes (3); cavalry examples, BP1y (1); BP5c or 8f (1); BP11 (1); loop for BP7 (1); riveted BP5 (1); non-military example is sheet decorated with stamping and enamel
iron, Manning 1985 (M), 21 examples: snaffle-bits, all two-link examples (7); horse-shoes (6); hipposandals (8), M2 (1); M3 (2); M3/4 (1); uncertain (4)

Weapons
There are 45 examples in copper-alloy, bone, iron, and iron with lead:

copper-alloy, *dolabra* (1)
iron, Manning 1985 (M), arrowheads (10): M1 (1); M2 (1); medieval? (5); and 3 others; catapult bolts M1 (5); *pila* (2); *martio barbuli* (7) in lead-weighted iron (*Figs 303, 304, nos 1 and 4*); spearheads (10), M1 (1), M1A (2), M2 (2), M2A (2), and 3 others; chape (1)

Scabbards and attachments
There are 9 examples in copper-alloy, bone, and iron:

copper-alloy, 4 examples: scabbard slide (1); slide terminals (2); end-loop (1)
bone, Greep 1983 (GP), 3 examples: scabbard slides GP1 (3)
iron, scabbard fragments (2)

Belts and straps
There are 21 examples all in copper-alloy, Bateson 1981 (B), Bishop 1988 (BP), Böhme 1974 (BO):

belt-plates (4), openwork (1); enamelled B2 (2); B3 (1); belt-stiffener, propeller-shaped (1), (*Fig 304, no 5*);

belt-rings (4), (*Fig 304, nos 2–3*); belt disc-attachment with suspension loop (1); strap-ends (9), BO disc-shaped (1); BO heart-shaped (1); narrow with terminal knobs (4); hinged (3); strap-fastener, male (BP, Table 10, fig 55); strap/apron mount (1), (BP Type 6g)

Armour
There are 17 examples in copper-alloy and iron:

copper-alloy, *Loricae squamatae*, 6 scales (von Groller in Robinson 1975): VG22 (3), VG29 (3); *Loricae segmentatae*, 9 examples: girdle-plate tie-hook (1); tie ring (1); fasteners? (2); buckles (5)
iron, *Loricae segmentatae*: hook (1); buckle (1)

Buckles
There are 42 examples in copper-alloy and iron (including the 6 from *loricae segmentatae* mentioned above):

copper-alloy, 17 examples: with plate (1); loops (8); tongues (8), (*Fig 304, nos 8–10*)
iron, 25 examples

Decorated mounts and studs
There are 169 examples in silver and copper-alloy:

Mounts, 22 examples: stud-type, oval (1); rectangular (1); double-cylinder (1); openwork (3); pelta (2); miscellaneous (2); flat-backed type, rectangular (5); miscellaneous (7)
Studs, 147 examples: enamelled/cup-headed (6); enamelled/flat-headed (2); decorated/disc-headed (9, including 1 with lion's head); plain/disc-headed (44, 1 in silver); domed/lead-filled (45, plus 3 lead cores); domed/hollow (28); expanded foot (10)
Some studs may belong to furniture, see below

Tools
(285 objects)

Agricultural tools
There are 21 examples in bone and iron:

bone, hoes 2: Rees 1979, R1 (1); uncertain (1)

iron, Manning 1985 (M): hoes (1); reaping knives (2); spades (2), M2 (1); M2B (1); shears (4), M2 (1); M3 (3); sickle (1); ox-goads (8); cleaver (1)

Fishing tackle
There are 19 examples in copper-alloy, lead, and iron:

copper-alloy, fish-hooks (3)
lead, net-sinkers (13)
iron, fish-hooks (3)

Building tools
There are 5 examples, all in iron, Manning 1985 (M):

picks, including 2 masons' picks (3); trowels (2): M1 (1; *Fig 114*); M3 (1)

Carpentry tools
There are 65 examples, all in iron, Manning 1985 (M):

awls (11), M1 (1); M2 (1); M3 (1); M3A (1); M3B (2); M4A (2); M4B (1), plus 2 others; chisels (8); hammers (3), including 2 hand-hammers; punches (6), including 1 metalwork and 2 circular; gouges (2); saws (2); drillbit (1); wedges (32)

Other tools
There are 59 examples in bone, iron, and stone:

bone, sharpened long-bones, some very worn (24)
iron, unclassified (5)
stone, worked flints (9); whetstones (21)

Knives
There are 96 examples, all in iron, Manning 1985 (M):

M1 (7); M4 (1); M5 (4); M7B (1); M9 (2); M11 (3); M11A (1); M11B (2); M12 (1); M12A (6); M13 (6); M14 (2); M15 (5); M16 (6); M17 (2); M19 (1); M20 (1); M21 (1); M23 (1); M24 (4); uncertain (39)

Handles of knives, tools, and weapons
There are 20 examples, all in bone, Greep 1983 (GP):

GPA1.1 (4); GPA1.2 (1); GPA1.3 (1); GPA2.2 (3); GPA2.4 (1); GPA3.1 (1); GPA3.2 (2); GPA3.3 (1); GPA12.2 (1); GPB1.4a (1); GPB1.6 (1); GPB4 (1); uncertain (2)

Business and writing
(131 objects)

Styli
There are 85 examples in copper-alloy and iron, Manning 1976 (M):

copper-alloy, 3 examples: M4 (1) plus 2 others:
iron, 82 examples: M1 (7); M2 (7); M3 (14); M4 (34); uncertain (20), (*see Fig 307*)

Seal-boxes
There are 10 examples in copper-alloy with enamel, Bateson 1981 (B):

B1 (4); B2 (1); B3 (1); B4 (1) (*see Fig 299, no 2*); B5 (1); uncertain (2)

Inkwell
There was 1 example in lead

Weights and measures
There are 35 examples in copper-alloy, iron, and lead:

copper-alloy, 8 examples: steelyards (5); hooks (3), 1 with chain; beams (2); other weights, acorn-shaped (2); base-silver, rectangular, inscribed VI (1)
iron, 2 examples: steelyard hooks (2)
lead, 25 examples: steelyard weights (6); other weights and weightings (19), including perforated discs

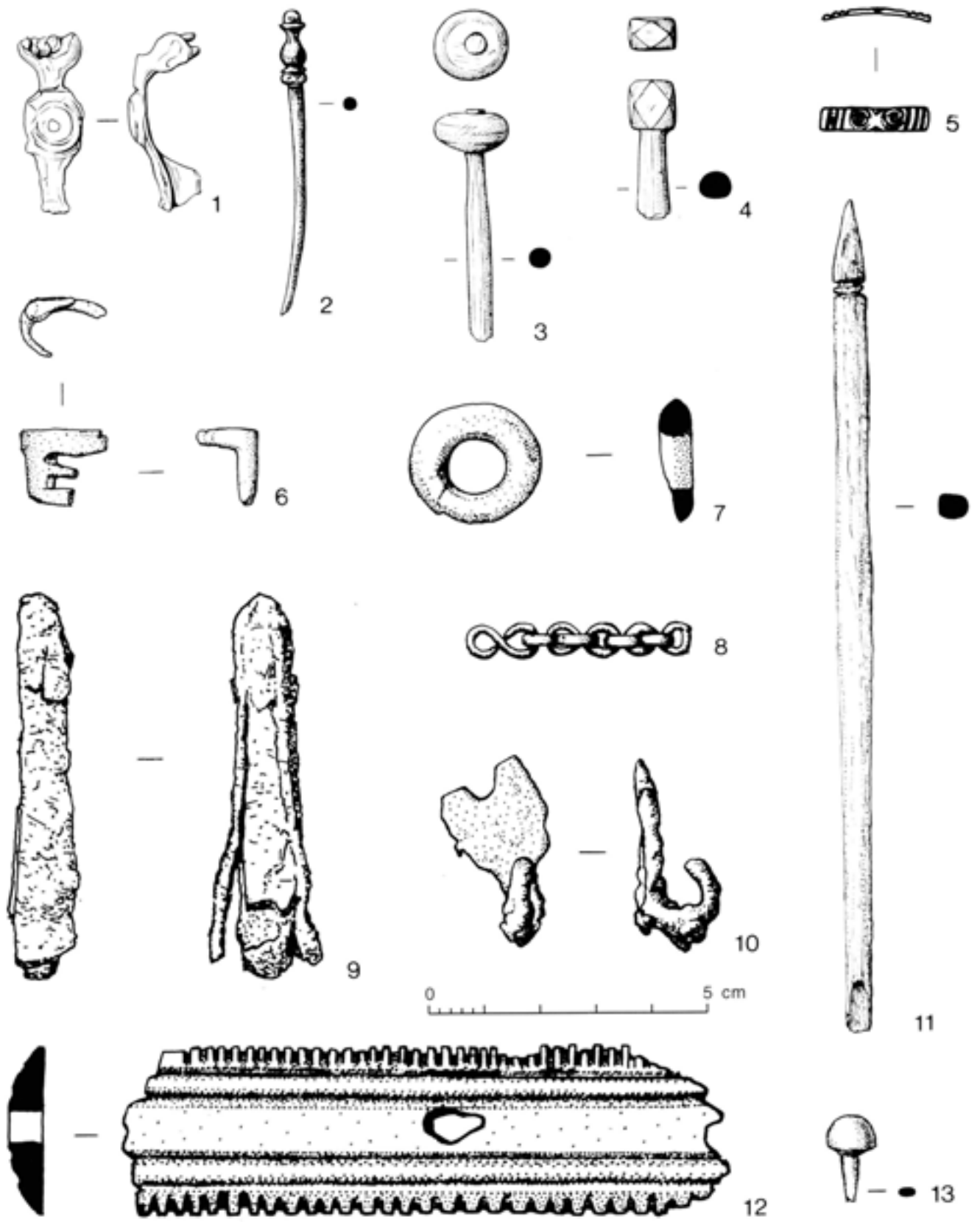


Fig 332 Objects from Phase Z, category A contexts: no 1 copper-alloy brooch, context C90; no 2 copper-alloy pin, context B97; no 3 bone pin, context C99; no 4 jet pin, context C90; no 5 copper-alloy bracelet, context B99; no 6 copper-alloy key ring, context E221; no 7 shale ring, context D317; no 8 copper-alloy chain, context D283; no 9 iron padlock bolt, context D104; no 10 iron hook, context C90; no 11 bone pin, context C90; no 12 bone comb, context C99; no 13 copper-alloy stud, context E221 (scale 1:1, except no 11 2:1)

Domestic utensils

(183 objects)

Vessels

There are 36 examples in copper-alloy, lead, shale, and iron:

copper-alloy, 17 examples: handles (4); escutcheons (3); mount (1); rims (4); colanders (2); small bowl (1); bucket foot? (1); body fragment (1)
iron, 9 examples: rims (6); body fragments (2); small pan (1)
lead, 7 examples: rims (5); small bowl (1); bowl with face worked on it (1)
shale, 3 examples: rim (1); footring (1); body fragment (1)
see also appendices 4 and 5 for glass and pottery vessels

Buckets

There are 23 pieces, all in iron:

rim (1); escutcheons (8); and handles (14)

Mortars or bowls

There are 4 examples in red sandstone

Tablespoons

There are 31 examples in silver, copper-alloy, and bone:

silver and copper-alloy, Böhme 1970 (BO), 23 examples: BO1 (1); BO2 (5), including 2 in silver: BO4 (2); plus 5 incomplete bowls and 8 decorated and 2 undecorated handles
bone, Greep 1983 (GP), 8 examples: GPA1 (2); GPA2 (1); GPA4 (4); GPA5 (1)

Other implements

There are 7 examples in iron and stone:

iron, flesh-knife (1); meathook (1); ladles (4)
stone, pestle (1)

Querns

There are 41 examples including 1 complete lower stone with an iron spindle in a wooden sleeve *see also Appendix 6*

Lighting equipment

There are 10 examples in ceramics and iron:

ceramic, 7 examples: lamps (7) *see also Appendix 4*
iron, 3 examples: tripod candlestick (1); wall candle holders (2)

Other domestic fittings

There are 31 examples in copper alloy and iron:

copper alloy 12 examples: suspension chains for lamps
iron, 19 examples: chain fragments (15); pulley-hook (1); shackles or manacles (3), Manning 1985 Type 7

Textile manufacture

(231 objects)

Sewing equipment

There are 109 examples in copper-alloy, bone, and iron:

copper-alloy, 11 examples: needles, all rectangular perforation (8); thimbles (3)
bone, Greep 1983 (GP), 93 examples: needles; GP1.1 (11); GP1.2 (1); GP1 (1); GP2.1 (13); GP2.2 (3); GP2 (4); GP3.1 (5); GP3.2 (10); GP3 (6); GP5 (1); plus 38 broken examples
iron, 5 examples: needles, all rectangular perforation (5)

Spinning equipment

There are 38 examples in bone, shale, ceramic, and stone:

bone, Greep 1983 (GP), 6 examples: spindlewhorls: GP3 (3); spindles GP1 (3)
shale, 7 examples, spindlewhorls: Type 1 biconical (2, *Fig 305, no 4*); Type 2 semispherical (2); Type 3 fragments (3)
ceramic, 20 examples: spindlewhorls: purpose-made (7); re-worked sherds (13)
stone, 5 examples: spindlewhorls, mostly in polished fossiliferous limestone

Weaving equipment

There are 11 examples in bone and stone:

bone, Greep 1983 (GP), 8 examples: pin beater (1); weaving-tablet, GP1.2 (1); perforated metapodials, GPA (2); GPD (1); plus 3 others
stone, 3 examples: loomweights? (3)

Other textile equipment

There are 4 examples: polishing stones (4)

Other industrial material

Very large quantities of slags and waste were scattered through all the dumps but are not thought to be derived from on-site activity.

Metal-working

There are 13 examples in ceramics, lead, and stone:

ceramic, 9 examples: crucibles (8); ceramic mould (1)
lead, plumber's rods (2)
stone, 2 examples: ingot-mould (1); coin-mould (*Fig 344*)

Shale-working

There is 1 example, a lathe-core (*Fig 305, no 1*)

Bone working

There are 55 pieces of worked waste bone including unfinished objects of which a sword hilt-guard, a pendant and Greep 1983, Type A2.1 pins are recognisable.

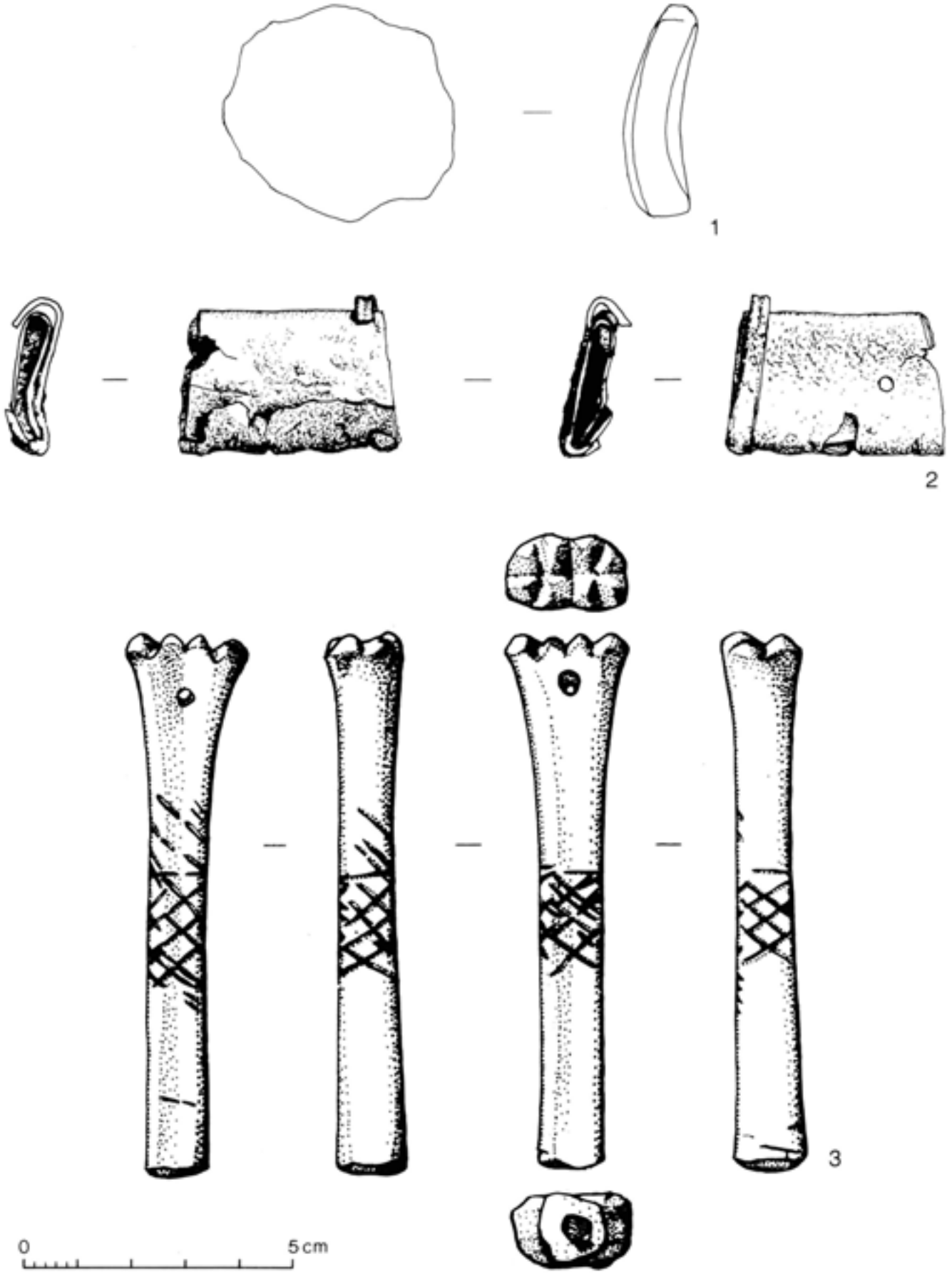


Fig 333 Objects from Phase Z, category A context D283: no 1 Severn Valley ware counter; no 2 copper-alloy sleeve; no 3 antler handle (scale 1:1)

Furniture and building fittings
(1044 objects)

Mounts and fittings
There are 52 examples from wooden furniture in copper-alloy and bone:

copper-alloy, 17 examples: knobbed terminals, bell-shaped (9); baluster-shaped (1); drop handles (3); ring handles (2); hinges (2)
bone, Greep 1983 (GP), 35 examples: mounts, GPA1.1 (3); GPA1.2 (1); GPA1.3 (1); GPA1.4 (1); GPA1.5 (1); GPA2 (1); GPB1 (2); GPB2 (3); GPB3 (5); GPB6 (4); GPC1 (7); GPD (3); hinges, hinge-blocker (1); end-hinge segments (2)

Other material

stone, slab or table-top in white marble
glass, small blue *tesserae* (4)

Locks and keys
There are 81 examples in copper-alloy and iron:

copper-alloy Manning 1985 (M), 6 examples: complete lever lock (1); key handles (3), 2 with fleur-de-lys heads; lock-bolt from tumbler-lock M2 (1); part of ward of small key (1)
iron, 75 examples: tumber-lock keys (33); slide-keys, MSK1 (3); MSK2 (5); latch-lifters (3); padlock cases, MPDCS1 (1); MPDCS2 (1); padlocks (6); padlock-bolts (5); tumbler-lock bolt (1); key handles (12); latches (2); uncertain (3)
see also key-rings (CL11) under finger-rings above

Structural remains (not from timber buildings)
There are 128 examples in ceramics, lead, stone, and iron:

ceramic, 7 examples: chimneys with triangular vents (7)
lead, 21 examples: window-lead (3); flashing with iron rivets (18)
stone, door-post socket in red sandstone (1)
iron, pipe-collars for timber water-pipes (99)

Fittings from timber buildings
There are 355 examples, all in iron: T-clamps (41); joiners' dogs (109); cleats (39); wall-hooks (31); hinges (48); spike-loops (87):

Nails, studs, and tacks
There are 356 examples in copper-alloy and iron:

copper-alloy, 144 examples, nails: convex-headed (16); knob-headed (42); cone-headed (3); flat-headed (3); headless (8); miscellaneous (2); tacks, rolled-sheet cones with flattened heads (44); stud bosses or stud-caps (18); miscellaneous (8)
iron, Manning 1985 (M), 212 examples: nails, M1 (7); M1A (7); M1B (57); M2 (15); M7 (32); M8 (10); M9 (10); M10 (29); uncertain (41); studs (4)
for other copper-alloy studs see Weapons and military equipment above

Other fittings
There are 67 examples in copper-alloy, iron, and lead:

copper-alloy, 39 examples: double spike-loops (7); staples (4); collars (8); ferrules (4); washers (16)
iron, 24 examples: collars (17); ferrules (7)
lead, 4 examples: washers (4)

Leisure and religion
(299 objects)

Small counters
There are 186 examples in glass, bone, stone, and ceramics:

glass, 29 examples: green (1); white (10); dark blue (8); light blue (2); black (6); black inlaid with red and white (1); black inlaid with blue (1)
bone, Greep 1983 (GP), 125 examples: GP1 (21); GP1.1 (3); GP1.5 (1); GP2 (30); GP2.1 (7); GP2.3 (1); GP2.4 (3); GP2.6 (1); GP3 (37); GP3A (2); GP3.2 (10); GP3.3 (2); GP4 (6); GP4.1 (1), 29 examples have graffiti
stone, 8 examples
ceramic, 24 examples

Large counters or pot lids(?)
There are 180 examples in stone and ceramic:

stone, 90 examples: micaceous flagstone, cut from roofing slate, some decorated with incised lines (*Fig 302, no 11*)
ceramic, 90 examples: re-worked bases, some perforated (76); cut body sherds (14)

Dice
There are 7 examples in bone:
Greep 1983 (GP): GP1 (2): GP1a (5)

Marbles
There are 7 examples:

stone, (4)
ceramics, (3)

Figurines
There are 14 examples in copper-alloy and ceramics:

copper-alloy, 4 examples: large finger (1); small arm (1); other limbs (2)
ceramic, 10 examples: pipeclay figurines or fragments

Other religious material
There are 88 examples in copper alloy, stone, ceramics, and wall plaster:

copper-alloy, 1 example: appliqué eye (*see Fig 316*)
stone, 1 example: small square-sectioned upright altar (with no inscription)
ceramic, 1 example: samian sherd reworked as an eye (*see Fig 317*)
wall-plaster, 85 examples: plaster eyes (*see Figs 313 and 314*)

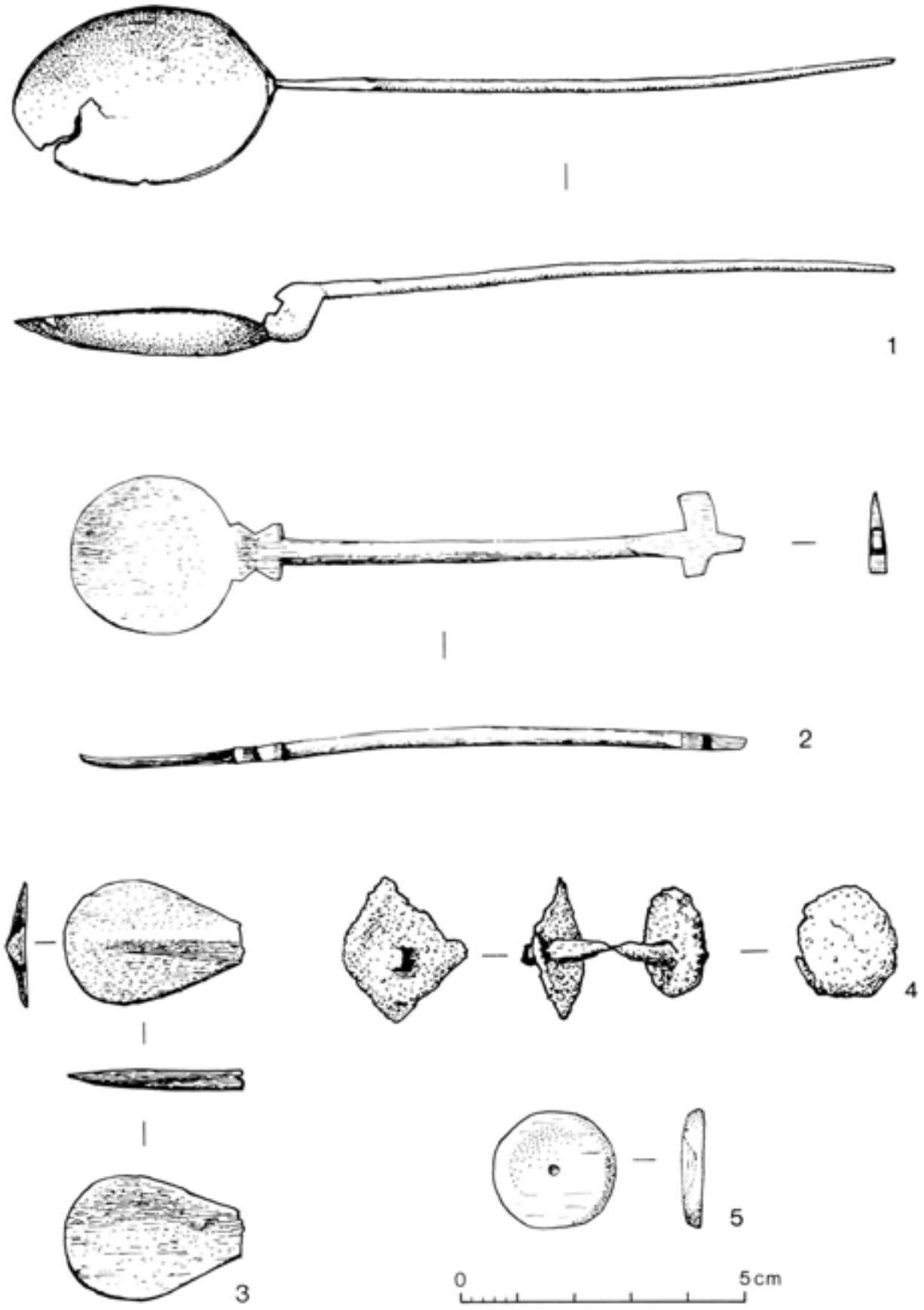


Fig 334 Objects from Phase Z, category A contexts: no 1 copper-alloy spoon, context C90; nos 2 and 3 bone spoons, context 283; no 4 iron double headed rivet, context 899; no 5 bone counter, context E221 (scale 1:1)

Unclassified

(1774 objects)

Objects or groups objects of unknown use but identifiable as artefacts:

gold, 7 fragments
jet, 1 object
copper alloy, 246 objects including rods, ?handles, bindings, rivetted and perforated strips, decorated sheets, and other items
iron, 1329 objects including hooks, loops, rods, plates, wire, strips, bars, discs and bindings
lead, 9 objects and 82 off-cuts
glass, 5 objects
stone, 10 objects
bone, 45 objects and 40 fragments

Appendix 2: Architectural stone fragments

by Roger White, with Robert Ixer

Introduction

This catalogue is not a complete inventory of the 140 architectural fragments recovered from the basilica site, but deals only with those fragments which add significant architectural detail to the reconstruction of the basilica (*see chapter 4*). The number of significant fragments (27) is in itself an indication of the small amount of architectural detail that has survived late and post-Roman robbing. Wright found significant amounts of architectural stone (*see chapter 2*) and many of these were published by Corbet-Anderson (1867, pls VII, VIII) and Fox (1897, pl IV). Others were undoubtedly robbed by the tenant farmer after Wright was forced to leave the basilica site. In this, however, the farmer was following ancient local custom, as the Anglo-Saxon strap-end and clay pipe fragments that we found in the robber trenches testify. Scarth (1859, 266) records that even in the nineteenth century, whole columns were still being dragged from the site to be split into coping stones for the local field walls. Precisely where they were used is not clear since the local coping stones do not appear to be cut down from column shafts. Nonetheless, there are many undoubted Roman architectural fragments in Wroxeter's modern buildings. Two complete columns found their way to the churchyard gate in the 1860's, and much earlier another example may have been exported to as far afield as Wolverhampton, where its surface was carved to become the late ninth century cross known as the Wolverhampton Pillar (Wilson 1984, 105, figs 124 and 125). The dating of this masterpiece of Mercian art coincides significantly with that of the strap-end found in the south aisle colonnade robber trench and with the Mercian period cross shaft now built into the south aisle of St Andrew's Church, Wroxeter (Moffett 1990, fig 17). Even so, it was clear from our excavation that much of the robbing of the columns, stylobates, architraves, and drainage channel blocks from the basilica was carried out in the Roman period.

The catalogue of fragments can be divided into two main groups: those from the north portico colonnade (C/D/E81) and those from the north aisle colonnade (D111). A few are derived from the rubble rafts of Phase Z (*see chapter 4*). There are none from the south aisle colonnade, which had clearly been heavily disturbed in the Anglo-Saxon and modern periods, nor in the west portico colonnade, though only a small part of this was excavated. The earliest phase represented is X, with the other fragments from Phases Y, pre-Z, and Z.

To emphasise the point, these 27 fragments, and the small pieces that are not recorded here, are all that remains of the 26 massive columns of the aisles, and at least 35 columns from the north portico plus six from the west portico, with all their associated capitals, bases, and stylobates, that we might have expected to find if the building had merely collapsed. There must have been at least several hundred large blocks of stone taken away for reuse. Not all these were removed by Anglo-Saxon or medieval church builders and farmers, since although Wroxeter, Upton Magna, and Atcham churches have Roman ashlar masonry in them, none has Roman columns, bases, or capitals, except possibly the font at St Andrew's, Wroxeter (Fox 1897, 142–3). What, therefore, happened to the columns? Unfortunately, this question, as with much else concerning the basilica, is at present unanswered.

The stone

The identification of the stone relies on the geological analysis by Cantrill (1931). This divided the stones into five types belonging to three main groups:

Red sandstone: purple-red in colour, fine-medium with subangular grain, sometimes with flakes of red marl and pellets of pink-white limestone, occasionally calcareous; Keele Beds
Buff sandstone: medium grained, buff or yellow, non-calcareous stone with round quartz grains, some up to millet-seed size; Hoar Edge Grit
Grey or brown-grey sandstone: used for large blocks, culverts, columns, and carved work; Big Flint Rock
Grey-white freestone: (occasionally with purple tinge). Grains of grey-white quartz loosely held in cement. No yellow or buff colour. Occasional larger grains of sub-angular quartz and opaque white ?rhyolite; Big Flint Rock
Grey, coarse, gritty stone: with pebbles and rounded grains of quartz; Hoar Edge Grit (coarse)

In addition to the stone identified above, which was used exclusively in the construction of the basilica, three other rock types were identified by Robert Ixer using thin-sectioning techniques. All three were used in the mosaics in the aisles of the baths basilica and one (no 6) was used also for roofing slates:

Dark coloured fine-grained carbonaceous limestone (foraminiferal wackstone) (N5 on Geological Survey of America rock-colour chart)
Pale pinkish-white fine-grained limestone (peloidal lime mudstone)(5YR 8/1). Probably carboniferous and possibly from the Llanymynech Hills (Cantrill 1931, 98)

Greenish-grey siltstone/metasiltstone (Carbonate-cemented Arkosic Greywacke) (5GY 6/1) with a distinct planar fabric. The inclusions suggest that it cannot be Carboniferous in age but it is reasonable to suggest that it is Lower Devonian. Cantrill's description of this rock type as 'micaceous grey-green flagstone' (1931, 95–6) has been adopted as the term used for this rock type throughout this report.

The north portico colonnade

Bases

Fig 335

1 A substantial fragment of an Attic base in Keele Beds sandstone. A tapering fragment leaving 40% of the column drum and nothing of the lower *torus* moulding and column base. A moulding at the base consists of a battered *torus* with a collar above and below. Above the moulding is a second collar and then a fragment of the shaft which shows some signs of diagonal tooling on the external surface. The top of the shaft has pecked tooling. Diameter of column 0.45m, length 0.35m, width 0.17m, depth 0.34m,*WP 82 C450, packing of post hole for Building 58, Phase X*

2 Two joining fragments of a *torus* moulding from an Attic base carved in badly splitting Hoar Edge Grit. The surfaces are well-finished but there are clear signs of fine grooves cut by a small chisel. The upper and lower surfaces are fractured. Diameter of base 0.65m, length 0.39m, width 0.23m, depth, 0.2m, *WP76 G.35 SF.236 D81–1f, robber trench fill, Phase Y or pre-Z*

3 Two joining fragments of half of an Attic base in badly-splitting Hoar Edge Grit. Both of the *torus* mouldings are complete. The surfaces are finished with small, deep chisel cuts, especially noticeable between the two *torus* mouldings. Chiselled tooling only survives on the upper surface. Diameter of base 0.65m, length 0.43m, width 0.28m, depth 0.3m, *WP76 G.35 SF.240 D81–11, robber trench fill, Phase Y or pre-Z*

4 The upper half of part of an Attic base in Hoar Edge Grit. It consists of the base of the column, a *cavetto* moulding, and an upper *torus*. It has broken off just where lower *torus* moulding would start. The upper surface and column base are dressed with diagonal chisel cuts and shallow pecking, and the mouldings are smooth and well-preserved. Diameter of column 0.4m, diameter of base, 0.65m, length 0.59m, width 0.25m, depth 0.22m, *WP76 G.38P SF.157 D81, robber trench fill, Phase Y or pre-Z*

5 A fragment of an Attic base in Hoar Edge Grit. Probably from the upper part of the base as a small part of the upper surface survives. Tooling is only visible on the lower part of the *torus* moulding as deep pecking. Length 0.295m, width 0.19m, depth 0.15m, *WP75 G.33 SF.303 C81, robber trench fill, Phase Y or pre-Z*

6 Near-complete fragment from an Attic base in Hoar Edge Grit. The upper surface preserves a complete raised and chisel-roughened setting for a column with a central square peg-hole. The upper *torus* moulding survives intact for half of its length. There is no sign of tooling on the moulding. Diameter of column 0.48m, width 0.6m, depth 0.2m, *WP82 G.34B SF.533 C81, robber trench fill, Phase Y or pre-Z*

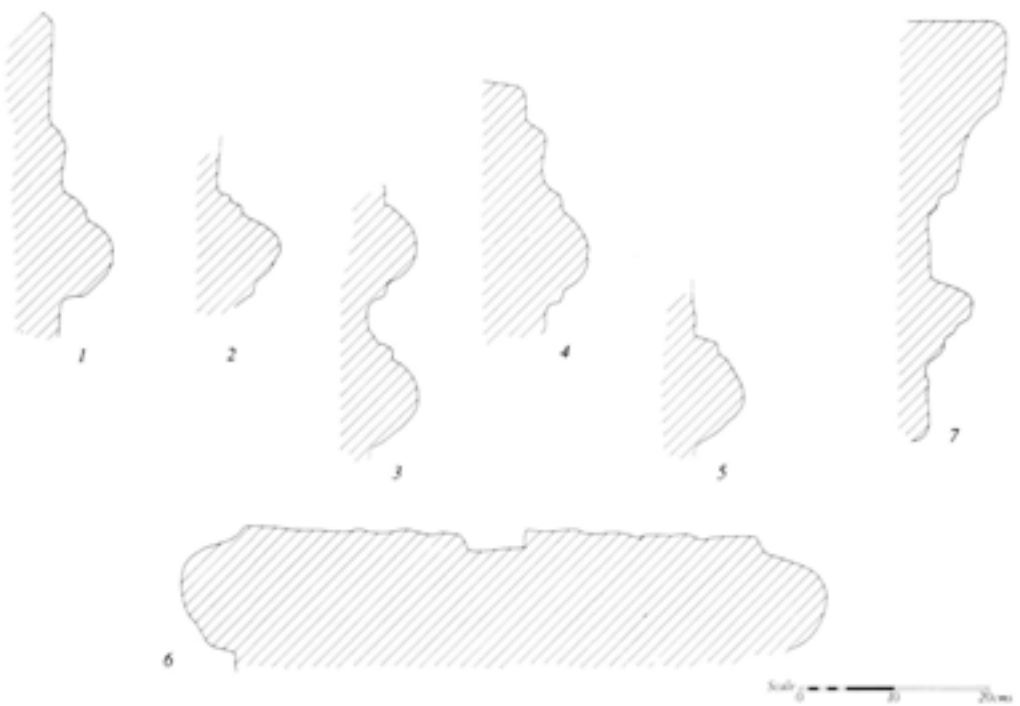


Fig 335 Architectural fragments from north portico colonnade robber trench

Columns

not illustrated
A half segment of a column drum in Hoar Edge Grit. The upper surface has been pecked overall and has a central 60mm square hole cut into it. The surviving external face has been chiselled smooth. Lower surface fractured. Diameter 0.39m, depth 0.17m, *WP75 G.32 SF302 C81, robber trench fill, Phase Y or pre-Z*

Stylobates

A large rectangular slab of Big Flint Rock broken on three sides. There are prominent signs of diagonal tooling on most of the upper surface, arranged in a V-shaped pattern (like *opus spicatum*). There is no sign of a column position nor of tooling on the surviving side. Length 0.77m, width 0.62m, depth 0.1m, *WP82 G.32P SF406 C81-1c, robber trench fill, Phase Y or pre-Z*
Two joining fragments from the same stylobate block in Keele Beds sandstone. Broken on two sides so the diagonal tooling survives only on the third edge, which is almost completely worn away. The upper surface is heavily worn leaving only occasional signs of pecking. A single lewis-hole in the centre of the stone measured 135 by 22 by 27mm. Length 0.83m, width 0.46m, depth 0.145–0.020m, *WP82 G.42P SF305 D728, robber trench fill, Phase Y or pre-Z*



Fig 336 Stylobate from north portico colonnade. Scale 0.2m

Fig 336
Three irregular joining fragments from the same stylobate block in Hoar Edge Grit. Two sides of the block are intact with slight signs of tooling on the complete sides. The other two sides are irregularly roughed out with diagonal tooling suggesting that the block has been cut down. The upper surface is smooth and unworn except for the central area where a compass-drawn circle 0.56m in diameter has been deeply incised into the stone. The whole internal area of this circle has been roughened with irregular pecking and chisel marks. Length 0.64m, width 0.61m, depth 0.135m, *WP79 G.36 SF419,422 D81–2, robber trench fill, Phase Y or pre-Z*

not illustrated
A triangular fragment of a stylobate block in Hoar Edge Grit. The original sides have been tooled smooth (possibly sawn). The ?upper surface has a roughly level border 120mm wide around a deeply-chiselled area of tooling. The ?lower surface is deeply tooled overall. Length 0.44m, width 0.42m, depth 0.13m, *WP79 G.37 SF370 D81–2, robber trench fill, Phase Y or pre-Z*

Abacus

A fragment of an *abacus* block in Keele Beds sandstone. Coarse, diagonal tooling survives on the upper surface and side. On the upper surface is a projecting lip of stone 60mm high and 90mm broad. Length 0.36m, width 0.29m, depth 0.1–0.17m, *WP78 G.41 SF158 D81, robber trench fill, Phase Y or pre-Z*

Capital

Fig 335
7 A near-complete Tuscan capital in Hoar Edge Grit. The mouldings are only preserved on one side and even here are badly damaged in places. There is little sign of tooling on the mouldings but there are some areas with coarse pitting. There are peck marks and diagonal tooling on the upper and lower surfaces. Diameter of column, 0.34m, length, 0.43m; width, 0.31m; depth, 0.44m, *WP76 G.33 SF576 I/II (C81), upper levels of robber trench fill, Phase Y to Z*

The north aisle colonnade

Bases

Fig 337
2 Two joining fragments of a *torus* moulding from an Attic base in Hoar Edge Grit. The moulding is tooled smooth, and the upper surface is lightly pitted and gouged with a chisel. Diameter of base 1–1.05m, length 0.59m, width 0.42m, depth 0.17m, *WP81 G.22G SF440 D111–1d, robber trench fill, Phase Y to Z*
4 A fragment of a *torus* moulding from an Attic base in Hoar Edge Grit. The surfaces are heavily weathered and no there are no obvious signs of tooling (although pitting by weathering makes this uncertain). Only half of the profile survives and this shows no signs of tooling. Length 0.3m, width 0.21m, depth 0.2m, *WP81 G.22L SF413 D111–1a, robber trench fill, Phase Y to Z*
7 A roughly rectangular fragment of Attic base in Big Flint Rock with *cavetto* moulding and collar. The upper surface is worn smooth and the lower surface is crudely levelled. There is no sign of tooling on the moulding. Diameter of column 0.8m, length 0.3m, width 0.11m, depth 0.19m, *WP82 G.27G SF243 D111–1c, robber trench fill, Phase Y to Z*

not illustrated
A fragment of an Attic base in Hoar Edge Grit. It probably derives from the junction of the base with the column shaft as a collar between the *torus* moulding and the column shaft is present. The upper surface is badly pitted, a combination of coarse dressing and weathering. Diameter of base 0.8m, diameter of column: 0.65m, length 0.47m, width 0.31m, depth 0.255m, *WP81 D111, robber trench fill, Phase Y to Z*

(?)Capital

Fig 337
6 A fragment of a column in coarse Hoar Edge Grit. The surfaces are heavily weathered with no obvious signs of tooling, but the upper surface is generally level. A coarse rectangular collar may perhaps represent an unfinished moulding below the capital. Dimensions: length, 0.46m; width, 0.39m; depth, 0.17m, *WP75 G.23 SF.121 D111, robber trench fill, Phase Y to Z*

Abacus

not illustrated
A triangular block of Keele Beds sandstone. It is dressed smooth on two sides with diagonal tooling on much of the upper and lower surfaces. On the upper surface is a projecting vertical ridge of stone 60mm high and 30mm broad forming a lip on one side, although this is partly broken away. Length, 0.32m, width 0.24m, depth 0.18m, *WP78 G.25C SF.87 D100F–2, micaceous flagstone layer in nave, Phase Y*
A triangular fragment of an *abacus* block in Hoar Edge Grit. There are no signs of tooling on any surface. A projecting ridge on the upper surface forms a lip at the side 60mm by 90mm in size. Some signs of secondary damage to projection might indicate wear. Length 0.23m, width 0.24m, depth 0.2m–0.27m, *WP81 G.21L SF.352 D111–1b*, robber trench fill, Phase Y to Z

Other

Fig 337
5 A rectangular fragment of moulded stone, possibly part of a door frame, in Hoar Edge Grit. There are faint signs of pecking and chiselling on the finished surfaces and there are some signs of weathering. A raised rectangular area on the upper surface forms a moulded frame with a chamfered corner, length 0.32m, width 0.11m, depth 0.095m, *WP81 G.21L SF.247 D111–1b, robber trench fill, Phases Y to Z*

Other finds

Bases

Fig 337
3 A fragment of an upper *torus* moulding from an Attic base in Keele Beds sandstone. The upper and exterior surfaces are tooled smooth. Length 0.26m, width 0.1m, depth 0.16m, *WP75 G.9 SF.152 D100, rubble platform for Building 10, Phase Z*

Columns

Fig 337
1 A triangular segment of a column drum in Keele Beds sandstone. Only the upper and exterior surface are preserved. The exterior is lightly pecked with occasional chisel marks, and the upper surface is pecked. A simple rectangular collar projects from the surface. Uncertain derivation, but similar to the fragment from the north aisle colonnade (*see above, Fig 335, no 3*). Length 0.44m, width 0.37m, depth 0.13m, *WP75 G.9 SF.151 D100, rubble platform for Building 10, Phase Z*

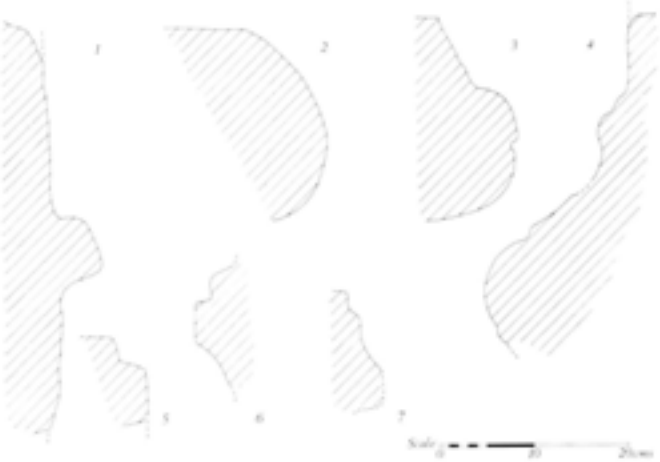


Fig 337 Architectural fragments from north aisle colonnade robber trench and elsewhere

not illustrated
One third of a column drum in Hoar Edge Grit. The upper surface shows some signs of tooling, notably two irregular indentations, one with iron staining, which might represent keying points for the next drum. The external surface of the drum is finished with very fine shallow diagonal tooling. The lower surface is very heavily worn after its reuse as part of a worn surface on the cobble street. Given its size this was almost certainly from one of the aisle colonnades. Diameter of column 0.85m, length 0.68m, width 0.445m, depth 0.14m, *WP80 G.42F SF.240 E185–b, rubble dump on street surface, Phase Z*
A near-complete column drum segment in Hoar Edge Grit. Slight signs of tooling on the external surface, mainly chiselling. The upper and lower surfaces are damaged, thus the original drum must have been deeper. Diameter 0.44m, depth 0.31m, *WP80 G.6 SF.81 B262 AT, modern disturbance*

Capitals

not illustrated
A fragment of a Corinthian capital in Keele Beds sandstone, recut to form a rectangular block 0.22m by 0.17m by 0.1m in size. Mortar adhering to the upper surface indicates its reuse as a building stone. The decoration consists of shallow curving lines creating sprays of rounded ?foliage. A deeper central channel cut between the two decorative elements is probably not part of the original design. The carving has been done with a gouge? and a chisel, *WP G.13A SE111 D283, rubble spread, Phase Z*
A fragment of a small Corinthian capital in Keele Beds sandstone. The upper and lower surfaces are flat and smooth with no sign of tooling. The external surface is decorated with two crude leaf sprays delineated by deep chisel-cut grooves forming raised V-shaped areas with a central groove. Possibly from the *macellum* courtyard as it is similar to fragments found there (Donald Mackreth, personal comment). Length 0.19m, width 0.2m, depth 0.1m, *WP71 G.2 SE5 A103, pit, Phase Z*

Discussion

Of the two colonnades, the north portico colonnade has the greater number of fragments (thirteen as opposed to eight from the north aisle colonnade). In addition, it has fragments from all the significant parts of a column: the base, the shaft at top and bottom, the capital, and the architrave. These enable a full reconstruction of the portico columns showing that the base was in the Attic style, with two *torus* mouldings, and a diameter of 0.65m. A complete base (Fig 338) survives in the collection of architectural fragments from the site but its exact provenance is not clear. The base of the shaft was 0.45m–0.48m in diameter while the top of the shaft was 0.34m, showing the expected tapering. The length of the shaft was probably a multiple of the diameter, presumably the same as that of the aisles, ie a ratio of 1:7. This would give a shaft height of about 10 *pM* (2.95m). The collars at the base of the shafts, and the roughened surface of the column drums, appear to indicate that the columns may have been finished with stucco, although this is purely speculative as none survived. The capital was of a standard Tuscan (ie elaborate Doric) style. A vertical-sided channel cut into the *abacus* on top of the capital held the beams of the architrave in place.

The north aisle columns were, as far as it is possible to reconstruct them, similar in style to the north portico, the only difference being their larger size. Attic bases were again used and, although no complete examples were found, enough survived to reconstruct the base diameter as about 1m. The diameter of the base of the shaft was about 0.85m. Conflicting evidence came from one base fragment which indicated a base diameter of 0.8m and a column diameter of 0.65m, but because this piece is incomplete the reconstructed diameters may not be correct. Two fragments from the architrave showed that an identical system to that observed in the portico colonnade had been used with the architrave set in a channel cut into the *abacus* block set on the capitals. Of the capitals themselves there was no sign. The only candidate large enough to have been from the basilica was the huge Corinthian-style capital found some years ago by the late John Houghton at Finger-Post Cottage on the eastern boundary of the Roman town (Fig 339; Blagg, forthcoming). This is 0.71m deep and 0.62m wide at the top. The diameter of the base, which is not complete, is about 0.55m which would appear to indicate that this capital came from a column of similar size to the smaller example from the colonnade trench. But since the derivation of the capital is so uncertain, this is very speculative.



Fig 338 Column base from site lapidarium. *Scale 0.2m*



Fig 339 Capital from Finger-post Cottage, near Wroxeter.

Appendix 3: Roman coinage

by Richard Brickstock and John Casey

General

The adequately legible Roman Imperial coins from the baths and baths basilica excavations of Wroxeter number some 3869 specimens, 3171 from the baths basilica (Philip Barker, code WP) and a further 698 from the baths (Graham Webster, code WB). To this total may be added a further 2010 coins from excavations conducted in various areas of the city by J P Bushe-Fox, Donald Atkinson, Kathleen Kenyon, and other excavators. This accumulation of 5879 coins is one of the largest numismatic archives from any urban settlement in Roman Britain or, indeed, the Roman Empire as a whole, that has been recorded in both full numismatic detail and stratigraphic context. The information on which the following discussion is based has been drawn from a complete catalogue of the coins from the baths basilica (Brickstock and Casey, unpubl) which is to be published at a later date, but is available in the meantime for consultation in the site archive.

The total of coinage is displayed in graphical format in Fig 340 using the methods and parameters established by Casey (1980). It should be noted that the histogram is based on a mathematical model that cannot take account of pre-Claudian coinage, which is thus omitted from the totals. The revised totals are 3167 (WP), 676 (WB), and 1985 (Others), making a total of 5828 Roman Imperial coins of AD 43 or later. Coins of the Roman Republic and pre-Claudian Imperial issues are found on British sites, in very small numbers, in coin assemblages down to the Hadrianic period. The Wroxeter archive here considered includes 51 pre-Claudian Roman coins (4 from the baths basilica, 22 from the baths, and 25 from earlier excavations): they have no great significance in relation to the overall coin deposits on the site. As is normal, copies of official coins have been counted in the cumulative column totals for the period in which the prototypes were issued, although, as will be made clear below, the use and issue of such copies may post-date the production of the prototype by some years.

Coins from the excavations by Thomas Wright have not been included in the present statistical study though there is very important numismatic information in his publication (Wright 1872, 406–56). The Wright list appears to refer to a hoard of silver coins, probably deposited in the middle of the third century AD, which is treated as an individual item. In addition, it is seriously defective in its reporting of the coinage from the mid-third century onwards. This reflects the interests of antiquarians and collectors of the period, who paid little attention to what is the most common coinage found on Roman sites in Britain and the western provinces. However, the list does contain a reference, albeit in the form of a mis-identification, to the latest coin to be found in Roman Britain, an issue of Valentinian III dating to *c* AD 435 (Casey 1974).

Viewed as a whole (Fig 340), the massed coinage of Wroxeter does not deviate from the standard pattern long established for major British urban sites (Casey 1986). The emphatic presence of coinage in Period 1 does not reflect pre-Neronian activity, since the majority of the specimens (100% from WP) are copies of Claudian issues, reflecting the dearth of *aes* issues between *c* AD 44 and Nero's coin reforms of AD 64.

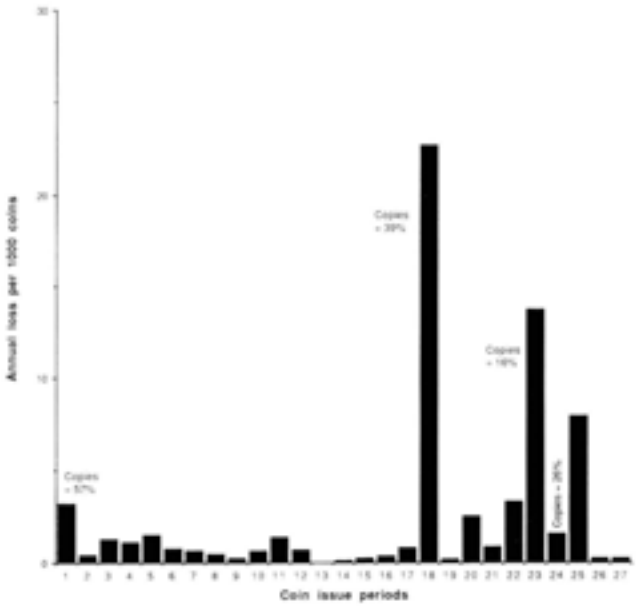


Fig 340 Coins from all Wroxeter sites, issue periods after Casey, 1980 (total 5828 coins)

Thereafter the pattern is as expected, with the normal decline in deposits between Period 12 and Period 18, reflecting the absence of silver coinage as the currency crisis of the third century gathered momentum and extant issues disappeared into private hoards or the state's melting pot. The collapse of the currency is reflected in Period 18 when the ostensibly silver coinage achieved a nadir of purity (2% under Claudius II Gothicus, AD 268–70) and was issued in an increased frenzy of activity to maintain its use as the intrinsic value fell relative to the cost of goods and services. The reform of Aurelian (Period 19, 270–75), with its resulting dearth of official coins in the western provinces, probably saw the issue of most of the Radiate Copies which compose 39% of the Period 18 cumulative column. Similarly the copies of Period 23 (16% of the total) can be assigned to the relatively short gap in official supply which seems to have occurred between *c* AD 341 and 346 (it should be noted that the significantly lower percentages of copies of all periods shown by the earlier

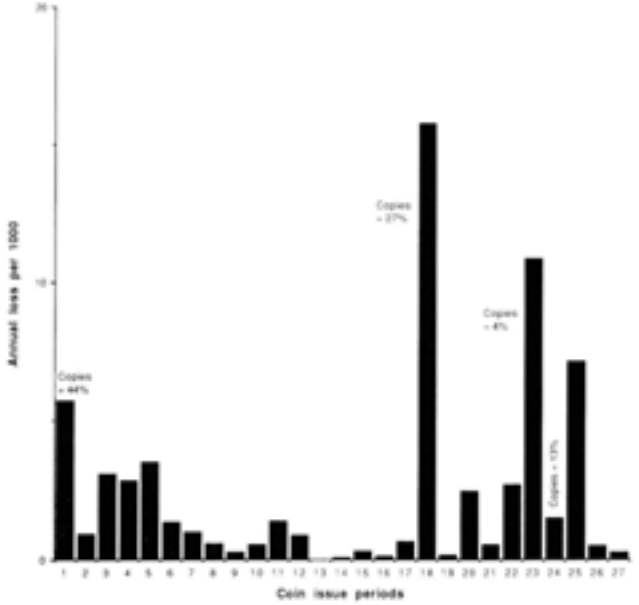


Fig 341 Coins from other Wroxeter sites, issue periods after Casey, 1980 (total 1985 coins)

listings (Fig 341) reflect a consistent failure to identify all but the most obvious copies). The Period 23 totals represent a decline in monetary standards similar to that experienced under the Gallic Empire when very large numbers of very low value coins circulated. The reform of this monetary situation in Period 24 is unusually represented at Wroxeter. In normal circumstances the bulk of deposits of this period are copies engendered by Constantius II's political and financial policies in Britain and Gaul following the defeat of Magnentius (Brickstock 1987). At Wroxeter, in contrast, the bulk of the coins are regular issues, possibly indicating the consignment of coin to the site at a period where such action was abnormal. Copies are present, however, and were perhaps produced locally: a hoard containing *FEL TEMP REPARATIO* copies, some of them overstruck on earlier issues, is discussed below.

The latest period of coin supply to Britain presents its usual muted appearance in Period 27. At Wroxeter the same situation prevails as elsewhere in the West and North Wales. This coinage consists of two groups of coins, those issued between AD 388 and 395, and those of the period AD 395 and 402; the latter include issues in the name of Honorius with the reverse type *SALVS REIPVBLICAE*. Since it has been established that the demise of Roman military control in the West is later than the reign of Magnus Maximus it has been suggested that the absence of the second group from military sites in North Wales and the West Midlands indicates a withdrawal of troops by Arbogastes in AD 393 (Casey 1989). If this is so then, effectively, coin ceased to be directed to Wroxeter about a decade earlier than elsewhere in Britain. The circulation of the abundant copper issues of Valentinian, Period 25, will have made good any shortfall in day-to-day currency for some considerable time after their injection into the economic system.

The presence of two *siliquae*, of Julian II (AD 360–3, Cat no 2754) and Theodosius I (AD 388–92, Cat no 3160), hints at a level of circulating wealth not characterised by the low value coinage which, as normally, makes up the bulk of the coin finds.

The baths basilica deposits

Plotting the basilica coins (Fig 342) indicates that the only deviation from the overall site pattern is the relative absence of Claudio-Neronian copies and other coinage characteristic of the military phase of Wroxeter. This coinage can be readily seen in the marked peaks shown for Period 1 (AD 43–54) by the

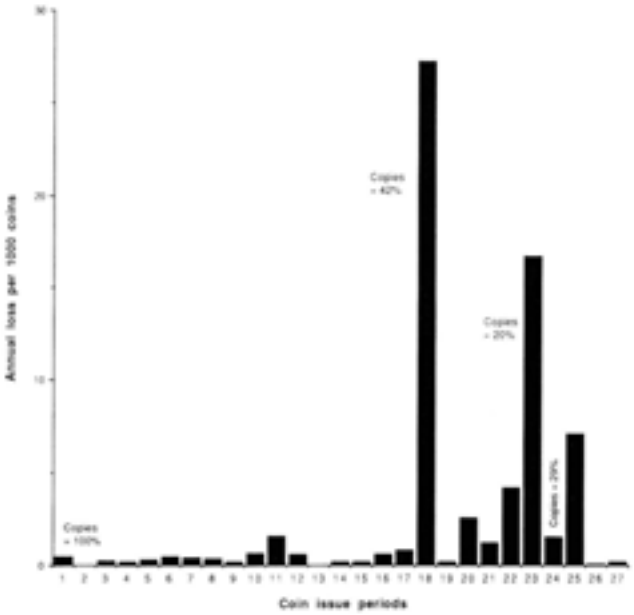


Fig 342 Coins from the baths basilica site (Barker), issue periods after Casey, 1980 (total 3167 coins)

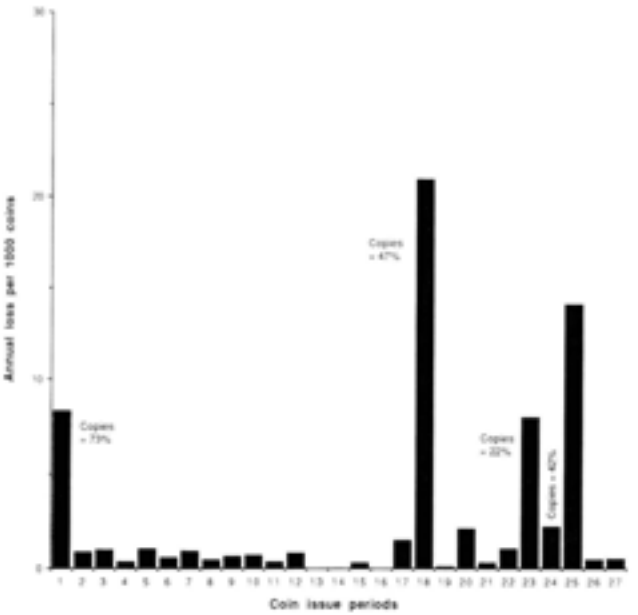


Fig 343 Coins from the baths site (Webster), issue periods after Casey, 1980 (total 676 coins)

baths (WB) coins (Fig 343) and for the early periods by a histogram plotting all earlier finds except those of Thomas Wright (Fig 341). The coins accurately reflect the general history of coin supply and use in Britain in the Roman period and fall into the well-established pattern discussed above. In the circumstances of the baths basilica excavations, in which the coins were in deposits above the first major repair of the basilica floor, the herringbone tile floor of Phase T, which is dated by a sealed coin of Tetricus II (AD 270–3: *Catalogue of the coins from the excavations of the Wroxeter Baths* no 232), we can only regard the coins as being, in the main, an accumulation of material derived from the town rubbish heaps which were redeposited as make-ups for floor and other surfaces in the basilica in or after the later third century. Hoard and stratified deposit evidence accumulated from a host of sites in Britain and abroad show that there was a rhythm of issue, use, and discard in the Roman coinage, a rhythm engendered not only by economic factors but, on more than one occasion, by stringent legal enforcement of currency laws. While there is a problem of residuality of use of individual denominations, characteristic of all coinages, for instance the long retention of the pre-decimal florin, there is no reason to think that early coins circulated in the late Roman period, or indeed that any earlier coinage had credibility after *c* AD 270. In the fourth century a series of legal measures withdrew individual denominations and secured the abolition of the issues of usurpers. The changeover of coin was very frequent up to Period 25, when the petty currency ceased to have a silver content and thus ceased to have a remelt value.

In these circumstances it is difficult to disentangle which coins are from redeposits and which represent real site activity in the area of the dismantled baths complex. Taking an optimistic view of the evidence it may be assumed that many of the coins from the middle of the fourth century onwards do represent such activity and that their presence in phases and contexts of this period have some contemporary significance. Pursuing this theme we may examine the deposits from the various major areas of the excavation. In this context, the baths basilica, Site D, may be treated as a single context, and the east to west street and *insula* 2 frontage (Sites C and E) as another. The annexe and precinct (Site B) may be regarded as a further distinctive zone of activity since it is bounded on three sides by walls which cut it off from Sites C, D, and E. In the same manner the eastern side of *insula* 5 (Site A) lay outside the walled boundary of Site B.

Sites C, D, and E are statistically identical, demonstrating that the deposits are drawn from the same pool of material and that in terms of finds distribution and survival the sites have the same depositional history. It is clear from the graph representing these contexts (Fig 344) that there is some deviation from the overall site pattern in some details. Although the relative frequency of period deposits is preserved, not surprisingly since the underlying pattern is the product of imperial coin supply and not of individualised site activity, the absolute coin numbers are low. There is some fall in coin activity in the second half of the fourth century, suggesting a decline in coin use in the area, or in the area from which the rubbish deposits on the site were derived. Ignoring the possibility of deposits being secondary it might be suggested that the area was less frequented in this period, though coin activity does extend to the end of supply to the site as a whole.

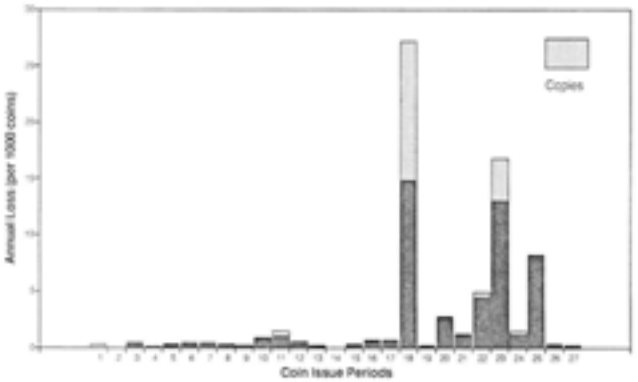


Fig 344 Coins from Sites C, D, and E, issue periods after Casey, 1980 (total 2241 coins)

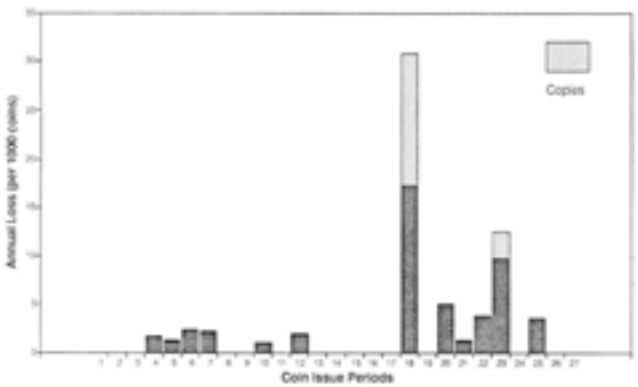


Fig 345 Coins from Site A, issue periods after Casey, 1980 (total 40 coins)

Site A (Fig 345) preserves the same features in the late period but also produces a relatively large proportion of second century coins, demonstrating that the area was available for deep subsoil disturbance throughout the Roman period, unlike the hard paved baths basilica complex. On the other hand this is a small statistical sample (40 coins) so that individual components of the histogram may be expected to have an emphatic presence.

There appears to be a distinction in the pattern of coins deposited within the two areas of Site B (Figs 346 and 347), but because the overall numbers are very small (the precinct, 72 coins; the annexe, 59 coins), comparison is statistically invalid. Both sites share the general pattern of the baths basilica as a

whole up to the second half of the fourth century, when a marked decline in deposits is visible. This may suggest a more formal use of the area, marked by an absence of rubbish deposits, or abandonment of a locality peripheral to the activity carried out on the baths basilica site.

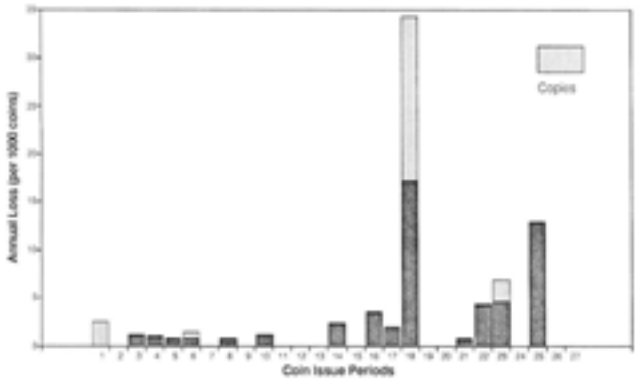


Fig 346 Coins from Site B, Precinct, issue periods after Casey, 1980 (total 72 coins)

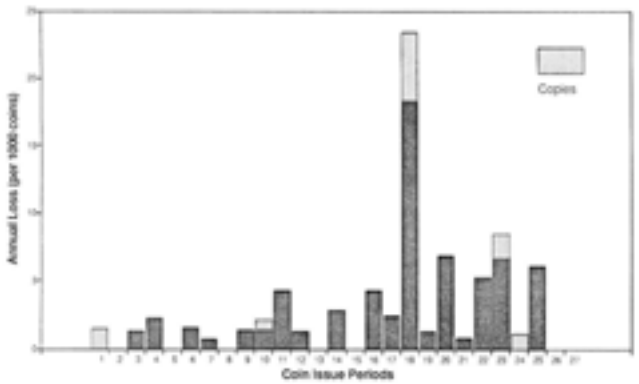


Fig 347 Coins from Site B, Annexe, issue periods after Casey, 1980 (total 59 coins)

Several items of numismatic interest can be mentioned here. The first is a baked clay mould (Fig 348; cat no 3400) for counterfeiting a reverse type of Septimius Severus: *FELICITAS AVGG*, Felicitas standing, holding a *caducaeus* and *cornucopiae*, RIC 261, AD 202. This provides specific evidence for the counterfeiting of *denarii* in the early third century at Wroxeter. As the silver content of the *denarius* declined rapidly in the second quarter of the third century, so it became profitable to counterfeit earlier, more silver-rich, issues, which presumably circulated at a premium compared with the later, debased, coin. Such coin moulds were used to produce copper cores, which were then surface-washed to present the illusion of regular, silver-rich coins. Of the 49 Period 10 coins (AD 193–217) from the baths basilica, seven are plated *denarii*, though none, unfortunately, produced from this mould or even of this reverse type, and there are a further seven counterfeit issues of the following two Periods (AD 218–35).



Fig 348 A baked clay mound of the reverse of a Severan coin (Cat no 3400)

A second coin mould produced by the baths (WB) excavation (cat no 570, WB Catalogue) is an incomplete obverse bearing the legend *AVRELIVS CAE...*, designed to counterfeit *asses* of Marcus Aurelius as Caesar. This numismatically important find will receive detailed consideration in a later publication (Ellis, forthcoming), as will several Dobunnic coins and other items of individual interest from the baths site.



Fig 349 coin of Constantine I (Cat. no. 1632) left: obverse; right: reverse

The baths basilica excavations produced few coins of individual numismatic interest. A particular exception is an issue of Constantine I, ascribed to AD 327 (Fig 349; RIC 7 Constantinople 19 var; Cat no 1632), with reverse *SPES PVBLIC*, showing a *labarum* piercing a serpent and crowned by the new badge of Christianity, a Chi-Rho symbol. This combination of images provides an obscure but topical allusion to Constantine's defeat of Licinius in AD 324. Licinius was a pagan, but accommodated Constantine's wishes in issuing the Edict of Milan (AD 313), which granted toleration throughout the empire. However, he later turned against Constantine, and is portrayed as a traitor, symbolised by the serpent. Constantine's use of the Chi-Rho emblem is documented by Lactantius (*On the deaths of the Persecutors*, 44), who records that Constantine, obeying a vision experienced before the walls of Rome (Battle of Milvian Bridge, AD 312), caused the Christian monogram to be displayed on his soldier's shields.

The hoard

A small hoard of 58 billon and bronze coins, discussed in full detail elsewhere (Brickstock, 1992) was found in the south aisle during the 1983 season. No trace of a container was found, but all the coins came from within a single one-metre square, and none showed more

than a slight amount of wear. As such they almost certainly represent a hoard which had become scattered. Several similar coins were recovered from the immediate vicinity, and could be accepted as further scatter from the hoard without materially affecting its composition or date.

From its internal composition, it is likely that the hoard was originally deposited soon after AD 355. However, from the hoard's stratigraphical position on the site, it appears certain that it was redeposited at a later date as part of a loam and rubble dump, perhaps at the end of the fifth century or up to the mid-sixth (Phase X).

The hoard's primary significance is therefore numismatic, rather than archaeological. The regular coins range in date from a *CONSTANTINOPOLIS* type of Constantine I, dateable to AD 330–31, to two coins of Constantius II with the reverse *FEL TEMP REPARATIO*, struck between AD 355 and 358, a composition inviting comparison with much larger hoards from Heslington (Carson and Kent 1971) and Oldcroft (Rhodes 1974), both of which are predominately Constantinian with latest regular issues dating AD 355–8 (Julian, as Caesar). The Wroxeter hoard is also similar to these two finds in yielding a considerable proportion of *FEL TEMP REPARATIO* (Falling Horseman) types of AD 353–5, together with copies of the same.

It is this feature which is of particular interest in the Wroxeter hoard. It has been noted above that copies of *FEL TEMP REPARATIO* type are uncommonly scarce site finds at Wroxeter, all the various excavations producing an unusually low peak for Period 24 as a result. The hoard contains 19 regular (two of Phoenix type and 17 of Falling Horseman type) and 17 Falling Horseman copies, suggesting that a need was felt at Wroxeter, as it was elsewhere, for additional small change in the wake of an imperial edict of 8 March AD 354 (*Codex Theodosianus* ix 23 i) that demonetised many earlier issues, including those of the usurper Magnentius. Among the copies are six overstruck on earlier issues, representing an attempt to convert unusable or undesirable coin into useful currency. If competently produced, overstrikes were much more likely to be taken for regular issues than were many other copies. Indeed it is probable that many overstrikes have gone undetected merely because the obliteration of the undertypes was more effectively achieved than in the examples found in this hoard. The presence of as many as six overstrikes in this small hoard is a strong pointer towards the local production of such copies at, or near, Wroxeter.

Another, much more dispersed, hoard may perhaps be suggested in dump D1569 which yielded 32 coins. Of these, the three later coins, an *URBS ROMA* issue of Constantine I (AD 330–35), a copy of the same type, and a *FEL TEMP REPARATIO* (Falling Horseman type) of 353+, should be regarded as individual site finds, and a fragment of a third century *denarius* probably likewise. The remaining 28 coins, most of which exhibit only slight wear, form the suspected group. In detail the group comprises two *antoniniani* of Gallienus dated AD 253–68, a copy of the *CONSECRATIO* issue for Claudius II, a rolled-up *antoninianus* of Postumus (AD 258–68), three regular issues of Tetricus I (AD 270–73) and seven copies of those issues, three copies of *antoniniani* of his son Tetricus II, and 11 Radiate copies. Although the largest copies approximate to the modules of their prototypes (17–18mm), most deviate significantly both in module and type: 15 of the 22 are less than 12mm in diameter, four of them as small as 8.5–9mm, suggesting a group perhaps brought together in the later stages of the wave of copying that supplemented the inadequate official supply of small change in Britain in the 270s and early 280s.

Appendix 4: Roman pottery

by Robin P Symonds

Introduction

The excavations at Wroxeter basilica site produced just under 1.4 tonnes of Roman pottery, or some 118,107 sherds. Recovery on site was by trowelling and dry-sieving, although there was some trial wet-sieving, and most sherds were recorded as to their location in 2.5m grid squares. The excavation rarely encountered substantial *in situ* second and third-century contexts with contemporary refuse, and most of the pottery analysed here is from contexts formed in the fourth century and later.

The work on the pottery has had a long and complicated history (Laflin *et al* 1993), having been begun in the 1970s by Pamela Irving (then Clarke). In 1981 Stephen Pierpoint was appointed to complete and computerise the pottery database, working with Sue Laflin of the University of Birmingham and some of her post-graduate students. By 1983 he had completed a draft report on the material upon which much of the following report is based (Pierpoint and Clarke 1983; some elements have also been used directly). In late 1989, AD Services was asked to record the new material excavated since 1983, and also to update the existing pottery database to which the new material would be added. The recently-excavated pottery was from the lower levels of the site and was likely to be contemporary with the baths basilica, and the work on the new material was therefore given a high priority.

The pottery, along with the archive report (Pierpoint and Clarke 1983) and a copy of the computer database are held in the site archive, and are available for consultation. The fabric type series is also stored with the archive.

The present report was compiled in late 1991 and early 1992, and it must be said that it was not possible for its writer to have the sort of intimate contact with all of the excavated pottery which would normally have been the case had he begun the work from scratch. His contribution has therefore been to edit and reorganise the fabric descriptions of the draft report, to edit and reorganise the catalogue of vessels forms, to integrate the two form type series' created before and after the involvement of AD Services, and to reinterpret the data as a whole. The inability to handle or interrogate the pottery as a whole has been most troublesome in dealing with uncommon items, such as fabrics or forms of which only a few unillustrated sherds were recorded.

To give one example the total number of amphorae was quite small, as would be expected in a body of material dating mainly to the third and fourth centuries, and before the publication of Peacock and Williams in 1986 it was not especially easy to make positive identifications of amphora fabrics from small sherds. Now, however, it is also not easy to transform the descriptions of some of our amphora fabrics into positive identifications of known types, without seeing the pieces. The importance of such flaws should not, however, be exaggerated: by sherd count and by EVEs all amphorae form less than 1% of all of the pottery, and 60% of all amphorae belong to one of the two identified types, Gauloise 4 or Dressel 20. Similar problems pertain to a number of other rare fabrics and vessel types. By contrast, our conclusions with regard to the common fabric and form types are undoubtedly far more sound, not least because many examples are illustrated, and it has been possible to re-examine all of the illustrated pieces, and therein to assess the fabric descriptions.

The main objectives of the project were as follows:
To produce a catalogue of the pottery by context, fabric, and form
To quantify fabric and vessel forms
To produce detailed descriptions of the fabrics present, a catalogue of the forms present and a form type series
To record the distribution of pottery types and forms in relation to archaeological phases and contexts (results in this aspect of the work have been largely published already in Laflin *et al* 1993).
To assess the evidence for the pottery supply to Wroxeter during the Roman period.

Although the date range of context formation and pottery manufacture is wide, only a tiny fraction of the wares recovered were from features earlier than AD 300. The majority are dated to later than AD 367 on the basis of the coinage. Thus although there are good deep stratigraphical relationships on many parts of the site, there is no independent dating for a majority of the sherds apart from a *terminus post quem* for deposition. Even though a sizeable proportion of the wares were clearly manufactured considerably earlier than AD 300 almost all this material had been redeposited in much later contexts through the digging of pits, postholes and robber trenches or the dumping of building rubble. There is evidence that in a number of phases building material, earth, and gravel were brought to the site. On this densely-occupied city site in which thousands of vessels must have been broken and discarded, it is not surprising that transported make-up material should contain pot sherds.

The sherds so introduced could be of any prior date. Heavy use of the basilica site over the centuries, including digging activities, resulted in the pottery assemblage in most of the later archaeological contexts becoming very mixed, a veritable porridge of pottery sherds. Although it is normal for sometimes quite considerable amounts of residual pottery to occur on Roman urban sites, it is unusual that an entire site should be composed almost entirely of residual material, and while it means that the site can offer little in terms of new dating evidence for the pottery types found on it, it can, by contrast, offer the intrinsic interest of new light on the nature of residual material. This factor, along with the previous lack of any modern assessment of the pottery of Wroxeter, has led to a decision to publish as full a report as possible.

Recording and quantification

All of the pottery was recorded in considerable detail following a model designed by Pamela Irving: aside from contextual information, the following variables were recorded (and subsequently computerised) for the pottery of each separable vessel:

Weight in grammes
Number of sherds
Position of sherd on vessel (eg B = Base, R = Rim)
Size of sherd (values based on square boxes, 1.25cm across and multiples)
Abrasion of sherds (on a scale of 1 to 5: 1 being a fresh sherd, 5 heavily abraded)
Rim diameter (in cm)
Rim EVEs (estimated vessel equivalents)
Base diameter (in cm)
Base EVEs (estimated vessel equivalents)
Breakage/shattering of sherd (on a scale of 1 to 8: 1 being a complete vessel, 8 a tiny fragment).
Joining sherds each individual sherd, or sherds from the same context which joined, or could reasonably be considered to be from the same vessel, was given an individual entry
Burnt sherds (presence/absence)

Sadly, it has not been possible to make nearly as much use of some of the recorded information as would have been desirable. For example, time and space have not been available for a proper study of the quantified results of sherd sizes, abrasion, or breakage/shattering, all aspects which might contribute significantly to our understanding of the residual nature of the material. Unfortunately, however, it might also be said that the statistics relating to these aspects are of much less interest than might be the case if such aspects were normally recorded in a similar manner at other Roman-period sites: it is difficult to judge their importance in the absence of comparative data.

It is also worth noting that although base EVEs were assiduously recorded, we have made relatively little use of the resulting data, largely because it is useful only for fabrics, whereas relatively few vessel forms can be positively established by their bases alone, rims being the most frequent diagnostic element. We did use rim and base EVEs added together and divided by two as a unit of measure for the distribution plots (of fabrics) published in Laflin *et al*, in order to provide as broad coverage of the site as possible, but since more than 80% of the pottery for which base EVEs could be recorded fell into forms 1 to 99 (otherwise indistinguishable rim, body, base, handle and spout sherds), the same could not be done for the distribution of forms.

Fabric descriptions

All of the pottery has been assigned to some 114 identifiable fabrics. These were initially grouped together under 18 separate headings (which are numbered in the pottery archive, and which appear below beneath the heading for each fabric group), but it later became useful for the creation of tables and graphs, and for the arrangement of the illustrations, to create an even more reduced grouping of nine broad fabric groups, referred to hereafter as fabric groups I to IX as follows:

Red wares I
Grey wares II
Black-burnished wares III
Calcite-gritted wares IV
Nene Valley wares V
Oxfordshire wares VI
Other fine wares VII
Miscellaneous wares VIII
Samian wares IX

The fabrics have been identified by macroscopic examination only. Although some petrological work on red wares has been carried out by Roberta Tomber (*see below*), more is needed, on a much wider range of wares found at Wroxeter and in the region. It seems generally accepted now that the 'Severn Valley' wares found at Wroxeter, and especially those belonging to the later productions which dominate this body of material, are similar to but by no means identical to the Severn Valley wares of further south which have been commented upon principally by Rawes (1972, 1982), Webster (1972, 1976, 1977), Tomber (1981), and Timby (1990). Instead it seems that Severn Valley-type wares were the products of a remarkably fragmented 'industry', which, Timby has suggested, may not have originated principally with the advent of the Roman military occupation, but rather with late Iron Age pottery traditions. What is particularly clear at Wroxeter is that from at least the mid second century onwards the unslipped oxidised and reduced wares in use in and around the baths basilica are a version of Severn Valley ware which was almost entirely produced in the vicinity of the town.

Table 18 Fabric proportions, showing sub-fabrics and groupings

Fabric group		*sherds*	*rim EVEs*	*weight*	*base EVEs*	*% sherd*	*% rim EVEs*	*% weight*	*% base EVEs*	*weight ÷ sherd weight*	*weight ÷ rim EVEs*	*weight ÷ base EVEs*
I	*1 R1*	14482	212.13	176645	143.31	12.26	11.69	12.73	9.04	12.20	832.72	1232.61
I	*1 R2*	11641	170.12	144022	165.88	9.86	9.38	10.38	10.46	12.37	846.59	868.23
I	*1 R3*	949	6.14	19410	33.13	0.80	0.34	1.40	2.09	20.45	3161.24	585.87
I	*1 R4*	2391	25.19	22382	30.21	2.02	1.39	1.61	1.91	9.36	888.53	740.88
I	*2 G2*	1757	18.97	15529	17.67	1.49	1.05	1.12	1.11	8.84	818.61	878.83
I	*2 G2C*	247	4.68	3542	3.05	0.21	0.26	0.26	0.19	14.34	756.84	1161.31
I	*2 GR1*	1367	22.24	16231	18.09	1.16	1.23	1.17	1.14	11.87	729.81	897.24
I	*2 GR3*	110	1.42	926	2.64	0.09	0.08	0.07	0.17	8.42	652.11	350.76
I	*3 R5*	1500	34.29	13575	31.53	1.27	1.89	0.98	1.99	9.05	395.89	430.54
I	*3 R6*	88	1.22	660	0.63	0.07	0.07	0.05	0.04	7.50	540.98	1047.62
I	*3 R7*	15	0.68	282	-	0.01	0.04	0.02	0.00	18.80	414.71	-
I	*3 R8*	137	1.67	1912	1.66	0.12	0.09	0.14	0.10	13.96	1144.91	1151.81
I	*3 R9*	6	0.21	73	-	0.01	0.01	0.01	0.00	12.17	347.62	-
I	*3 R10*	1	-	3	-	0.00	0.00	0.00	0.00	3.00	-	-
II	*4 G1*	3893	59.29	32388	44.62	3.30	3.27	2.33	2.81	8.32	546.26	725.86
II	*4 G4*	231	2.31	1731	2.41	0.20	0.13	0.12	0.15	7.49	749.35	718.26
II	*4 G5*	4501	64.22	51975	77.26	3.81	3.54	3.74	4.87	11.55	809.33	672.73
II	*4 G6*	1304	22.10	10959	13.81	1.10	1.22	0.79	0.87	8.40	495.88	793.56
II	*4 G7*	412	5.15	3272	4.10	0.35	0.28	0.24	0.26	7.94	635.34	798.05
II	*4 G9*	1299	18.37	13011	18.14	1.10	1.01	0.94	1.14	10.02	708.27	717.25
II	*4 G10*	515	6.64	6572	8.05	0.44	0.37	0.47	0.51	12.76	989.76	816.40
II	*4 G13*	35	1.17	469	1.00	0.03	0.06	0.03	0.06	13.40	400.85	469.00
II	*4 G14*	28	0.29	345	1.85	0.02	0.02	0.02	0.12	12.32	1189.66	186.49
II	*4 G15*	50	1.00	314	0.84	0.04	0.06	0.02	0.05	6.28	314.00	373.81
II	*4 G16*	3	-	24	-	0.00	0.00	0.00	0.00	8.00	-	-
III	*G BBA*	11058	148.77	95409	87.64	9.36	8.20	6.87	5.53	8.63	641.32	1088.65
III	*5 BBB*	11339	168.84	107799	104.81	9.60	9.31	7.77	6.61	9.51	638.47	1028.52
III	*5 BBC*	1114	10.33	9358	9.46	0.94	0.57	0.67	0.60	8.40	905.91	989.22
III	*5 G11*	3364	50.23	29313	36.26	2.85	2.77	2.11	2.29	8.71	583.58	808.41
III	*5 G11A*	35	-	172	-	0.03	0.00	0.01	0.00	4.91	-	-
III	*5 G11R*	847	17.21	8276	8.95	0.72	0.95	0.60	0.56	9.77	480.88	924.69
III	*6 G3*	2251	30.90	21408	27.51	1.91	1.70	1.54	1.74	9.51	692.82	778.19
III	*6 G8*	652	12.10	6146	9.17	0.55	0.67	0.44	0.58	9.43	507.93	670.23
III	*6 G12*	443	9.35	4218	7.12	0.38	0.52	0.30	0.45	9.52	451.12	592.42
III	*6 G12G*	155	2.09	1082	1.91	0.13	0.12	0.08	0.12	6.98	517.70	566.49
III	*6 M5*	48	0.44	359	0.38	0.04	0.02	0.03	0.02	7.48	815.91	944.74
IV	*7 CM1*	51	1.38	709	0.06	0.04	0.08	0.05	0.00	13.90	513.77	11816.67
IV	*7 CS1*	1916	48.62	18616	11.98	1.62	2.68	1.34	0.76	9.72	382.89	1553.92
IV	*7 CS2A*	965	26.46	12952	14.94	0.82	1.46	0.93	0.94	13.42	489.49	866.93
IV	*7 CS2B*	960	31.76	13757	8.26	0.81	1.75	0.99	0.52	14.33	433.15	1665.50
IV	*7 CS3*	411	3.62	5218	6.24	0.35	0.20	0.38	0.39	12.70	1441.44	836.22
IV	*7 CS4A*	1431	32.99	20544	18.26	1.21	1.82	1.48	1.15	14.36	622.73	1125.08
IV	*7 CS4B*	1334	31.85	21479	17.76	1.13	1.76	1.55	1.12	16.10	674.38	1209.40
IV	*7 CS5*	180	3.87	9979	5.49	0.15	0.21	0.72	0.35	55.44	2578.55	1817.67
IV	*7 CS6*	259	2.75	4411	4.24	0.22	0.15	0.32	0.27	17.03	1604.00	1040.33
IV	*7 CS7*	103	1.83	1388	1.79	0.09	0.10	0.10	0.11	13.48	758.47	775.42
IV	*7 CS8*	275	6.03	4356	3.43	0.23	0.33	0.31	0.22	15.84	722.39	1269.97
IV	*7 CSM*	156	3.04	2002	1.35	0.13	0.17	0.14	0.09	12.83	658.55	1482.96
II	*8 DW*	16	1.19	406	-	0.01	0.07	0.03	0.00	25.38	341.18	-
II	*8 M1*	161	2.99	1938	2.82	0.14	0.16	0.14	0.18	12.04	648.16	687.23
II	*8 M3*	29	0.52	487	0.67	0.02	0.03	0.04	0.04	16.79	936.54	726.87
II	*8 M4*	53	1.74	666	0.96	0.04	0.10	0.05	0.06	12.57	382.76	693.75
II	*8 M6*	35	0.99	508	0.47	0.03	0.05	0.04	0.03	14.51	513.13	1080.85
II	*8 M10*	3	-	115	-	0.00	0.00	0.01	0.00	38.33	-	-
II	*8 M11*	2	-	35	0.13	0.00	0.00	0.00	0.01	17.50	-	269.23
II	*8 M12*	20	0.47	92	1.35	0.02	0.03	0.01	0.09	4.60	195.74	68.15
II	*8 M13*	2	-	16	-	0.00	0.00	0.00	0.00	8.00	-	-
II	*8 M14*	21	0.32	86	-	0.02	0.02	0.01	0.00	4.10	268.75	-
II	*8 M15*	95	-	681	-	0.08	0.00	0.05	0.00	7.17	-	-
II	*8 M16*	7	-	54	0.24	0.01	0.00	0.00	0.02	7.71	-	225.00
II	*8 M17*	6	-	54	-	0.01	0.00	0.00	0.00	9.00	-	-
II	*8 M18*	4	-	53	-	0.00	0.00	0.00	0.00	13.25	-	-
II	*8 M19*	2	0.10	87	0.99	0.00	0.01	0.01	0.06	43.50	870.00	87.88
II	*8 M20*	4	0.21	77	-	0.00	0.01	0.01	0.00	19.25	366.67	-
II	*8 M21*	8	0.05	29	-	0.01	0.00	0.00	0.00	3.63	580.00	-
II	*8 M99*	162	1.76	1346	1.21	0.14	0.10	0.10	0.08	8.31	764.77	1112.40
V	*9 NV*	14	0.57	74	-	0.01	0.03	0.01	0.00	5.29	129.82	-
V	*9 NVB*	2113	36.92	25390	53.31	1.79	2.04	1.83	3.36	12.02	687.70	476.27
V	*9 NVC1*	108	0.81	360	0.74	0.09	0.04	0.03	0.05	3.33	444.44	486.49
V	*9 NVC2*	705	4.57	2602	8.52	0.60	0.25	0.19	0.54	3.69	569.37	305.40
V	*9 NVC3*	241	3.17	898	3.06	0.20	0.17	0.06	0.19	3.73	283.28	293.46
V	*9 NVG*	1418	14.51	11902	24.06	1.20	0.80	0.86	1.52	8.39	820.26	494.68

Table 18 Cont

Fabric group		*sherds*	*rim EVEs*	*weight*	*base EVEs*	*% sherd*	*% rim EVEs*	*% weight*	*% base EVEs*	*weight ÷ sherd weight*	*weight ÷ rim EVEs*	*weight ÷ base EVEs*
V	*9 NVM*	40	0.24	491	0.32	0.03	0.01	0.04	0.02	12.28	2045.83	1534.38
V	*9 NVO*	1167	22.65	13667	28.20	0.99	1.25	0.98	1.78	11.71	603.40	484.65
V	*9 NVP*	21	0.46	434	1.40	0.02	0.03	0.03	0.09	20.67	943.48	310.00
V	*9 NVX*	378	8.11	3767	15.11	0.32	0.45	0.27	0.95	9.97	464.49	249.31
V	*9 NVY*	269	2.56	2250	7.87	0.23	0.14	0.16	0.50	8.36	878.91	285.90
V	*9 NVZ*	258	1.29	2271	6.52	0.22	0.07	0.16	0.41	8.80	1760.47	348.31
VI	*10 NIH*	549	7.70	7686	14.55	0.46	0.42	0.55	0.92	14.00	998.18	528.25
VI	*10 OX*	56	0.78	395	0.25	0.05	0.04	0.03	0.02	7.05	506.41	1580.00
VI	*10 OX1*	155	3.27	2043	5.75	0.13	0.18	0.15	0.36	13.18	624.77	355.30
VI	*10 OX1M*	696	11.98	7496	17.69	0.59	0.66	0.54	1.12	10.77	625.71	423.74
VI	*10 OX2*	1091	16.84	12638	26.14	0.92	0.93	0.91	1.65	11.58	750.48	483.47
VI	*10 OX2M*	7	0.12	42	-	0.01	0.01	0.00	0.00	6.00	350.00	-
VI	*10 OX3*	503	8.87	4717	15.41	0.43	0.49	0.34	0.97	9.38	531.79	306.10
VI	*10 OX3M*	10	0.10	105	0.28	0.01	0.01	0.01	0.02	10.50	1050.00	375.00
VI	*10 OXM*	12	0.25	246	0.23	0.01	0.01	0.02	0.01	20.50	984.00	1069.57
VI	*10 OXM1*	140	4.18	2242	3.72	0.12	0.23	0.16	0.23	16.01	536.36	602.69
VI	*10 OXM2*	264	9.60	5389	7.66	0.22	0.53	0.39	0.48	20.41	561.35	703.52
VI	*10 OXM3*	80	3.17	1559	3.64	0.07	0.17	0.11	0.23	19.49	491.80	428.30
VI	*10 OXM4*	10	0.37	396	1.35	0.01	0.02	0.03	0.09	39.60	1070.27	293.33
VI	*11 M8*	44	0.73	403	1.21	0.04	0.04	0.03	0.08	9.16	552.05	333.06
VI	*11 OX2R*	354	7.82	4952	12.56	0.30	0.43	0.36	0.79	13.99	633.25	394.27
VI	*11 OXC2*	207	5.78	3268	6.65	0.18	0.32	0.24	0.42	15.79	565.40	491.43
VII	*12 RC1*	4129	51.70	36592	66.47	3.50	2.85	2.64	4.19	8.86	707.78	550.50
VII	*12 RC2*	47	1.81	2596	1.22	0.04	0.10	0.19	0.08	55.23	1434.25	2127.87
VII	*12 RC3*	713	6.00	4912	11.78	0.60	0.33	0.35	0.74	6.89	818.67	416.98
VII	*13 CCC*	140	1.47	381	2.23	0.12	0.08	0.03	0.14	2.72	259.18	170.85
VII	*13 CLP*	23	0.35	65	-	0.02	0.02	0.00	0.00	2.83	185.71	-
VII	*13 CLR*	153	1.72	518	1.93	0.13	0.09	0.04	0.12	3.39	301.16	268.39
VII	*13 FUS*	10	-	63	-	0.01	0.00	0.00	0.00	6.30	-	-
VII	*13 FWNF*	19	0.47	67	-	0.02	0.03	0.00	0.00	3.53	142.55	-
VII	*13 GWEG*	1	-	3	0.10	0.00	0.00	0.00	0.01	3.00	-	30.00
VII	*13 HA*	69	0.90	822	-	0.06	0.05	0.06	0.00	11.91	913.33	-
VII	*13 KWW*	99	1.62	514	3.78	0.08	0.09	0.04	0.24	5.19	317.28	135.98
VII	*13 LYC*	55	0.11	139	0.15	0.05	0.01	0.01	0.01	2.53	1263.64	926.67
VII	*13 MRB*	3	-	14	-	0.00	0.00	0.00	0.00	4.67	-	-
VII	*13 TNEG*	3	-	3	-	0.00	0.00	0.00	0 00	1.00	-	-
VII	*13 TRR*	377	3.86	921	4.72	0.32	0.21	0.07	0.30	2.44	238.60	195.13
VII	*14 FWM*	279	4.38	1137	3.91	0.24	0.24	0.08	0.25	4.08	259.59	290.79
VII	*14 REC*	23	0.24	80	0.17	0.02	0.01	0.01	0.01	3.48	333.33	470.59
VII	*14 SVC*	43	0.84	305	2.40	0.04	0.05	0.02	0.15	7.09	363.10	127.08
VII	*14 SVP*	46	1.58	270	0.65	0.04	0.09	0.02	0.04	5.87	170.89	415.38
VIII	*15 PWD*	2071	17.41	14775	30.18	1.75	0.96	1.06	1.90	7.13	848.65	489.56
VIII	*15 WW5*	1547	20.77	12841	23.58	1.31	1.14	0.93	1.49	8.30	618.25	544.57
VIII	*15 WW6*	117	1.66	869	0.31	0.10	0.09	0.06	0.02	7.43	523.49	2803.23
VIII	*16 AMP*	368	1.77	16858	1.66	0.31	0.10	1.21	0.10	45.81	9524.29	10155.42
VIII	*16 CAR*	3	-	18	-	0.00	0.00	0.00	0.00	6.00	-	-
VIII	*16 SG*	1	-	290	-	0.00	0.00	0.02	0.00	290.00	-	-
VIII	*16 SV1*	61	0.13	1281	1.20	0.05	0.01	0.09	0.08	21.00	9853.85	1067.50
VIII	*16 SV2*	259	1.19	10421	1.45	0.22	0.07	0.75	0.09	40.24	8757.14	7186.90
VIII	*16 SV3*	146	0.52	6010	2.96	0.12	0.03	0.43	0.19	41.16	11557.69	2030.41
VIII	*16 SV4*	39	0.03	1341	0.70	0.03	0.00	0.10	0.04	34.38	44700.00	1915.71
VIII	*16 SV5*	81	0.48	4787	1.69	0.07	0.03	0.34	0.11	59.10	9972.92	2832.54
VIII	*16 SV6*	264	1.47	30661	-	0.22	0.08	2.21	0.00	116.14	20857.82	-
VIII	*16 SV7*	26	0.25	547	0.14	0.02	0.01	0.04	0.01	21.04	2188.00	3907.14
VIII	*16 SV8*	103	0.62	5673	1.04	0.09	0.03	0.41	0.07	55.08	9150.00	5454.81
VIII	*16 SV9*	156	0.51	13751	0.72	0.13	0.03	0.99	0.05	88.15	26962.75	19098.61
VIII	*16 SV9A*	42	0.25	4104	-	0.04	0.01	0.30	0.00	97.71	16416.00	-
VIII	*16 SV10*	25	0.39	652	-	0.02	0.02	0.05	0.00	26.08	1671.79	-
VIII	*16 SV11*	32	0.22	6496	-	0.03	0.01	0.47	0.00	203.00	29527.27	-
VIII	*16 SVM*	146	0.81	4991	0.99	0.12	0.04	0.36	0.06	34.18	6161.73	5041.41
VIII	*17 M2*	126	5.98	5874	2.35	0.11	0.33	0.42	0.15	46.62	982.27	2499.57
VIII	*17 RM1*	88	2.91	4732	2.59	0.07	0.16	0.34	0.16	53.77	1626.12	1827.03
VIII	*17 WW1*	1549	44.73	58938	35.14	1.31	2.47	4.25	2.22	38.05	1317.64	1677.23
VIII	*17 WW2*	426	17.49	15286	9.84	0.36	0.96	1.10	0.62	35.88	873.99	1553.46
VIII	*17 WW2C*	110	3.96	3073	2.73	0.09	0.22	0.22	0.17	27.94	776.01	1125.64
VIII	*17 WW3*	1	0.15	88	-	0.00	0.01	0.01	0.00	88.00	586.67	-
VIII	*17 WW4*	207	5.31	8279	3.13	0.18	0.29	0.60	0.20	40.00	1559.13	2645.05
IX	*18 SG*	822	11.79	3621	11.24	0.70	0.65	0.26	0.71	4.41	307.12	322.15
IX	*18 CG*	5024	81.70	40416	65.74	4.25	4.50	2.91	4.15	8.04	494.69	614.79
IX	*18 CEG*	84	1.28	895	2.33	0.07	0.07	0.06	0.15	10.65	699.22	384.12
IX	*18 EG*	87	1.49	1252	1.89	0.07	0.08	0.09	0.12	14.39	840.27	662.43
IX	*18 Unk*	15	-	43	0.13	0.01	0.00	0.00	0.01	2.87	-	330.77
		6032	96.26	46227								
total		118107	1814.04	1387881	1585.17	100.00	100.00	100.00	100.00	11.75	765.08	875.54

The provision of coarse pottery at Wroxeter must thus have been relatively similar to the situations at Colchester (viz the pottery of the 'Cam series') and at York (Perrin 1981, 58–61, on '*Eboracum* wares'), where the potters' principal market was the town on their doorstep. At these three important towns in particular, in contrast to the later rural industries at Oxford, the Nene Valley, the New Forest, Alice Holt, and Hadham, there appears to have been relatively little effort to market the wares elsewhere, in spite of their comparatively good quality.

It will be clear, as is discussed in the archive report, that there are probably rather too many fabric subdivisions. This was intentional in that it is easier to amalgamate separate fabric groups at a later stage than it is to split a fabric group that includes more than one fabric type. For this report, such amalgamations have been essential in statistical terms (ie for the generation of graphs). However, it did not seem sensible to eliminate defined fabrics (by grouping them with others) without being able to re-examine any of the pottery so defined. The broad fabric groups in this report certainly go too far in the opposite direction, yet would not otherwise have so well served our purposes in the graphs and in the arrangement of the figures.

Fabric group I: red wares

Figs 350–53

'Severn Valley' red wares: R1, R2, R3, R4

Red ware 1: R1

Fig 350, nos 4, 6, 10, 13, 15–17 (with rivet), and 19–22; Fig 351, nos 28, 31, 32, 35, 38, and 41–5; Fig 352, nos 49, 51, 55, 57, 58, 62, 63, and 65; Fig 353, nos 69, 74, 76, 78, and 81; Fig 364, no 276

A hard, well-fired oxidised fabric, with a distinctive orange to buff colour, and a slightly brittle almost glass-like texture. The colour is regular, but occasionally grey, particularly at the core. The fine inclusions allow for a smooth and well-burnished surface on many sherds. White or red paint may be applied to the surface and 'cheese-wire' marks made on removal from the wheel are often visible on the base. A number of wasters have been recognised. (see also Tomber, fabric 3, below).

Red ware 2: R2

Fig 350, nos 1, 2, 5, 8, 9 (with white paint), 11, 12, and 14; Fig 351, nos 23–5, 27, 29, 30, 33, 36, and 40; Fig 352, nos 46–8, 50, 52–4, 60, and 61; Fig 353, nos 68, 70, 73, and 77

A hard, well-fired oxidised sandy fabric. The heavy sand inclusions produce a more irregular surface not as suitable for burnish as R1, from which it is readily distinguished by its sandier feel. Some vessels seem scarcely burnished at all. The fabric is the same orange-buff colour as R1, also occasionally grey at the core. White and red paint is sometimes applied to the surface in imitation of Oxfordshire types. A number of wasters have been recognised in fabric R2. (see Tomber fabric 1, below).

Red ware 3: R3;

Fig 351, no 39

A very hard and well-fired oxidised fabric. The heavy sand and well-crushed quartz inclusions are clear on the surface, the latter often ripped across the surface producing a distinctive finish after wheel-turning and burnish. The colour is the same orange-buff as both R1 and R2 but is rarely grey even at the core. The surface is often well-burnished but the heavy inclusions produce a noticeably different surface from the other red ware types. (see Tomber fabric 2, below).

Red ware 4: R4

Fig 350, no 7; Fig 351, no 34; and Fig 352, no 59

A quite soft, poorly-fired oxidised fabric, sometimes with a slightly pitted surface. There are heavy sand inclusions and the surface may be well-burnished, but this is removed by moist soil conditions affecting the soft surface. Many of the sherds appear to be heavily weathered. The colour is slightly lighter than the other orange-buff 'red' wares.

Table 19 Fabric proportions, showing main fabrics and broad groupings

Fabric group		*sherds*	*rim EVEs*	*weight*	*base EVEs*	*% sherd*	*% rim EVEs*	*% weight*	*% base EVEs*	*average sherd weight*	*weight ÷ Rim EVEs*	*weight ÷ Base EVEs*
I	1 Severn Valley wares	362459	29463	413.58	372.53	26.12	24.95	27.80	23.50	12.30	876.39	972.97
I	2 Severn Valley copies	36228	3481	47.31	41.45	2.61	2.95	2.61	2.61	10.41	765.76	874.02
I	3 other Red wares	16505	1747	38.07	33.82	1.19	1.48	2.10	2.13	9.45	433.54	488.02
II	4 Grey wares	121060	12271	180.54	172.08	8.72	10.39	9.95	10.86	9.87	670.54	703.51
II	8 miscellaneous coarse wares	6730	630	10.34	8.84	0.48	0.53	0.57	0.56	10.68	650.87	761.31
III	5 black-burnished wares	250327	27757	395.38	247.12	18.04	23.50	21.80	15.59	9.02	633.13	1012.98
III	6 black-burnished wares copies	33213	3549	54.88	46.09	2.39	3.00	3.03	2.91	9.36	605.19	720.61
IV	7 Calcite-gritted wares	115411	8041	194.20	93.80	8.32	6.81	10.71	5.92	14.35	594.29	1230.39
V	9 Nene Valley wares	64106	6732	95.86	149.11	4.62	5.70	5.28	9.41	9.52	668.75	429.92
VI	10 Oxford wares	44954	3573	67.23	96.67	3.24	3.03	3.71	6.10	12.58	668.66	465.03
VI	11 Oxford wares copies	8623	605	14.33	20.42	0.62	0.51	0.79	1.29	14.25	601.74	422.28
VII	12 other colour-coated fine wares	44100	4889	59.51	79.47	3.18	4.14	3.28	5.01	9.02	741.05	554.93
VII	13 other fine wares	3510	952	10.50	12.91	0.25	0.81	0.58	0.81	3.69	334.29	271.88
VII	14 miscellaneous fine wares	1792	391	7.04	7.13	0.13	0.33	0.39	0.45	4.58	254.55	251.33
VIII	15 white wares	28485	3735	39.84	54.07	2.05	3.16	2.20	3.41	7.63	714.98	526.82
VIII	16 storage vessels/*amphorae*	107881	1752	8.64	12.55	7.77	1.48	0.48	0.79	61.58	12486.23	8596.10
VIII	17 mortaria	96270	2507	80.53	55.78	6.94	2.12	4.44	3.52	38.40	1195.46	1725.89
IX	18 samian	46227	6032	96.26	81.33	3.33	5.11	5.31	5.13	7.66	480.23	568.39

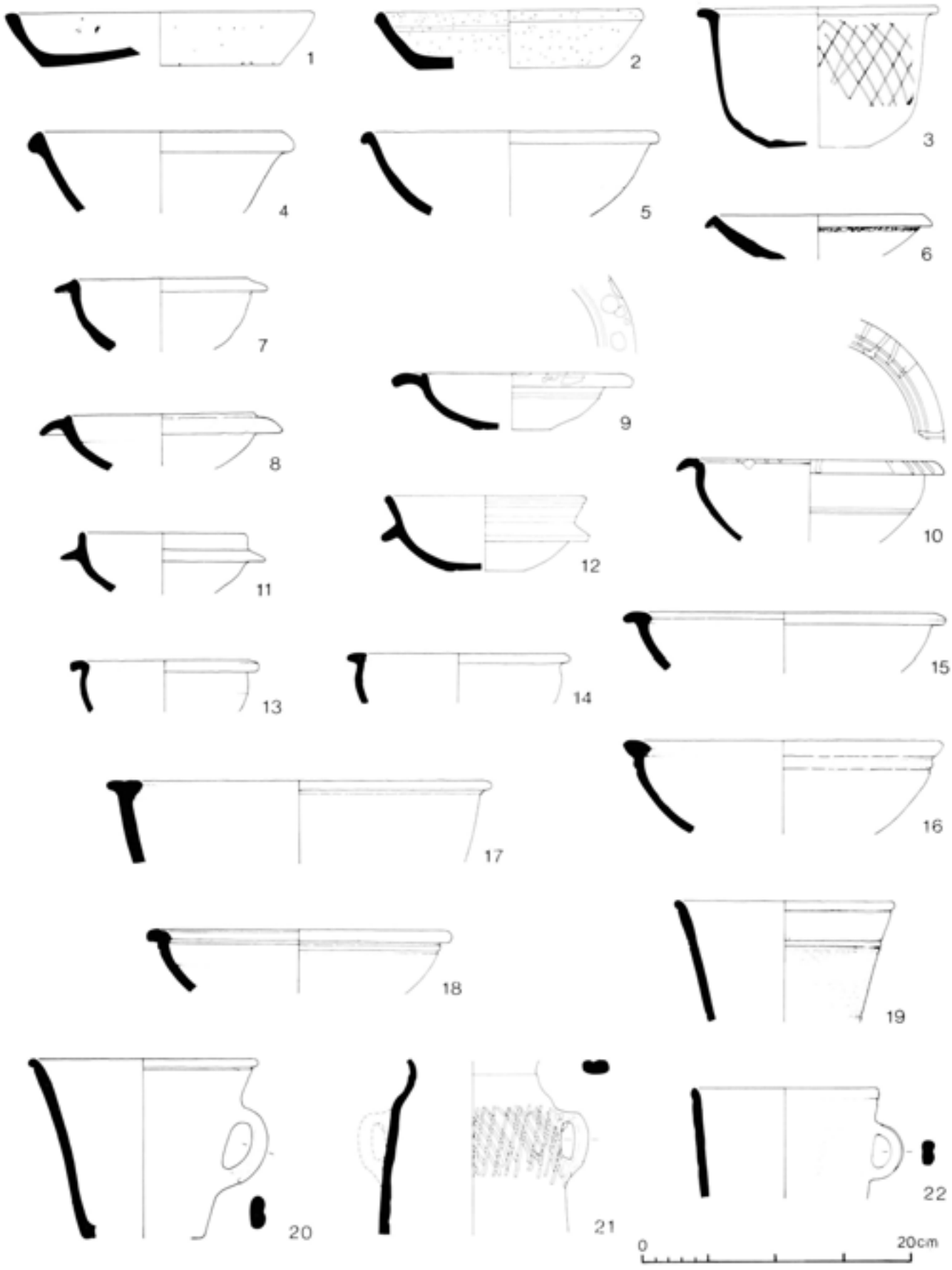


Fig 350 Pottery form series: Red wares i

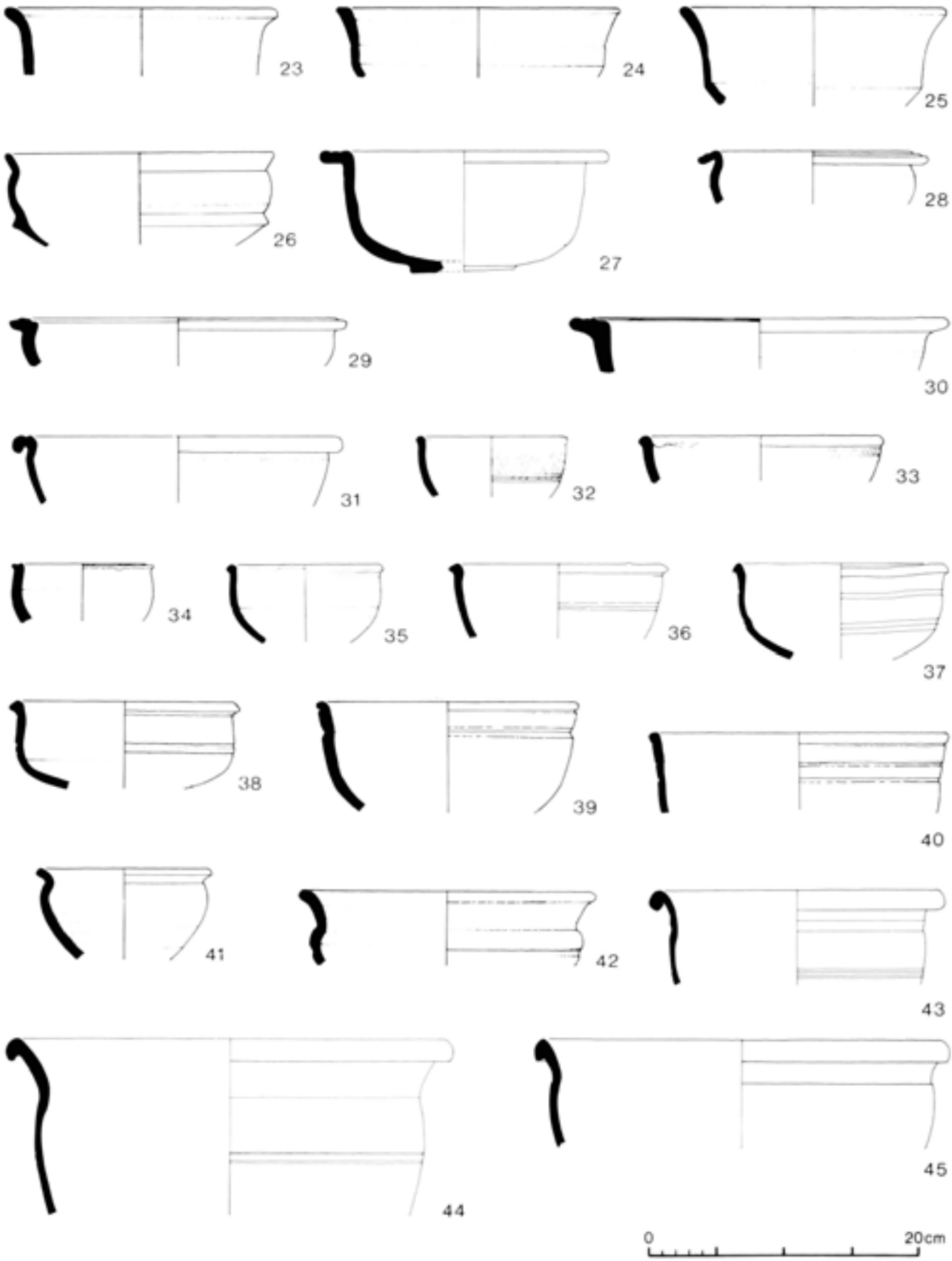


Fig 351 Pottery form series: Red wares ii

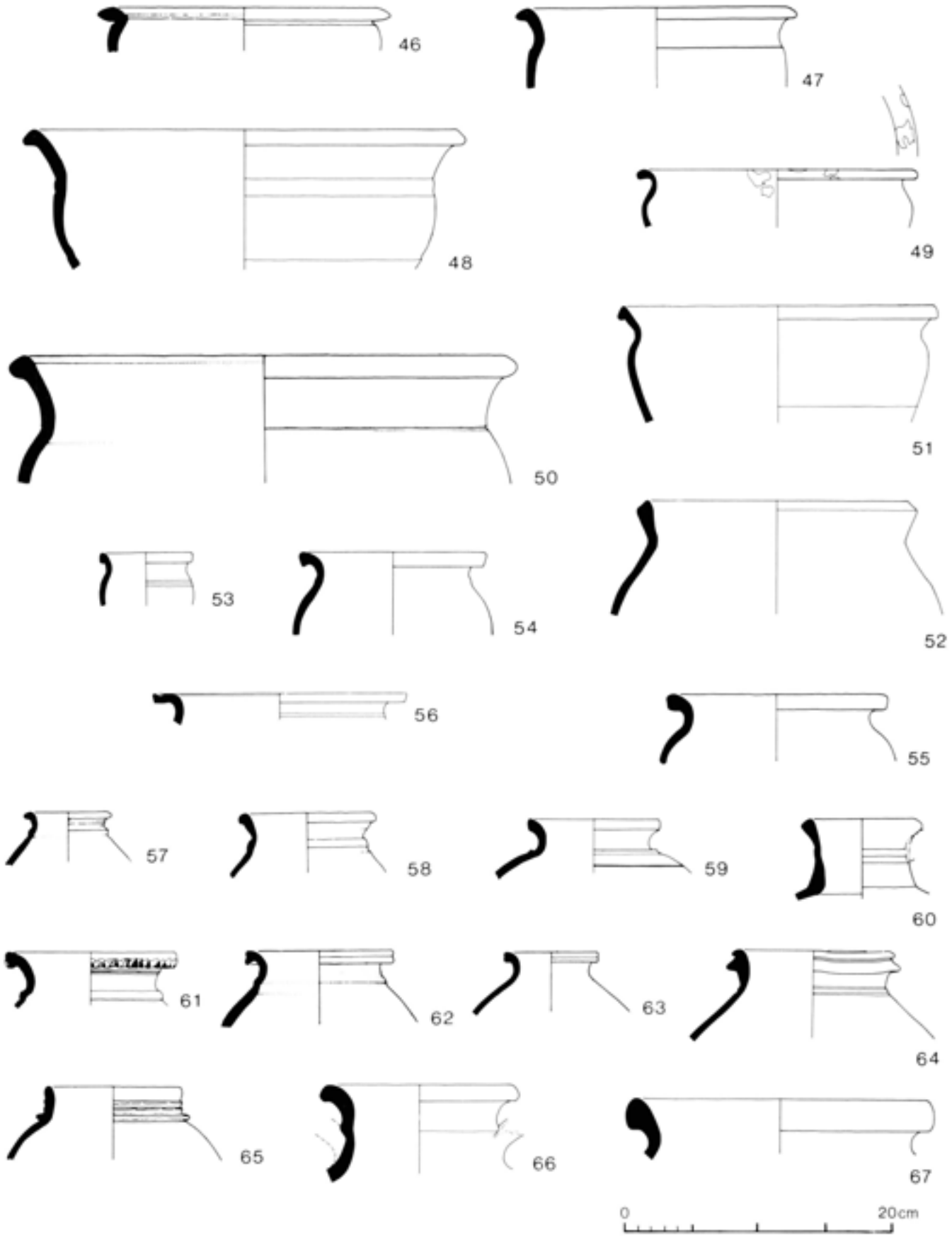


Fig 352 Pottery form series: Red wares iii

'Severn Valley' red ware copies: G2, G2C, GR1, GR3

Grey and Red ware 1: GR1
Fig 350, no 18; Fig 351, no 37; Fig 352, nos 64, 66, and 67; Fig 353, nos 75, 79, and 80
A well-fired, normally oxidised fabric identical in texture and surface treatment to R1 above, but with substantial grey patches on the surface which often produce a peculiar mottled finish. Forms are as R1 and the fabric is clearly its equivalent with slightly different firing conditions.

Grey and Red ware 3: GR3
not illustrated
As R3 above but with grey mottled surface.

Grey ware 2: G2
not illustrated
A very hard-fired reduced fabric with no inclusions visible. The texture is almost glass-like and brittle, with a tendency to overfiring. The surface and core colour are normally the same dark and regular grey. There is a large number of wasters in this fabric. This fabric appears to be identical to R1 above, but heavily reduced and overfired. The surface is normally very well burnished.

Grey ware 2 cream-slipped: G2C
not illustrated
This fabric is identical to G2, but the exterior is cream-slipped. Where the form can be determined it only occurs in flagons.

Other red wares: R5, R6, R7, R8, R9, R10

Red ware 5: R5
Fig 350, no 3; and Fig 353, nos 71 and 72
A moderately well-fired oxidised sandy fabric with a blackened surface. There are coarse sand inclusions which often make for an orange-peel-like surface even after burnishing. The major forms are roughcast beakers and Dr 38 bowls. They are wheel-turned with occasional quartz inclusions visible on the surface. The surface is blackened but the core is a deep orange-red in colour, quite distinct from the other red wares.

Red ware 6: R6
Fig 351, no 26
This very fine oxidised and heavily micaceous fabric is well-burnished with a mica-coated surface, normally on high-quality wheel-thrown vessels. The inclusions are fine and the fabric regular in colour and texture. The colour is light orange to buff, rather lighter than the red ware fabrics. The only form is the carinated bowl, Form 244.

Red ware 7: R7
not illustrated
This coarsely-gritted ware is used only for chimneys. The fabric is very hard with a rough surface and red-orange colour right through. The inclusions are mainly coarse sand and the sherds are all very thick. This fabric is rare.

Red ware 8: R8
Fig 352, no 56
Miscellaneous red wares. Included in this category are some military wares including Hofheim flagons.

Red ware 9: R9
not illustrated
A moderately well-fired sandy oxidised ware with a lighter exterior surface than the darker core and internal surface, an effect produced during firing. The texture is quite gritty and the surface has a tendency to break away. Forms included dishes, but this is a very rare fabric.

Red ware 10: Rl0
not illustrated
This moderately fired sandy oxidised ware has a well-burnished surface. The texture is granular/gritty. One sherd only.

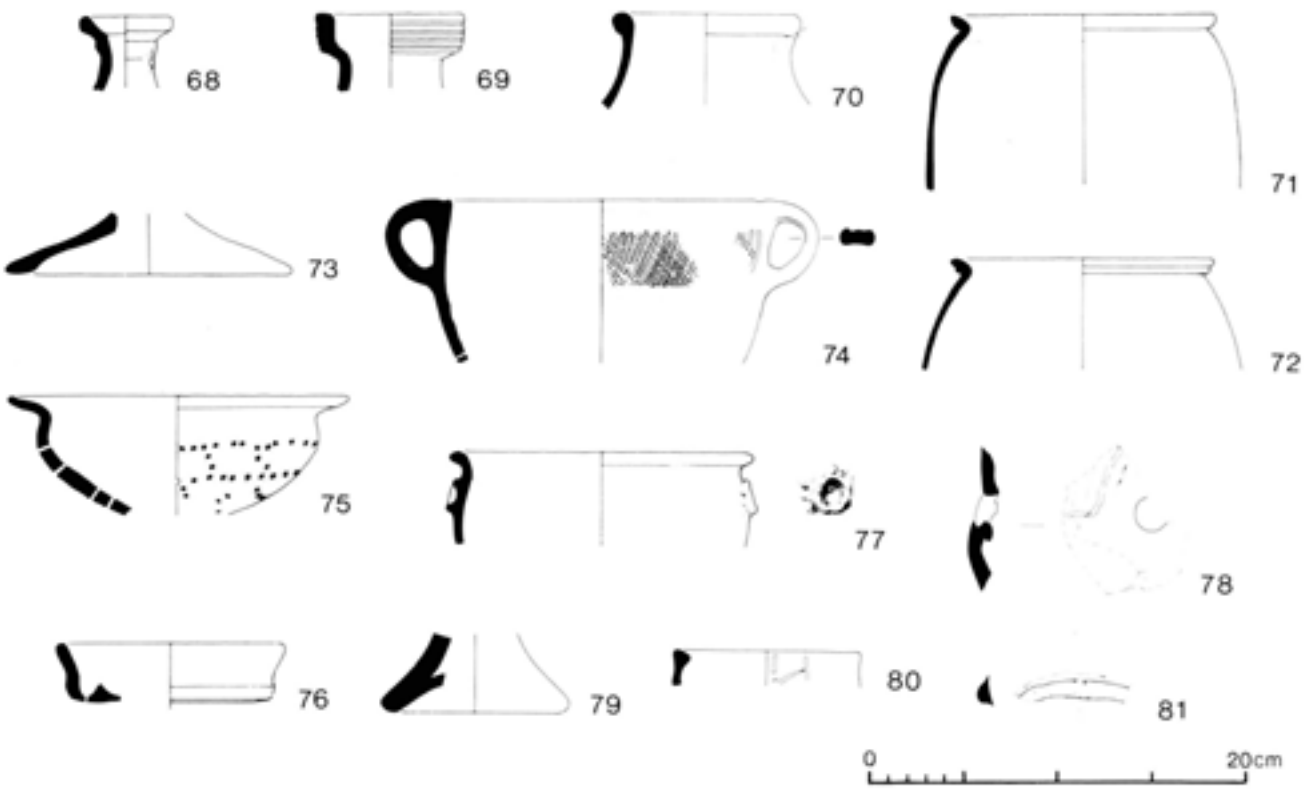


Fig 353 Pottery form series: Red wares iv

Petrology of selected samples of Severn Valley ware from Wroxeter

by Roberta Tomber

Material from Wroxeter was examined as part of a general survey of what is frequently termed 'Severn Valley' ware. The aims of this research were to characterise, petrologically, the different known sources of Severn Valley ware and, using these results, to allocate material from occupation sites to known kiln centres.

Microscopic examination of this ware shows it to contain common sedimentary rocks which cannot be closely sourced and, primarily, quartz grains, an undiagnostic mineral which occurs in all types of deposits throughout the United Kingdom. Even in cases where diagnostic inclusions can be identified in the pottery, such as those kilns from the Malvern area, only *c* 40% of thin section slides contain these characteristic traits. Therefore, the pottery may be sourced by the presence of certain temper but cannot be excluded from a particular source by its absence.

Given this, and the abundance of quartz inclusions in Severn Valley ware, an alternative technique of characterisation was necessary and textural analysis was employed. This method has been successfully used to discriminate between different sandy wares (eg Peacock 1971) as it allows an objective manner by which to measure the quartz grains. The method employed is similar to that described by Streeten (1979) whereby the results of measuring grains of quartz are graphically displayed as a size/frequency ratio. In this way the individual kilns were compared and characterised and the results verified by using simple statistical tests.

Since it was possible to distinguish the kiln groups using size analysis, selected sherds from occupation sites were then subjected to this technique with the aim of determining from which kiln they originated. However, the results from this stage of analysis, using both statistical testing and typological considerations in interpretation, showed that this could not be achieved. Failure is due to the present paucity of kiln information and further excavation may remedy the situation. As it was not possible to allocate occupation samples to specific kiln sites not all sherds were subjected to size analysis.

In addition, occupation sherds from several locations showed affinities with each other in terms of fabric and these could be grouped together on the basis of microscopic criteria. While these groups can be compared it is not totally certain whether a single source is indicated or whether they represent pottery production from several centres where similar types of clay were being exploited.

Five samples from Wroxeter were examined in thin section under the petrological microscope. Although none of these were subjected to size analysis it was possible to divide them into three major fabric groups which are described below.

Fabric Type 1

Sample 3: (WR D XXIV 2) a clean nearly quartz-free clay matrix which is optically anisotropic and contains numerous quartz and rock inclusions. The sparse quartz which is contained in the moderately to very micaceous clay matrix is angular or sub-angular in shape and measures up to *c* 0.04mm. Larger rounded or sub-angular quartz grains, up to *c* 0.60mm, are a common feature of the fabric. Both muscovite and biotite mica are seen in the clay. The former predominates and may measure up to *c* 0.10mm. Iron ore, in moderate quantities, can also be found in the matrix.

Rock temper includes siltstone, sandstone, and quartzite. Of these, siltstone and fine grained sandstone occur in sparse quantities. Siltstone measures up to 0.15mm, while sandstone, sometimes micaceous, can be identified up to 0.40mm. Rounded or sub-angular quartzite is abundant and ranges from 0.17–0.70mm, with most examples being 0.30–0.50mm in size. In addition, rounded fragments of microcrystalline silica, to 0.36mm, are present.

Pottery in a similar fabric is also noted from Chester and, in very limited quantities, the Hadrianic and Antonine Walls. It is possible that sherds from Wroxeter and Chester are more micaceous than those found further north and this might suggest different sources for the two groups. Comparison of these sherds to a fragment of mortaria which may have been produced in the Chester area (Carrington, 1981) could indicate that this Severn-Valley-ware fabric was being made near Chester. However, some differences do exist and for the time being a source at either Wroxeter, Chester, or even both locations, must be considered. Wroxeter is considered as a possible source due to the fact this fabric has not been identified at any of the sites which were examined from the more southern regions of the Severn Basin.

Fabric Type 2

Sample 5: (WP 80) is similar to Fabric Type 1 in that it has a very clean, relatively quartz-free clay matrix but can be distinguished by its lack of large quartz inclusions. It has a moderately micaceous, optically anisotropic clay matrix containing sparse-moderate quantities of sub-angular quartz. Most of the quartz grains are *c* 0.04mm or less, although isolated fragments up to 0.25mm can be seen. Both muscovite and biotite mica are present, to 0.12mm, and muscovite occurs in greater quantity. Iron ore is sparse and measures up to *c* 0.12mm.

Other temper includes plagioclase and orthoclase feldspar, siltstone, and sandstone, all of which occur in sparse quantities: plagioclase measures to 0.06mm, orthoclase to 0.15mm, siltstone to 0.17mm, and fine grained sandstone to 0.25mm. The remaining inclusion, quartzite is abundant. Sub-angular in shape, it falls between 0.07–0.36mm and normally measures less than 0.20mm.

This same fabric can be identified at Chester. It appears to be allied to Fabric Type 1, as noted above, and differences may be due to technological factors rather than being related to source.

Fabric Type 3

Fabric Type 3 provides a loose grouping in which the remaining samples can be viewed and interpreted. These sherds, like Fabric Type 2, are of a fine texture but are distinguished on the basis of density of quartz inclusions. Although they were not subjected to textural analysis, fifty quartz grains were measured, per thin section slide, in order to obtain parameters of quartz size.

Sample 1: (WR DXXXIV 2) a tankard fragment containing abundant sub-angular and, occasionally, angular and rounded quartz set in an optically anisotropic clay matrix which is fairly 'clean'. Quartz is of the following sizes: small 0.05mm or less 74%; medium 0.06–0.10mm 22%; large 0.11mm or greater 4% .

The fabric is moderately micaceous and contains both muscovite and biotite mica. The former measures up to 0.25mm, while the latter may not exceed 0.10mm. In addition, sparse amounts of iron ore are present in the matrix.

All other inclusions are found in small quantities. Mineral temper consists of both plagioclase (to 0.10mm) and orthoclase (to 0.07mm) feldspar. Quartzite, siltstone, and fine grained sandstone constitute the rock inclusions. These measure as follows: quartzite to 0.12mm, siltstone to 0.06mm, and sandstone to 0.23mm.

Sample 2: (WP 80) a jar fragment composed of abundant sub-angular and angular quartz grains which are contained in a moderately micaceous, optically anisotropic clay matrix. Quartz inclusions may be grouped into the following categories: small 0.05mm or less 68%; medium 0.06–0.10mm 28%; large 0.11mm or greater 4%.

Muscovite mica measures up to 0.15mm while biotite reaches 0.10mm. Sparse quantities of iron ore may be seen in this somewhat argillaceous matrix. Both plagioclase and orthoclase feldspar, up to 0.06mm, are sparse. Other temper, including quartzite (to 0.12mm), siltstone (to 0.25mm) and fine-grained sandstone, sometimes micaceous (to 0.58mm), is also infrequent.

Sample 4: (WP 80) a base sherd, has an optically anisotropic clay matrix which is very micaceous. Sub-angular quartz is abundant and falls into the following size groups: small 0.05mm or less 78%; medium 0.06–0.10mm 18%; large 0.11m or greater 4%

Like Sample 1, muscovite and biotite mica both occur with muscovite being up to 0.25mm, and biotite not exceeding 0.10mm. Iron ore is also seen in this extremely clean clay matrix. Other temper includes quartzite (to 0.13mm) and fine grained sandstone (to 0.30mm), although both are rare.

The size and sorting of quartz grains, for Samples 1, 2, and 4, is similar. However, Sample 2 has somewhat denser inclusions and may be a different fabric. Samples 2 and 4 are likely to be from the same source in view of their more micaceous appearance and somewhat cleaner clay matrix.

While it is not impossible that all five samples are from a similar area of production and differ merely due to clay preparation, three or four distinct fabric types can be suggested and that interpretation is supported.

Fabric group II: grey wares

Figs 354–5

Grey wares: G1, G4, G5, G6, G7, G9, G10, G13, G14, G15, G16

Grey ware 1: G1
Fig 354, nos 91 and 108, Fig 364, no 277
This good quality grey ware fabric is chiefly distinguished by its dark surface, probably produced in the late stages of firing. It has well-crushed quartz and burnt sand inclusions. Apart from the surface the fabric is of an even medium-grey colour. The surface may be lightly burnished, particularly on the dish forms.

Grey ware 4: G4
Fig 354, nos 88, 89, and 98
This moderately fired oxidised fabric is quite rare. The slightly soft sandy fabric has quartz and sometimes mica inclusions. The well-crushed quartz inclusions sometimes protrude from the surface, and sometimes the surface is quite well burnished.

Grey ware 5: G5
Fig 354, nos 82, 84, 86, and 100–103; Fig 355, nos 109–11
A very well-fired grey ware with burnt sand, calcite, grog, and other inclusions in a purplish matrix. The surface appears outside this matrix as a separate light or medium-grey layer, often well-burnished. It varies from a quite coarse fabric with voids to a rather finer fabric with mainly burnt sand inclusions (when there is some similarity with G1). Among the forms there is a tendency to rather heavier forms, especially jars and large dishes.

Grey ware 6: G6
not illustrated
This light purplish-grey fabric may be a variant of G5, to which it is very close. The inclusions are limited to burnt sand which speckles the fabric. The texture is quite even and there is normally no clear distinction between core and surface, as with G5. The surface is often very highly burnished and the vessels produced were regular and good quality wheel-turned forms.

Grey ware 7: G7
Fig 354, nos 90 and 99
A fine and very hard fabric with a brittle almost glass-like texture, with few inclusions visible to the naked eye. The texture is even and fine and the surface is normally well-burnished. It is reasonably likely that this classification includes more than one grey fine fabric.

Grey ware 9: G9
not illustrated
This coarse sandy moderately fired grey ware has an orange-red core. It is a fairly hard fabric, with white burnt sand inclusions (although the surface is often somewhat soft after weathering in the soil). The forms include some Red ware types, particularly large jars. The sherds are normally quite thick. This may be a coarser variant of fabric G6.

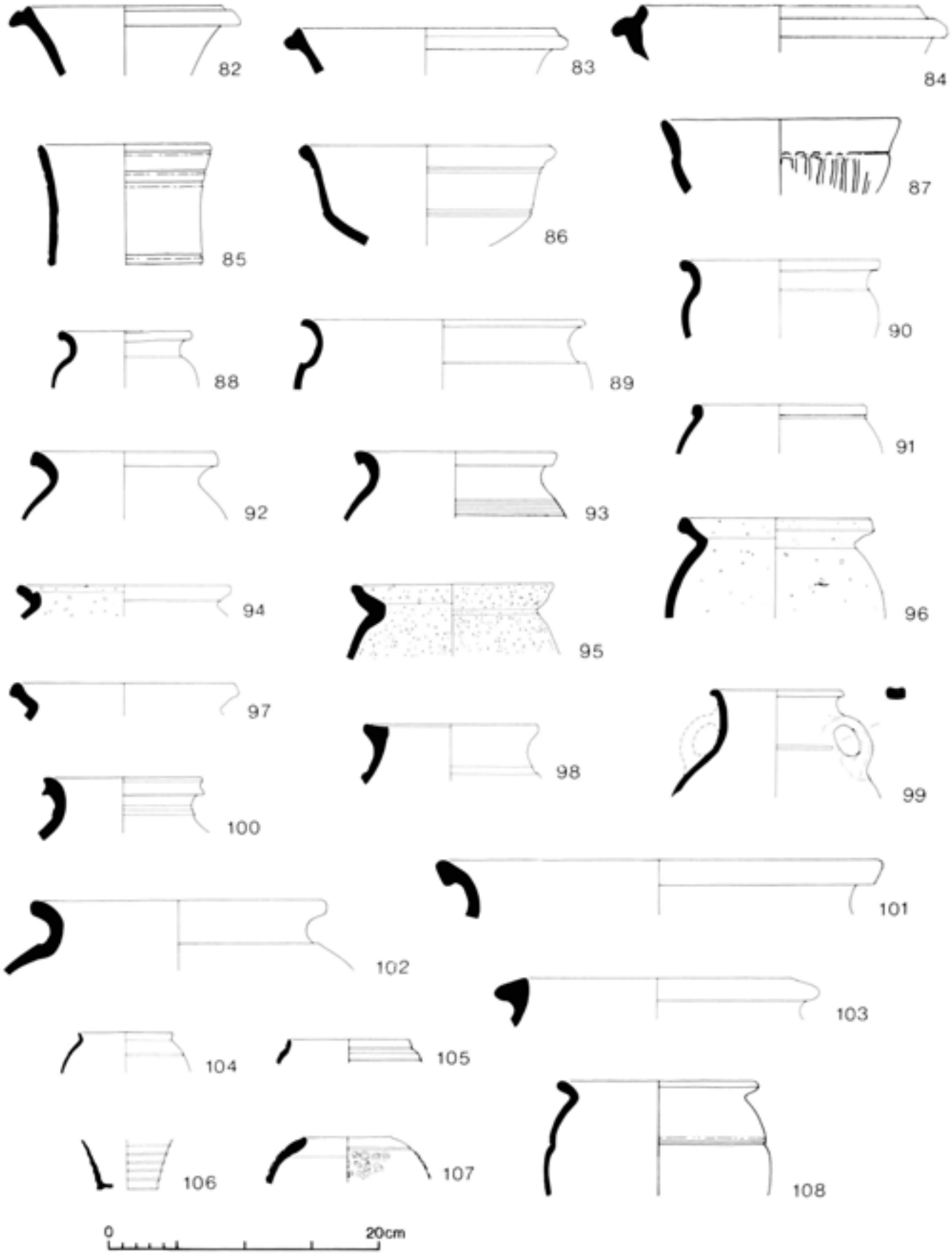


Fig 354 Pottery form series: Grey wares i

Grey ware 10: GlO
not illustrated
A very coarse moderately-fired grey fabric with a distinctive orange core. The fabric is granular with coarsely-crushed quartz and sand inclusions. The grey-coloured surface may be produced by reduction after oxidising firing conditions. Cheese-wire base marks are normal on these wheel-thrown vessels. The forms include heavy dishes and jars.

Grey ware 13: G13
Fig 354, nos 85 and 87
A very fine grey ware with a dark surface. The inclusions are well-crushed, but include a small amount of mica. The fabric is a regular light-medium grey colour, normally with a good surface burnish. This is a rare fabric.

Grey ware 14: G14
not illustrated
A distinctive sandy fabric with a well-burnished grey surface and a creamy-white sandy core. A very rare fabric.

Grey ware 15: G15 (?*Terra nigra*)
Fig 354, no 106
Miscellaneous mica-dusted grey wares. Rare.

Grey ware 16: G16
not illustrated
A very rare fabric with a dark grey surface and a red-orange core. It has a hard and well-fired granular fabric.

Miscellaneous coarse wares: DW, M1, M3, M4, M6, M10, M11, M12, M13, M14, M15, M16, M17, M18, M19, M20, M21, M99

Derbyshire ware or *Eifelkeramik*: DW
Fig 354, nos 94 and 95
A distinctive very hard and rather brittle brown-grey fabric with extremely heavy inclusions, largely of quartz, which protrude grotesquely from the surface, producing a very irregular finish. The fabric itself is often quite well mixed. The only forms present are the typical 'lid-seated' jars (Form 460).

Misc 1: M1
Fig 354, nos 83 and 93
Portchester 'Fabric D' (Fulford 1975a, 299). A very distinctive creamy white to grey hard-fired fabric with well-crushed quartz inclusions. The surface can be rather rough and irregular, and is usually rilled in the same style as the Calcite-gritted wares. The overwhelmingly predominant form is the jar, Form 441.

Misc 3: M3
not illustrated
Miscellaneous colour-coated grey ware.

Misc 4: M4
Fig 354, nos 92, 96, and 97
A very sandy, soft and slightly micaceous fabric. The colour is brown to dark grey, varying in a similar manner to Calcite-gritted fabrics. The surface rilling is also similar. The fabric feels gritty, but the sherds are very thin and quite fine.

Misc 6: M6
not illustrated
A moderately well-fired, heavily quartz-gritted grey fabric. The surface is quite dark and seems intended to imitate Black-burnished fabrics. However, the chunks of quartz visible in the surface and the poorer quality of the fabric readily distinguish it. The dark surface layer is very thin and is readily abraded away in the soil. The core can have grey-orange or pink bands. The forms are rather clumsy copies of Black-burnished types, especially flanged bowls, but the fabric is akin to the Calcite-gritted wares (see also Fabric CSM, below).

Misc 10: MlO
not illustrated
A very hard granular, gritty and highly-oxidised chimney fabric.

Misc 11: M11
not illustrated
An oxidised fabric, cream to pink in colour with a well-burnished surface. The fabric core feels rather gritty and has a high sand content. The fabric is quite fine. The two sherds present may belong to one vessel, a Black-burnished dish type.

Misc 12: M12
Fig 354, nos 104 and 105
A well-fired slightly oxidised fabric, grey to buff in colour with a well-burnished surface. The fabric of each sherd is very uniform in colour, fine in texture and of good quality. The core is slightly more buff-coloured than the surface.

Misc 13: M13
not illustrated
A moderately well-fired sandy-brown fabric. The sherds are thin and quite fine with a creamy-white surface coating. The surface is well smoothed and burnished, and decorated with patterned dots or the barbotine decoration of typical 'poppy-head' beakers.

Misc 14: M14
not illustrated
Crucible sherds only.

Misc 15: M15
not illustrated
Various fabrics; rusticated beakers only.

Misc 16: M16
not illustrated
A fairly soft grey-buff to pink fabric with a fine sandy texture, with some mica, and a thin surface-colouring of grey. The forms are jars and bowls.

Misc 17: M17
not illustrated
A fairly hard reduced fabric with a sandy brown surface and a dark grey core. The fabric is quite fine with some mica on the surface. The surface itself has a striped, variegated appearance, with a slightly gritty feel.

Misc 18: M18
not illustrated
A sandy red-buff fabric with a darker outer surface. The texture is quite like R2, but contains some mica and is more granular.

Misc 19: M19
not illustrated
This fabric has an almost black surface and a dark grey core. It is distinguished from the Black-burnished series by its inclusions, which include calcite, burnt sand, and grog. There are only two sherds, one being a ring base with a pre-fired perforation in the centre.

Misc 20: M20
not illustrated
A well-fired buff-grey fabric, coarse and granular in texture. There are voids in the fabric together with sandy inclusions. It has a brown-grey somewhat burnished surface and a dark grey core.

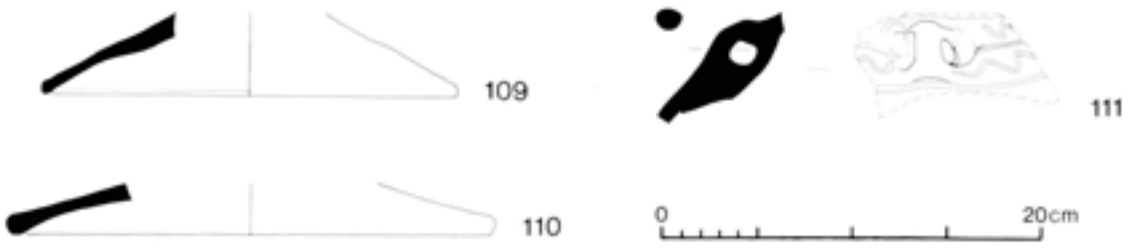


Fig 355 Pottery form series: Grey wares ii

Misc 21: M21
Fig 354, no 107
A sandy well-fired oxidised fabric quite close to M13, and with identical vessel forms. It is distinguished by its red fabric core and grey surface.

Misc 99: M99
Fig 363, no 275
All other coarse-ware fabrics not otherwise classified.

Fabric group III: Black-burnished wares

Figs 356–8

Black-burnished wares: BBA, BBB, BBC, G11, G11A, G11R

BBA, BBB, and BBC are the three major Black-burnished fabrics and while all may come from the same place of origin, there are some differences in fabric (Farrar 1973, 69–78 and Williams 1977, 189).

Black-burnished ware A: BBA
Fig 356, nos 113, 114, 119–21, and 124–7; Fig 357, nos 135, 140, and 143–5; Fig 358, nos 146, 147, 149–51 and 153–8
This almost wholly black fabric is heavily reduced and with a very fine burnished surface. The fabric is very regular in colour and texture, and the scribed arcs or lattice decoration are skilfully applied. The inclusions are mainly sand, but include a small amount of slate. Hand-made.

Black-burnished ware B: BBB
not illustrated
This heavily-reduced and generally well-burnished fabric is normally rather coarser and less regular in colour and texture than BBA. There is normally a brown 'skin' beneath the exterior and internal surface. The fabric is less well mixed, the inclusions coarser and tending towards being granular with knots and whorls in the clay mix. The range of forms is exactly as BBA. Hand-made.

Black-burnished ware C: BBC
Fig 357, no 129
This very fine and regular reduced Black-burnished ware has a very fine and well-mixed fabric texture. The core and internal surfaces tend towards pale grey in colour and the inclusions are lighter than either BBA or BBB. The burnish is very fine and the quality of all the vessels high. The range of forms is normal for the Black-burnished series.

Grey ware 11: G11, G11R, G11A
Fig 356, nos 115, 122, and 123; Fig 357, no 141; Fig 358, nos 148 and 152
This fabric is very close to BBA in particular with a reduced surface, sand inclusions and a regular texture. It is distinguished, however, by a grey or sometimes red (G11R) surface or surface patches. It is sometimes referred to as grey-burnished ware, but it is probably from the same source as BBA. The fabric includes occasional pieces of slate. The burnishing of the surface is of high quality and is so heavy it occasionally produces crazing. G11A is the grey burnished version of BBC.

Black-burnished copies: G3, G8, G12, G12G, M5

Grey ware 3: G3
Fig 356, no 116 and Fig 357, no 133
This heavily reduced sandy black-surfaced ware closely imitates the Black-burnished fabric and forms. However, the fabric is always coarser and less well-mixed with an addition of grog, quartz, burnt sand and even mica inclusions. The surface tends to flake away exposing the orange/red/grey core. The quality of the burnish is often poor with marked striations still visible on the surface. In addition although the normal range of Black-burnished types is present there is a marked tendency towards heavy and handled forms. Hand-made.

Grey ware 8: G8
Fig 357, nos 130–32, 136, and 137
This is a dark and heavily-reduced slightly-granular fabric. The surface colour varies between lighter grey and dark grey, but never the black of the Black-burnished series. The vessels are all wheel-turned and the burnish normally of poor quality. The inclusions include a lot of burnt sand and the surface texture is often similar to orange peel.

Grey ware 12: G12, G12G
Fig 356, nos 112, 117, 118, and 128; Fig 357, nos 134, 138, 139, 142
This heavily reduced sandy fabric is very similar to the Black-burnished ones, but there are abundant mica inclusions which sparkle on the surface. The surface itself has a poor quality burnish normally not approaching the standard of BBA, and often feels sandy to touch. The core of the fabric is grey, sometimes with pink and grey bands, and the inclusions are quite regular. There are occasional pits in the surface as well. G12G is a wheel-thrown version of the same fabric.

Misc 5: M5
not illustrated
A slightly soft and sandy fabric. It is buff-brown in colour with an orange-grey core; the surface may also be grey. The surface is well-burnished, but with a sandy and rather gritty core. There are voids and burnt organic matter in the fabric. The main forms include Black-burnished flanged-bowl types.

Fabric group IV: Calcite-gritted wares

Fig 359

Calcite-gritted wares: CM1, CS1, CS2A, CS2B, CS3, CS4A, CS4B, CS5, CS6, CS7, CS8, CSM

There are no substantial differences between the major Calcite-gritted fabrics, CS1, CS2A, CS2B, CS3, CS4A, CS4B, CS5,

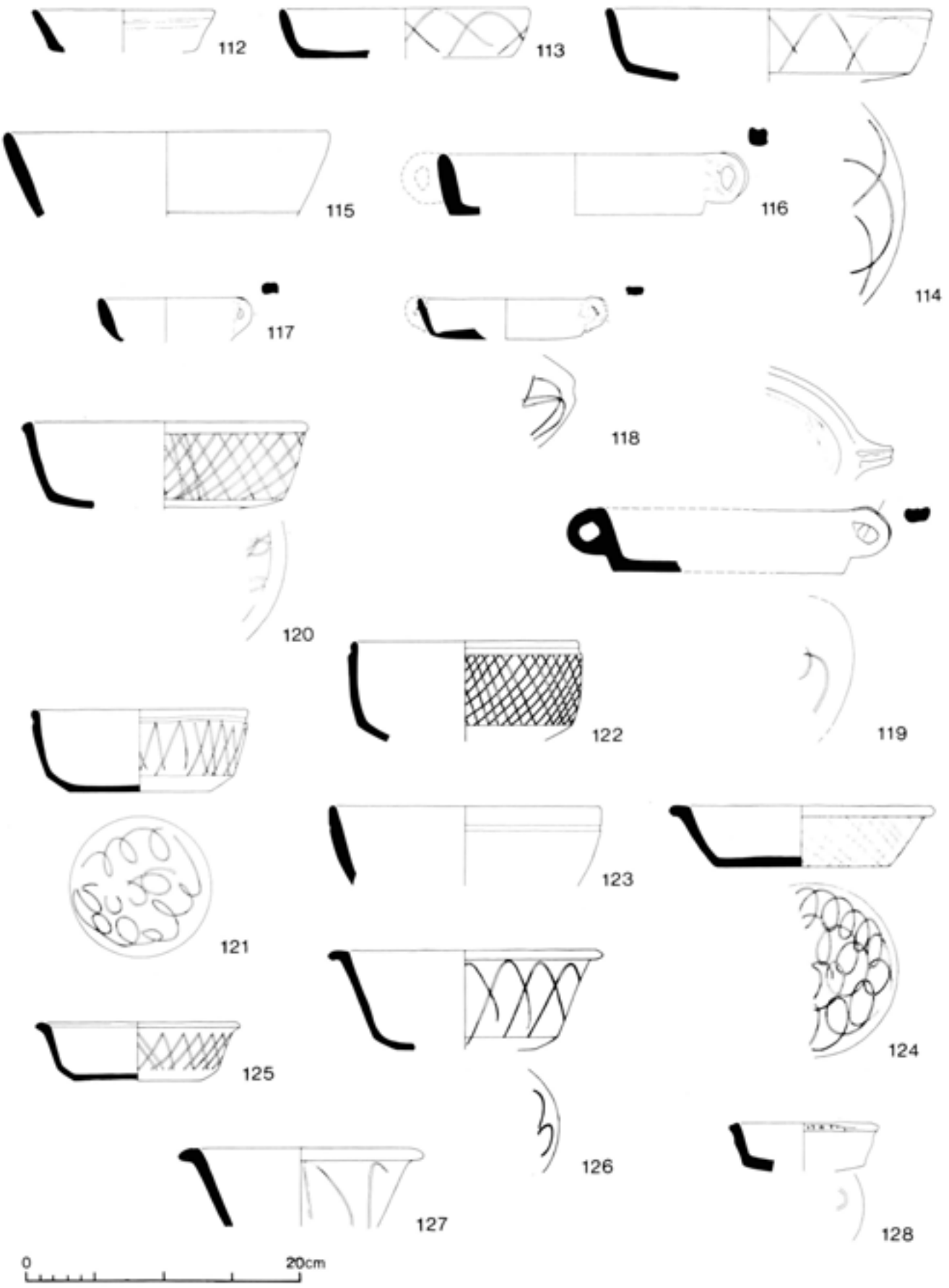


Fig 356 Pottery form series: Black-burnished wares i

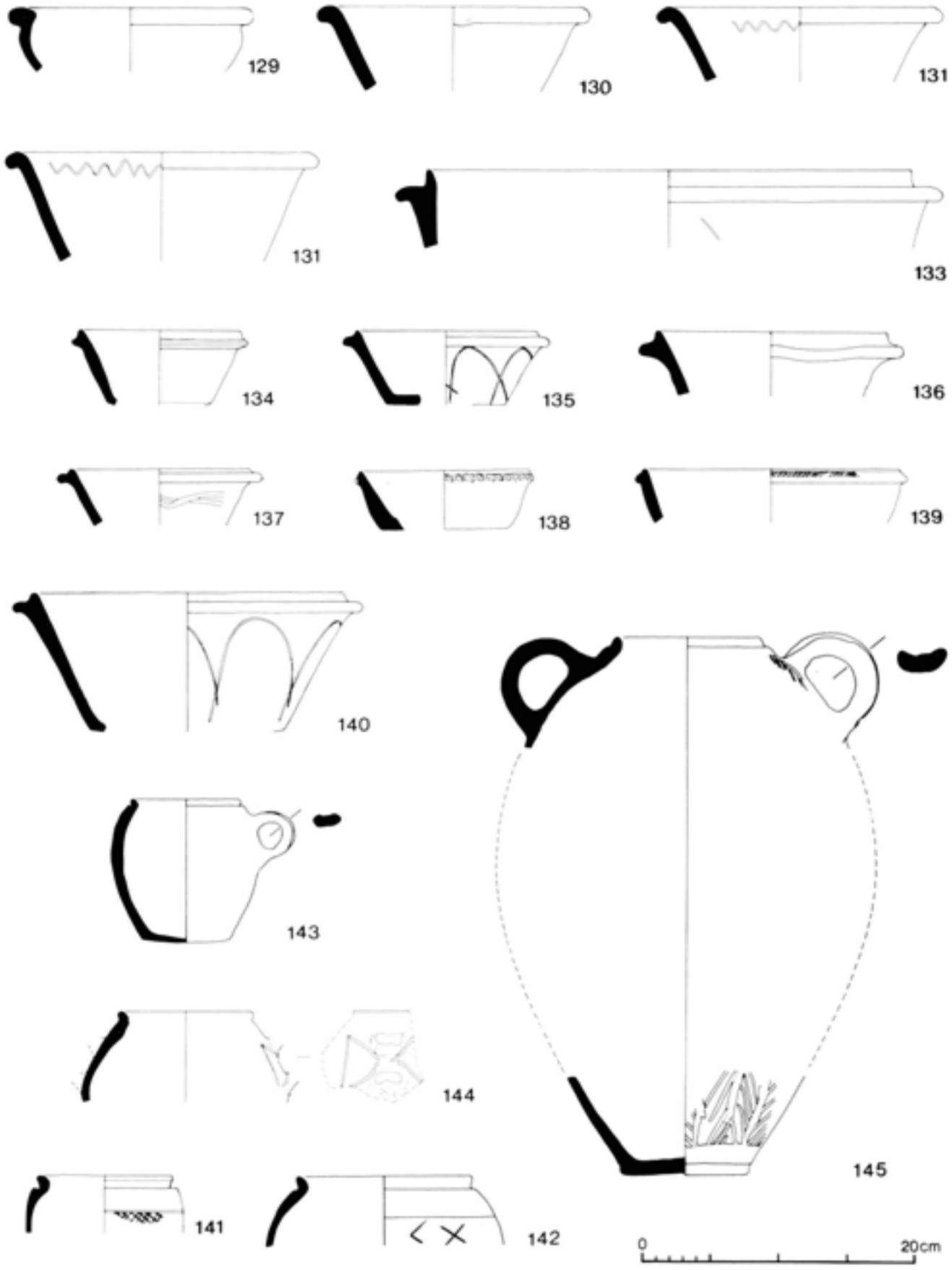


Fig 357 Pottery form series: Black-burnished wares ii

CS6, CS7, CS8, in terms of vessel forms or fabric texture. The only differences are in colour variations, which reflect differences in the reduction or oxidisation of the individual vessels. All fabrics are relatively poorly fired with moderately-coarse calcite inclusions. These occasionally protrude from the surface, although not above the shoulder of jars whose necks are burnished. The only other common decoration is horizontal rilling (or 'combed') decoration on the lower body of both jars and bowls. The vessels can be sometimes be somewhat irregular, but they appear to be wheel-turned.

Calcite-gritted Malvernian ware: CM1
Fig 359, nos 163, 169, and 175
A soft Calcite-gritted fabric, quite distinctive in terms of fabric and forms. The surfaces are normally heavily reduced but the cores are often oxidised. The inclusions are crushed in large chunks rather than slivers with a lighter matrix than the other Calcite-gritted fabrics.

CS1
Fig 359, nos 173 and 176
Reduced black to brown interior and exterior surfaces

CS2A
Fig 359, nos 159, 167, 168
As CS1 but internal oxidisation to pink-grey colour.

CS2B
Fig 359, nos 166 and 171
As CS1 but internal oxidisation to grey-buff colour.

CS3
not illustrated
As CS1 but externally oxidised.

CS4A
Fig 359, nos 160–62, 170, and 172
As CS2A, but oxidisation on internal and external surface.

CS4B
not illustrated
As CS2B, but oxidisation on internal and external surface.

CS5
not illustrated
Miscellaneous thick-walled sherds (of ?storage vessels).

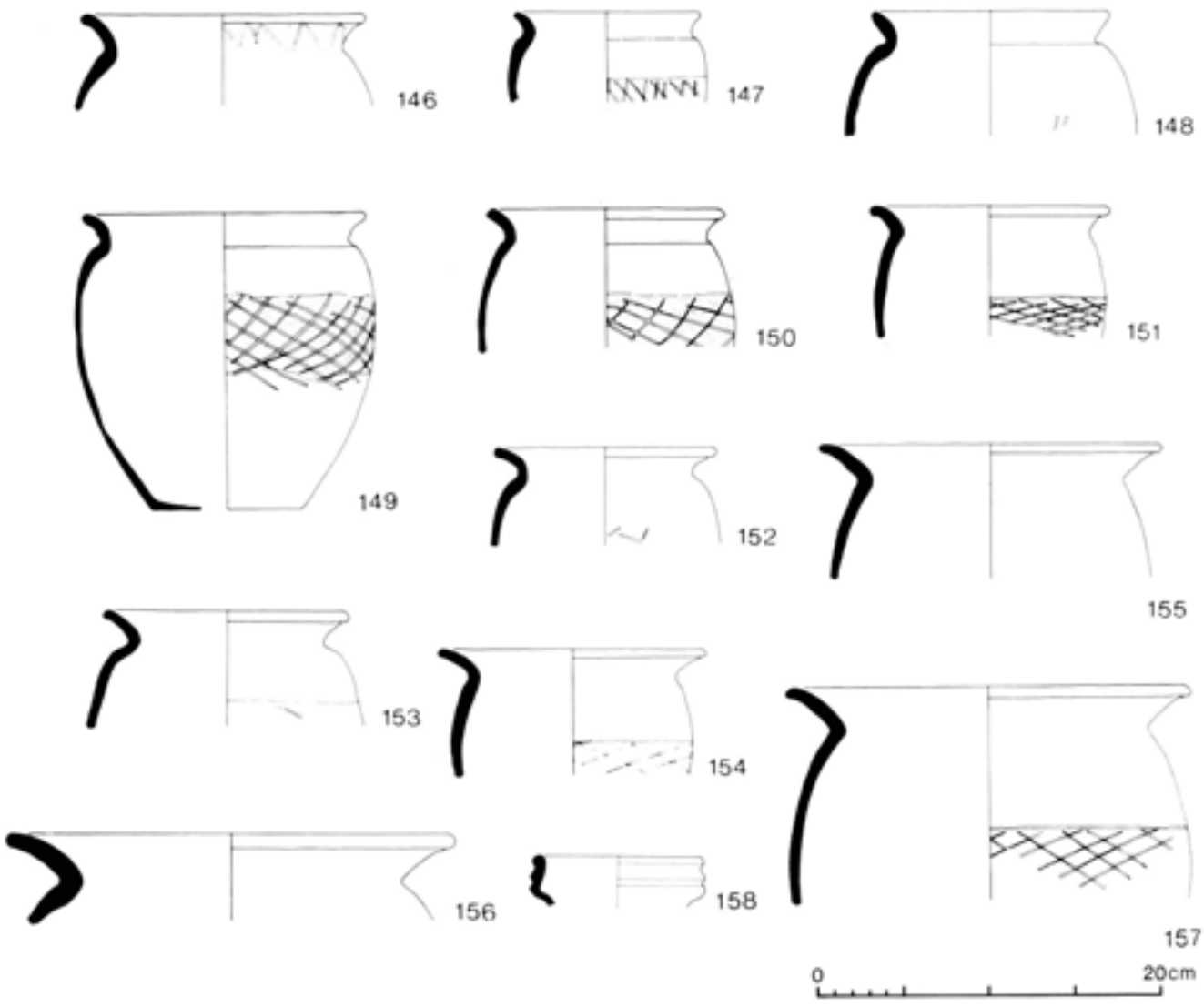


Fig 358 Pottery form series: Black-burnished wares iii

CS6
not illustrated
Sherds with a vesicular non-soapy surface, normally oxidised.

CS7
not illustrated
Oxidised fabric with non-soapy fabric and normally less grey than usual.

CS8
not illustrated
Grey oxidised fabric with a powdery non-soapy fabric and normally light-calcite inclusions.

CSM
Fig 359, nos 164, 165, and 174
Other Calcite-gritted wares in similar forms to the above, but with distinctive fabrics. Includes some with a mix of quartz inclusions. (see also Fabric M6, above).

Fabric group V: Nene Valley ware

Fig 360

Nene Valley wares NV, NVB, NVC1, NVC2, NVC3, NVG, NVM, NVO, NVP, NVX, NVY, NVZ
These are in a very distinctive fabric with its normal creamy-white fabric occasionally tending to have an orange core with a variety of colour-coatings which have been classified by colour as follows: NVB: brown; NVG: grey; NVO: orange; NVP: purple; NVM: metallic finish; NVY: grey-brown with an orange core; NVX: red-brown with a grey-brown core; and NVZ: grey.
The last two fabrics occur chiefly as white-painted beakers. However, in the later stages of processing the pottery, it was felt that the above-described distinctions in the coatings were likely to be of less importance than variations in the colour of the fabric itself, and three new fabric codes were added in which the colours of the coatings are not distinguished, as follows:

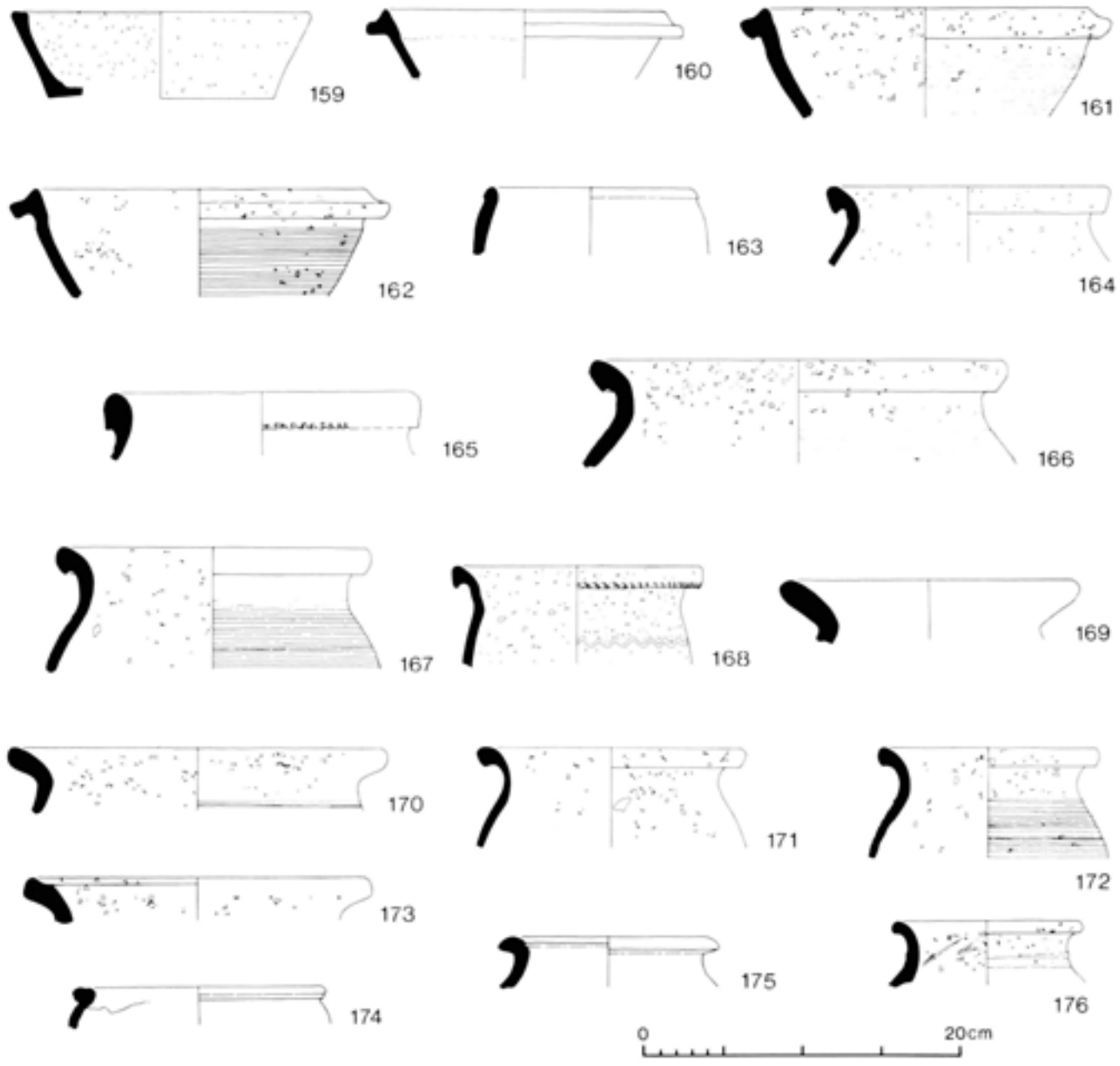


Fig 359 Pottery form series: Calcite-gritted wares

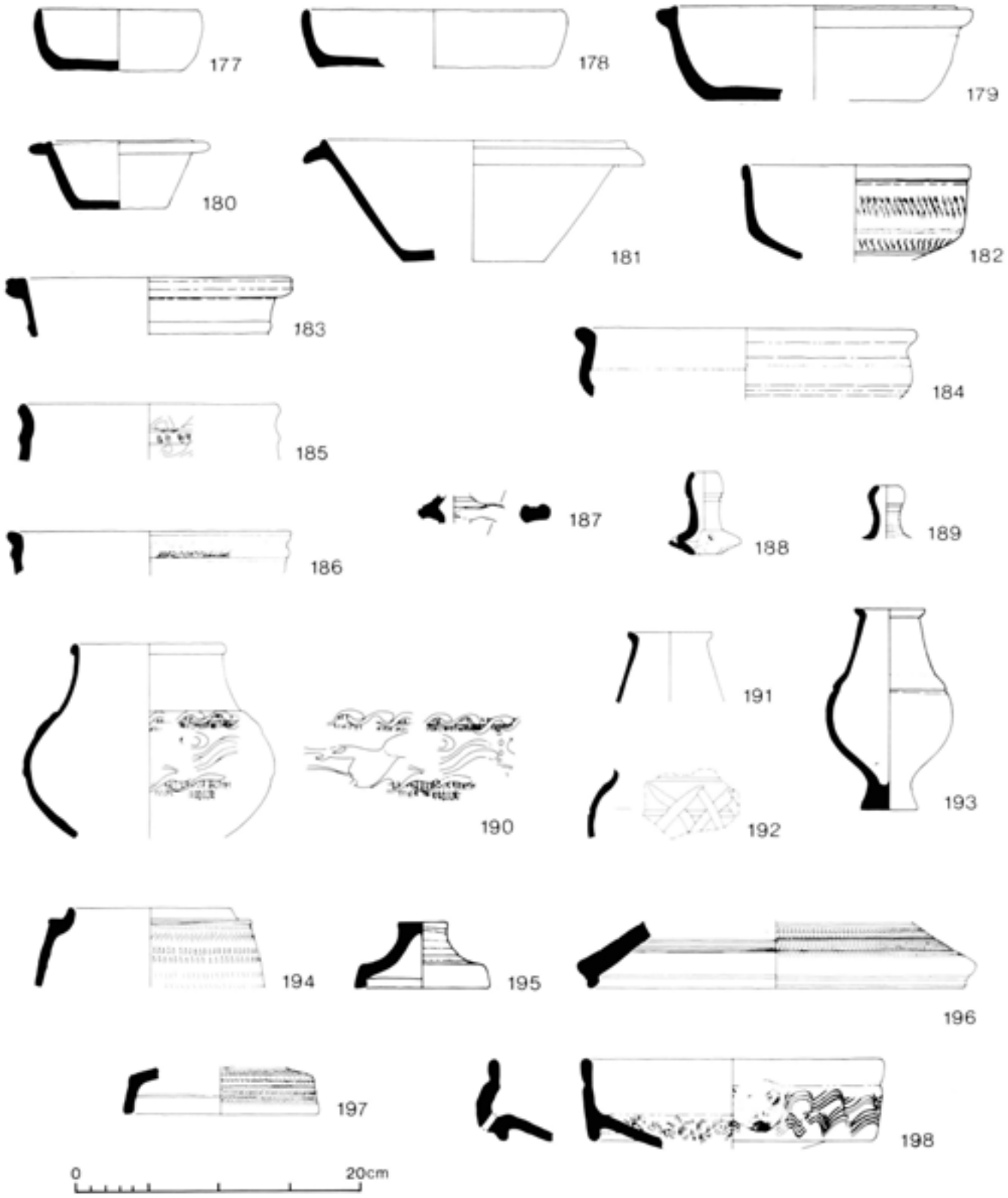


Fig 360 Pottery form series: Nene Valley wares

Nene Valley white colour-coated ware: NVC1
Fig 360, nos 177–9, 181, 183–7, and 194–8
A fabric sometimes so white as to be confused with Cologne ware (Anderson *et al*, 1982), the forms, while running the gamut of Nene Valley wares, do not include (many) roughcast beakers.

Nene Valley pink-buff colour-coated ware: NVC2
Fig 360, nos 180, 182, and 188–93
This is the most common of the three additional Nene Valley fabrics. Interestingly, it is predominant in beakers.

Nene Valley red colour-coated ware: NVC3
not illustrated
This ware, in the usual Nene Valley fabric, tends to be earlier, on typological grounds, than those in NVC1 and NVC2, including barbotine-decorated beakers.

Fabric group VI: Oxfordshire ware

Fig 361

Oxfordshire wares: NVA, OX, OX1, OX1M, OX2, OX2M, OX3, OX3M, OXM, OXM1, OXM2, OXM3, OXM4

NVA
Fig 361, nos 201–204 and 206
A hard, well-fired fabric with a mottled red-brown colour-coating and a clear dark grey core, with no mica content.

Oxfordshire ware: OX
The most common Oxfordshire fabric is hard and red, usually a distinctive plum colour. The less common variations in fabric are classified as follows:

OX1: soft, sandy fabrics, with plum colour-coating, Fig 361, nos 199, 205, 207–10, 212–16, 218, 219, 221

OX2: hard, usually redder fabric, *not illustrated*

OX3: with brown colour-coating; Fig 361, nos 217 and 220

OX4/5: with other colour-coatings *not illustrated*
The addition of an M after these codes indicates a fabric with a high mica content. The forms include a range of table wares but especially vertical-walled bowls, Dr 38 bowls and beakers.

Oxfordshire red and brown colour-coated *mortaria*: OXM, OXM1, OXM2, OXM3
This is the typical Oxfordshire fabric applied to mortarium production. There is a tendency towards harder fabrics and a number have a dark grey core. As with the normal table wares there are some variations in fabric and these have been classified as follows:

Miscellaneous: OXM
not illustrated

Soft fabric: OXM1
not illustrated
large mica content.

Hard fabric: OXM2
not illustrated
little or no mica.

Brown colour-coating: OXM3
Fig 361, nos 222 and 223).

Oxfordshire ware copies: M8, OX2R, OXC

Copy type misc 8: M8
Fig 361, nos 200 and 211
A well-fired buff oxidised fabric, very close to fabric R1 in texture and colour, although perhaps a little more orange at the surface. It has a very distinctive purple-red colour-coating. The absence of rough quartz inclusions distinguishes it from OX2R fabrics, but it is a copy of Oxfordshire types.

Oxford copy in red ware: OX2R
not illustrated
This Oxfordshire copy appears to be a local Red ware fabric, with sand and quartz inclusions similar to R1 and R2, with a bright red slip, rather redder than the true Oxfordshire forms, but the fabric surface is distinctive, with large inclusions protruding from it or pushing the surface out.

Oxfordshire copy: OXC
not illustrated
A very hard, sandy fabric, distinct from the normal Oxfordshire ware. The colour-coating is normally a brighter red than OX2.

Fabric group VII: other fine wares

Fig 362

Cream-slipped wares: RC1, RC2, RC3

Cream-slipped red ware 1: RC1
Fig 362, nos 224–36, and 238
A hard and well-fired sandy fabric with a light cream slip normally confined to the external surface but sometimes running into the interior. The fabric is quite similar to R2 but rather sandier and more gritty, while the forms usually have somewhat thinner walls. The colour-coating is good and regular and is applied to a smooth sandy surface. The fabric can occasionally be grey or pink, especially at the core.

Cream-slipped red ware 2, RC2
not illustrated
A very granular buff-orange fabric with a cream slip on the rim and inside, but not the external surface. The core is sometimes grey. The *mortarium* forms are large with heavy rims, occasionally stamped, and irregular ironstone and quartz trituration grits.

Cream-slipped red ware 3: RC3
Fig 362, no 237
This cream-slipped fabric is rather sandier than RC1 and more granular. It often has a cream slip on both surfaces.

Other fine wares: CCC, CLP, CLR, FUS, FWNF, GWEG, HA, KWW, LYC, MRB, TNEG, TRR

Central Gaulish colour-coated ware: CCC
Fig 362, nos 239, 252, 253, and 255
Normally with the hard, red fabric of Central Gaulish samian ware, and a dark black, or sometimes greenish colour-coating (Symonds 1992, chs 2 and 3). Fig 362, no 239 is exceptional, as a colour-coated version of early micaceous Central Gaulish ware.

Red colour-coated ware 1: CLP
Fig 362, no 242
As CLR below, but undecorated.

Red colour-coated ware 2: CLR
Fig 362, nos 245–8 and 250
Both CLP and CLR are similar to the most common red colour-coated ware made at Colchester, the latter used mainly for roughcast, cornice-rimmed beakers, while the former occurs in a wider range of plain beakers with curved, everted or cornice rims. See Symonds 1990, however, on the range of possible sources for these wares.

Other fine ware, unslipped: FUS
not illustrated
A creamy white sandy fabric, hard, and well wheel-turned, without slip. The only form is the rouletted beaker. The surface is poorly burnished in the area of decoration.

New Forest ware: FWNF
Fig 362, no 251
A very hard fabric, sometimes apparently overfired, with a purplish slip (*cf* Fulford 1975b, 24-5, fabric 1).

Much Hadham ware: HA
Fig 362, no 257
A sandy brown-orange fabric with a well-burnished surface, sometimes with a thin brown slip. The most common form is the face-pot flagon, the illustrated example having the characteristic vertical burnishing on the neck.

Cologne white ware: KWW
Fig 362, nos 241 and 244
A soft, clear white fabric with a dark grey matt slip. The most common form is the roughcast beaker (see Anderson *et al*, 1982).

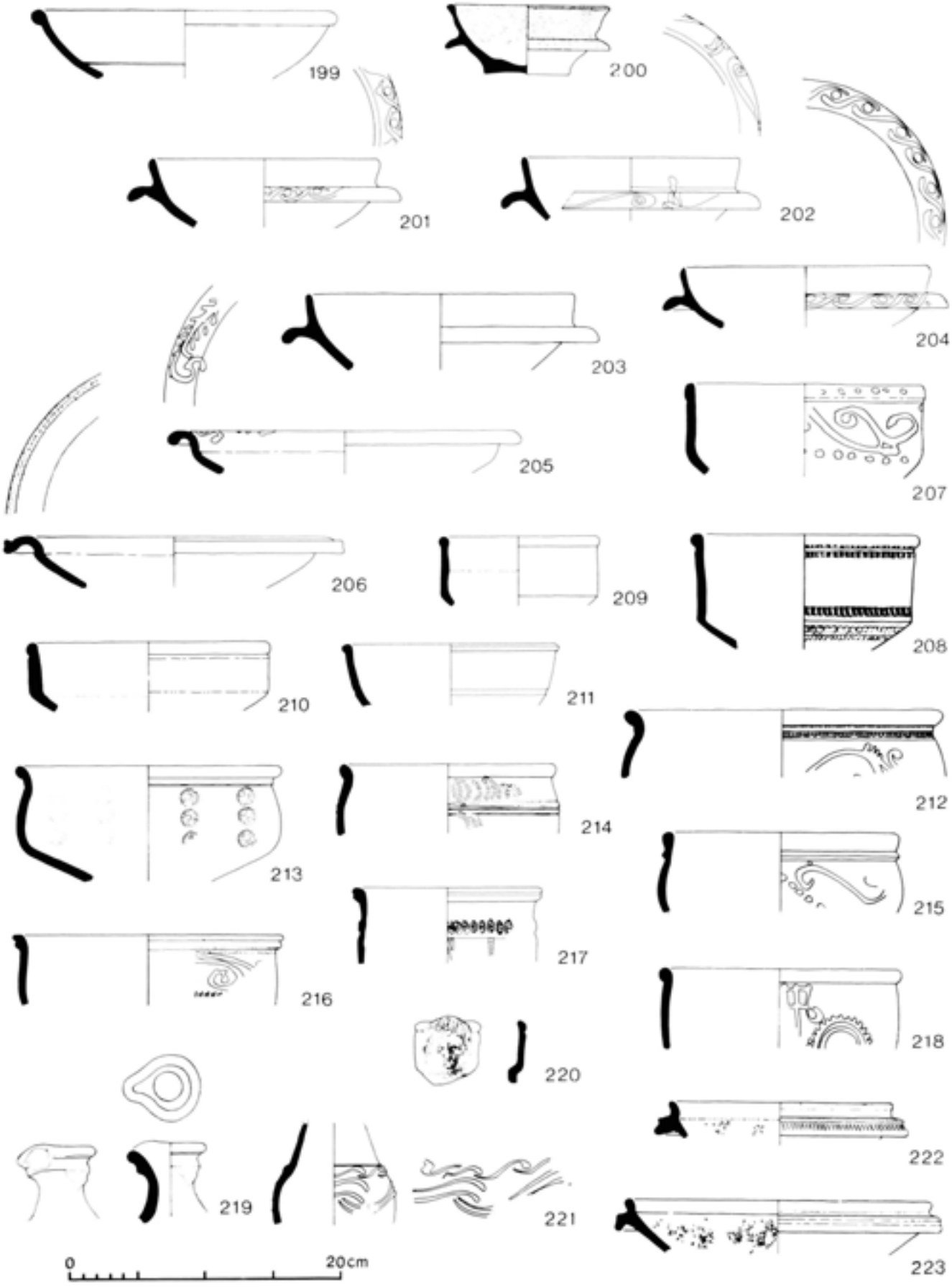


Fig 361 Pottery form series: Oxfordshire ware

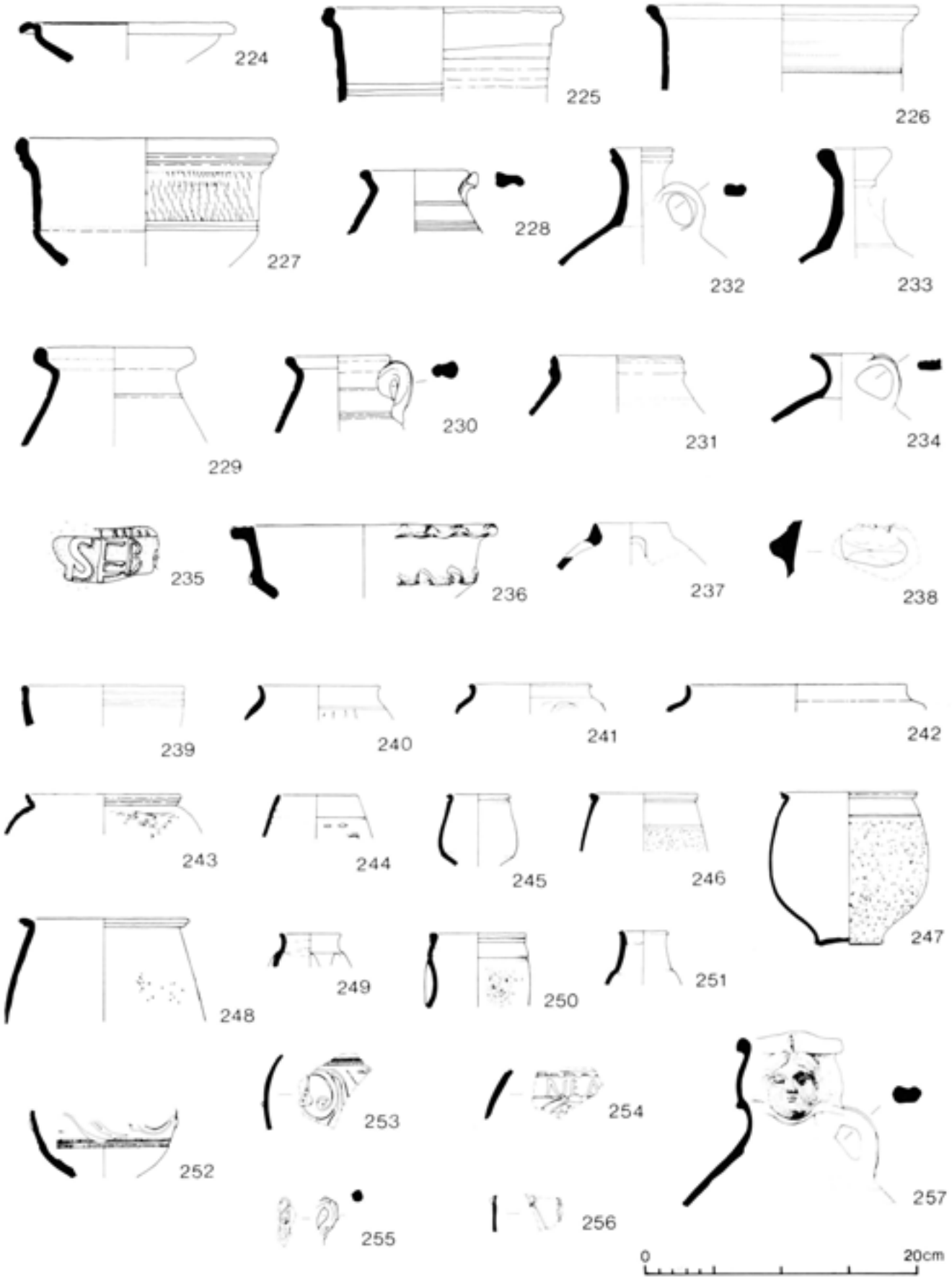


Fig 362 Pottery form series: Other fine wares

Marbled ware/céramique à l'éponge: MRB
not illustrated
A buff-to-reddish micaceous fabric with a cream-orange slip inside and out (see Bird and Williams 1983, 247).

Lyon ware: LYC
Fig 362, no 243
White-cream sandy fabric with sand rough-casting and a very glossy slip (see Greene 1979, ch 2).

Trier late third to fourth century 'Moselkeramik': TRR
Fig 362, no 254
While this category normally refers to the fine red fabric of third century production at Trier, with glossy dark red, dark green or black colour-coating (see Symonds 1992, chs 7 and 8), Fig 362 no 254 is an example of the somewhat coarser Trier fabric, probably fourth century, rarely found in Britain.

Miscellaneous fine wares: FWM, SVC, SVP
not illustrated
Such small quantities of Fineware Mortaria, Severn Valley Cream- slipped ware, and Severn Valley Parchment ware were recovered that they are not separately described

?Raetian ware: REC
Fig 362, nos 240, 249, and 256
A sandy orange-red fabric with a slight grey core visible. See Form 690.

Fabric group VIII: Miscellaneous wares

Fig 363

White wares: PWD, WW5, WW6

Parchment ware, PWD
Fig 363, nos 260 and 263
A cream fabric with a yellowed surface. The fabric may also be pinkish in colour, especially at the core (see Young 1977, ch 6).

White ware 5, WW5
Fig 363, nos 259, 261, and 267–70
Miscellaneous white-ware fabrics; non-*mortaria* forms.

White ware 6, WW6
Fig 363, nos 258, 262, 264, and 265
A cream-white fabric, quite fine and with well-crushed inclusions. Rather sandy with a slightly orange surface. The common red or brown painted decoration is often arranged in horizontal bands.

Storage vessels and *amphorae*: AMP, CAR, SG, SV1, SV2, SV3, SV4, SV5, SV6, SV7, SV8, SV9, SV9A, SV10, SV11, SVM

Storage vessel and *amphorae* fabric 1: SV1
not illustrated
A hard buff-orange fabric tending towards grey, particularly at the core, with a smooth, fairly well-burnished surface. The fabric has a toffee-like consistency, badly mixed, with voids in the core and on the surface. Close in texture and finish to R1.

Storage vessel fabric 2: SV2; Storage vessel fabric 10: SV10
Fig 363, no 266
A buff-orange well-fired fabric with a grey core and toffee-like texture, and characteristic quartz and grog inclusions, poorly mixed. The surface is soft, often slightly crazed and sometimes covered with a pale, thin cream slip (sometimes with a red painted pattern on top of this). Narrow-necked storage jars (Form 504) are the most common form. SV10 is a variation of this with a red core.

Storage vessel fabric 3: SV3
not illustrated
A moderately-fired sandy fabric with a dark buff-orange fabric and grey core. The texture is quite gritty, but the surface often flakes off, probably through excessive burnish. The fabric contains mica and well-crushed inclusions.

Storage vessel fabric 4: SV4
not illustrated
A well-fired red-buff fabric with heavy quartz and sand inclusions. The fabric is toffee-like and hard with a rough, orange-peel-like surface. It is close to the red ware fabric R3.

Storage vessel Fabric 5: SV5
not illustrated
A hard, well-fired granular grey fabric with a light grey core and dark grey surface. The inclusions include grog and burnt sand.

Soft cream Spanish *amphorae*: AMP
Fig 363, nos 271 and 272
Gauloise 4/Pélichet 47 (see Peacock and Williams 1986, 142–3, class 27).

Green *amphora* fabric, SG
not illustrated
A soft cream-green sandy *amphorae* fabric, uniform in colour.

***Amphora* fabric 6: SV6**
not illustrated
Dressel 20 fabric (see Peacock and Williams 1986, 136–40, class 25).

***Amphora* fabric 7: SV7**
not illustrated
A cream-coloured sandy *amphora* fabric.

***Amphora* fabric 8: SV8**
not illustrated
A heavy sand-gritted orange-buff *amphora* fabric, very thick, with a cream-coloured outer surface. The interior is slightly pitted with horizontal striations from the turning.

***Amphora* fabric 9A: SV9A**
not illustrated
A very coarse oxidised orange-cream fabric, thick and sandy with a gritty texture with a cream-coloured outer surface.

***Amphora* fabric 11: SV11**
not illustrated
A heavily quartz-gritted and very thick grey-cream *amphora* fabric with a cream surface and a gritty and granular fabric.

Mortaria: M2, RM1, WW1, WW2, WW2C, WW3, WW4
Distinction between the white wares is difficult and they are arranged here in broad groups.

Miscellaneous 2: M2
not illustrated
This so-called Raetian *mortarium* fabric is hard and relatively well-fired, although the surface can become soft in wet soil conditions. It is a granular fabric with a buff-orange surface, sometimes with a grey or dark grey core. The rim and interior are coloured with a reddish slip. Quartz trituration grits.

Red ware *mortaria* 1: RM1
not illustrated
This fabric has heavy quartz and sand inclusions and is normally red-buff in colour. The core can be red, orange or buff, but the surface is normally more reduced, indicating a change in conditions during firing. The surface sometimes peels off. Quartz and ironstone trituration grits.

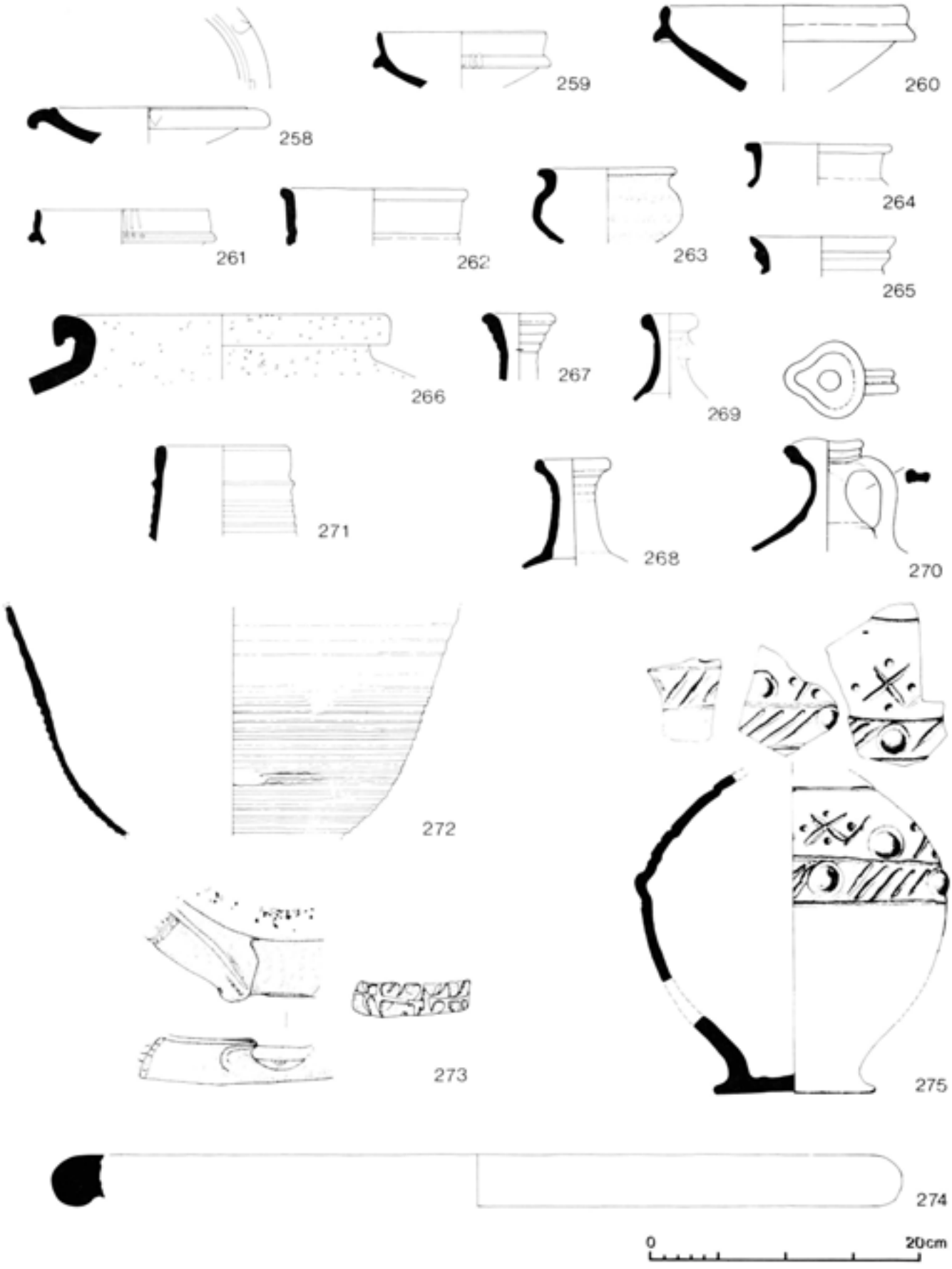


Fig 363 Pottery form series: Miscellaneous wares

Mancetter/Hartshill *mortaria*: WW1
Fig 363, no 273
A white-ware *mortarium* cream-coloured fabric, granular with a speckling of different coloured grits. The trituration grits are of ironstone and vary considerably in colour. Some are pure black, others pure red and others an admixture.

Oxfordshire white ware: WW2
not illustrated
White ware *mortaria* with well-crushed quartz trituration grits (see Young 1977, ch 5).

Oxfordshire cream-slipped *mortaria*: WW2C
not illustrated
These *mortaria* are very similar in form to the standard white ware types, but the fabric is a distinctive mid-dark grey colour, with a cream slip. Quartz trituration grits.

Oxfordshire copy white ware: WW3
not illustrated
A rare fabric close to Oxfordshire white ware, but with finely crushed quartz inclusions, which give the fabric a gritty feel.

Other white ware *mortaria*: WW4
Fig 363, no 274
Mortaria not otherwise classified are included in this category.

Fabric group IX, Samian wares

SG, CG, CEG, EG, Unk
For a more detailed discussion of the samian see the Vessel Form classification and Wild below.

Vessel forms

A wide range of vessel forms was found, representing most of the known range of forms for each of the main fabrics present. The vessel shapes have been classified according to a series of form numbers which are catalogued below. Each form number is followed by a concise description, a list of illustrated vessels and, where appropriate, a more detailed description and further discussion. A quantification tables are also included for those forms which represent 1% or more of all the pottery by sherd count, EVEs, or weight. (Please note, however, that Form 99, sherds which cannot be further classified, represent such a large proportion of the total sherd count and weight that other forms will always appear to be somewhat over-represented by EVEs. Thus, of the 26 identifiable forms which merit quantification tables, 15 represent 1% or more of the pottery by EVEs only, and only 2, Forms 505 and 690, represent 1% or more by one of the other measurements only.) Each quantification table shows the percentages present of the form in question in terms of the nine broad fabric groups, which have been described above.
The percentages are expressed in terms of the number, estimated vessel equivalents (EVEs), and weight in grammes. The percentages (shown in tables 18 and 19) have been calculated in four ways:

Horizontally by fabrics, ie the percentage of the form occurring in each broad fabric group
Vertically by fabrics, ie the percentage of all forms within each broad fabric group
Horizontally by phases, ie the percentage (by EVEs) occurring in each phase
Vertically by phases, ie the percentage (by EVEs) of all forms within each phase
Unless stated otherwise, all percentages quoted in the discussions are by EVEs.

Vessel forms identified but not otherwise classifiable

Forms 1–99: otherwise indistinguishable rim, body, base, handle and spout sherds
not illustrated
Vessel form 99 table shows the disproportionate quantity which these sherds represent of the three measurements listed below, and the way they occur across the broad range of fabric groupings, although their distribution across the phases is somewhat more consistent. Thus while Form 99 may vary from 1.6% by EVEs to 71.4% by sherd count, and from 8.2% by weight in samian ware up to 81.0% by sherd count in grey ware, the range across the phases is from 1.2% of all the pottery in Phase post-Z up to 2.4% in Phase W. (The proportions of all of Form 99, calculated horizontally across the phases in the table below, are very nearly identical to the proportions of all of the pottery from the site calculated in the same manner.)

Dishes

Abbreviation
Dr: Dragendorff 1895–6

Form 100: plain-rimmed dish; Gillam 1970, forms 324–9
Fig 350, nos 1 (I/R2) and 2 (I/R2); Fig 356, nos 112 (III/G12), 113 (III/BBA), 114 (III/BBA), and 115 (III/G11); Fig 359, no 159 (IV/CS2A), Fig 360, nos 177 (V/NVC1) and 178 (V/NVC1)
This 'simple' upright rim form, sometimes referred to as a 'dog-dish', comprises 6% of all vessels on the site, and is probably the second most common vessel-type (after Form 480). It may sometimes, as with Fig 350, no 2, have a slightly beaded (BB2-like) rim, but this is relatively rare, and it is not to be confused with the much more definitely beaded rim of Form 110. Roughly 75% of the examples occur in the Black-burnished ware grouping, but the percentage table below illustrates the broad occurrence of the form across nearly all fabrics except miscellaneous wares and samian. In red wares, the central kick of Fig 350, no 1 suggests a local version of the samian Dr 31; the examples in grey wares (not illustrated) are more likely to be local imitations of the BB1 form. In Calcite-gritted wares and especially in Nene Valley ware, however, the form is not so obviously derivative: it is a simple form, very practical for a wide range of functions. Decoration is not common: it occurs on *c* 25% of Black-burnished ware sherds, and normally consists of scribed, burnished arcs on the external walls and bases. Vessels can be quite thin and fine, and fairly short (as Fig 356, no 114) or fairly thick-walled and rather taller (as Fig 356, no 115). Its occurrence by fabrics is shown in Vessel form 100 table. See also Fig 371.

Form 101: plain-rimmed dish, with handle; Gillam 1976, fig 6, nos 85–8
Fig 356, nos 116 (III/G3), 117 (III/G12), 118 (III/G12), and 119 (III/BBA)
Sometimes referred to as a 'fish' dish, this form is often oval in shape, although the application of the handles to the walls may also deform the rondure of the vessel. In small sherds it can be confused with Form 100. It is rarely decorated and normally occurs in fairly coarse versions of BB1.
Total: 60 sherds, 5.09 EVEs, 2270g

Form 110: bead-rimmed dish/bowl
Fig 356, nos 120 (III/BBA), 121 (III/BBA), 122 (III/G11R), and 123 (III/G11A)
This BB1 form has an upright wall with beaded rim, the latter attribute being normally more pronounced than in Form 100. Scribed lattice decoration on the sides is common, occurring on roughly 60% of all sherds. Vessels can be quite thin and fine, and fairly short (as Fig 356.120) or fairly thick-walled and rather taller (as Fig 356.123): see Fig 370 and Vessel form 110 table.

Vessel form 99

Fabric group	*total*	*I*	*II*	*III*	*IV*	*V*	*VI*	*VII*	*VIII*	*IX*	*total*
99 s A	84307	33.1	12.4	28.3	6.7	4.7	2.6	5.0	5.7	1.6	100.0 *sherds*
99 e A	29.47	37.7	17.4	7.4	3.0	4.0	4.7	2.5	20.4	2.9	100.0 *EVEs*
99 w A	826931	35.2	11.2	19.9	8.4	4.2	2.7	3.9	14.1	0.5	100.0 *grammes*
99 s B		80.5	81.0	76.2	70.1	58.3	52.8	68.1	59.8	21.9	71.4
99 e B		2.2	2.7	0.5	0.4	1.2	1.7	1.0	4.7	0.9	1.6
99 w B		70.1	72.2	57.9	60.2	54.2	41.9	64.9	50.2	8.2	59.6

Phase	*pre-W*	*W*	*X*	*Y*	*pre-Z*	*Z*	*post-Z*	*unstratified*	*all phases*
99 e C	1.0	17.3	7.8	9.2	7.8	24.1	25.3	7.6	100.0
99 e D	1.3	2.4	1.9	1.5	2.0	1.6	1.2	2.1	1.6

All figures are percentages

Vessel form 100

Fabric group	*total*	*I*	*II*	*III*	*IV*	*V*	*VI*	*VIII*	*total*
100 s A	2014	1.0	5.1	78.9	2.5	12.1	0.2	0.0	100.0 *sherds*
100 e A	109.33	1.4	5.9	74.4	3.1	14.8	0.2	0.0	100.0 *EVEs*
100 w A	32281	1.4	4.6	77.5	3.5	12.8	0.2	0.0	100.0 *grammes*
100 s B		0.1	0.8	5.1	0.6	3.6	0.1	0.0	1.7
100 e B		0.3	3.4	18.1	1.8	16.9	0.3	0.0	6.0
100 w B		0.1	1.2	8.8	1.0	6.4	0.1	0.0	2.3

Phase	*pre-W*	*W*	*X*	*Y*	*pre-Z*	*Z*	*post-Z*	*unstratified*	*all phases*
100 e C	0.8	7.6	6.9	9.7	8.4	27.2	36.5	2.9	100.0
100 e D	3.9	3.9	6.3	5.8	7.9	6.8	6.5	3.0	6.0

All figures are percentages

Vessel form 110

Fabric group	*total*	*I*	*II*	*III*	*IV*	*V*	*VI*	*total*
110 s A	318	3.1	1.6	91.8	0.3	1.9	1.3	100.0 *sherds*
110 e A	18.30	4.6	1.7	89.2	0.3	2.8	1.3	100.0 *EVEs*
110 w A	4840	6.4	1.3	88.9	0.1	1.7	1.5	100.0 *grammes*
110 s B		0.0	0.0	0.9	0.0	0.1	0.1	0.3
110 e B		0.2	0.2	3.6	0.0	0.5	0.3	1.0
110 w B		0.1	0.1	1.5	0.0	0.1	0.1	0.3

Phase	*pre-W*	*W*	*X*	*Y*	*pre-Z*	*Z*	*post-Z*	*unstratified*	*all phases*
110 e C	3.0	12.5	2.8	17.5	2.4	27.0	28.8	5.9	100.0
110 e D	2.3	1.0	0.4	1.7	0.4	1.1	0.8	1.0	1.0

All figures are percentages

Vessel form 120

Fabric group	*total*	*I*	*II*	*III*	*IV*	*VI*	*VII*	*total*
120 s A	813	3.7	4.9	90.0	0.2	0.1	1.0	100.0 *sherds*
120 e A	50.67	3.1	6.1	90.0	0.2	0.3	0.3	100.0 *EVEs*
120 w A	16259	3.0	5.3	91.2	0.1	0.2	0.3	100.0 *grammes*
120 s B		0.1	0.3	2.3	0.0	0.0	0.1	0.7
120 e B		0.3	1.6	10.1	0.1	0.2	0.2	2.8
120 w B		0.1	0.7	5.2	0.0	0.0	0.1	1.2

Phase	*pre-W*	*W*	*X*	*Y*	*pre-Z*	*Z*	*post-Z*	*unstratified*	*all phases*
120 e C	4.1	15.2	4.3	14.4	3.1	22.9	28.4	7.6	100.0
120 e D	9.0	3.6	1.8	4.0	1.3	2.7	2.3	3.6	2.8

All figures are percentages

Form 120: flat-rimmed dish/bowl
Fig 350, no 3 (I/R5); Fig 356, nos 124 (III/BBA), 125 (III/BBA), and 126 (III/BBA)
This flat out-turned rim form occurs principally in BB1. The join of the wall to the base can be curved, as Fig 350, no 3, or chamfered, as Fig 356, nos 125 and 126, or plain, as Fig 356, no 124. Roughly 55% of the examples occur with scribed lattice or arcaded decoration. Elsewhere this has been shown to be a relatively early BB1 form, being most common at Colchester before the middle of the second century (Symonds 1991, 147, fig 9, GA Types 40–44). It is therefore present in surprisingly large quantities at Wroxeter: 2.8% of all of the pottery by EVEs is the equivalent of some 50.67 EVEs; see Fig 370 and Vessel form 120 table.

Form 130: flat/rounded-rimmed dish/bowl, with grooved rim
Fig 356, nos 127 (III/BBA) and 128 (III/G12)
It has been suggested that this grooved-rimmed dish is typologically transitional between flat-rimmed dishes (Form 120) and flanged bowls (Form 160, for example), but it is rare at Wroxeter.
Total: 126 sherds, 7.31 EVEs, 2166g.

Form 140: rounded-rimmed dish/bowl
Fig 350, no 4 (I/R1); Fig 357 nos 129 (III/BBC), 130 (III/G8), 131 (III/G8), and 132 (III/G8)
An exaggerated version of Form 110. This is an unusual instance of a type which is apparently greatly over-represented in the type series, in relation to the small number of examples recorded. It seems that the form only became clearly defined in the later stages of recording, and it is likely that many examples which latterly would have been classified as Form 140 were earlier classified elsewhere, probably mainly as Form 110. Unfortunately the problem was not recognised until long after it would have been possible to rectify it.
Total: 9 sherds, 0.56 EVEs, 439g.

Form 150: Dr 31-type dish; Young 1977, form C45/C46 (dated *c* 270/340–400+)
Fig 350, nos 5 (I/R2) and 6 (I/R1); Fig 361, no 199 (VI/OX1)
This form occurs mainly in Oxfordshire ware, but surprisingly nearly all the remainder (7.4%) are in red wares. It is not among the forms illustrated by Webster (1976) or Timby (1990), although Fig 350, no 6 is unusual, and could be seen as somewhere between Webster's forms 66 and 68. Webster remarks that the latter vessel 'is probably related to the hammer-headed *mortarium*' (Webster 1976, 35), which is certainly a considerable typological leap from a Dr 31!
Total: 135 sherds, 9.35 EVEs, 2312g.

Form 160: flanged bowl
Fig 354, nos 82 (II/G5), 83 (II/M1), and 84 (II/G5); Fig 357, nos 133 (III/G3), 134 (III/G12), 135 (III/BBA), 136 (III/G8), 137 (III/G8), 138 (III/G12), 139 (III/G12), and 140 (III/BBA); Fig 360, nos 179 (V/NVC1), 180 (V/NVC2), and 181 (V/NVC1)
The flanged bowl is most commonly found in BB1, where it is probably the latest of the BB1 dish/bowl forms. As the range of illustrations and the table below show, however, flanged bowls also occur in all the other broad fabric groups, with significant numbers in grey wares and Nene Valley wares. It is undoubtedly of some significance that many examples recorded in Fabric Group III (Black-burnished wares), including six of the eight illustrated examples, are actually in variant fabrics (such as G3, G8 and G12). While it is not certain that these are all imitations rather than variations of genuine BB1, and it is true that these vessels are generally much closer to BB1 than the pieces recorded as grey wares (Fabric Group II), it may be that these represent a better-quality local imitation of BB1 than has hitherto been recognised. It seems likely that the most genuine BB1 examples, decorated with scribed, burnished arcs, may be somewhat earlier in date than the plain imitations (Symonds 1991, 147, fig 9, GA types 61–73). Also worth noting is the somewhat unusual version of flanged bowl, Fig 354, no 84; this form is found, albeit rarely, in grey wares in the East Midlands (B Davies, personal comment), at Colchester (Symonds and Wade, forthcoming, GX no 159), and as far afield as Saintes, in Aquitaine (Santrot and Santrot 1988, 246–7, forme S519, pl 13, no 129), where the complete form is revealed as a tripod bowl; see Fig 371 and Vessel form 160 table.

Form 170: flanged bowl
Fig 359, nos 160 (IV/CS4A), 161 (IV/CS4A), and 162 (IV/CS4A)
This form is found almost exclusively in Calcite-gritted ware. It may have developed from the BB1 flanged type, but does not occur at Wroxeter in large numbers by comparison with that form. It is, nevertheless, a form which is found across Britain in the late fourth century, with examples dated to the mid fourth century or later having been found at North Kent, London, Colchester, Chelmsford, Burgh Castle, Shakenoak, and Towcester (all referred to in Symonds and Wade forthcoming, fabric HD, Types 15–16). That it is a late form at Wroxeter seems to be confirmed by the occurrence of roughly 85% of the examples in Phases Z and post-Z. The only decoration is horizontal rilling.
Total: 180 sherds, 14.21 EVEs, 5158g.

The discussion below of Figs 366, 367, and 370 suggests that apart from an apparent reversal of Phases X and Y, there is a chronological progression in the phases such that bead-rimmed and flat-rimmed bowls (Forms 110 and 120) are predominantly early, while plain-rimmed and flanged bowls (Forms 100 and 160; Fig 371) are later. A similar picture appears in forms 411, the early jar and 420, the late jar. However, taken together, all these graphs appear to suggest that the behaviour of Phases pre-Z, Z, and post-Z may be anomalous.

Dishes/bowls

Form 180: Curle 11-type (Oswald and Pryce 1920, pl 71, 9–14) dish/bowl
Fig 350, nos 7 (I/R4), 8 (I/R2), 9 (I/R2, with white painted decoration), and 10 (I/R1); Fig 363, no 258 (VIII/WW6, with brown painted decoration)
This form occurs in (lower) Severn Valley ware (apart from one sherd recorded in Fabric Group VII), where it is described by Webster as a segmental bowl, and 'a common second-century form in other fabrics' (Webster 1976, 35, form 65). However, neither Webster 1972, fig 4, no 49; nor Rawes 1982, fig 6, no 123 mention the possibility of painted decoration on the flange, which is a common Oxfordshire style found on Oxfordshire versions of Dr 38 and Young 1977, forms C49 and C50 (dated *c* 240/325–400+). The form is essentially a Dr 35/36 with an incipient rim (the original samian version being frequently decorated with barbotine), or a Dr 38 with short or non-existent rim.
Total: 49 sherds, 2.87 EVEs, 663g.

Form 200: Dr 38-type flanged bowl; Young 1977 forms C51–C53 (dated *c* 240/350–400+);
Fig 350, nos 11 (I/R2) and 12 (I/R2);Fig 361, nos 200 (VI/M8), 201 (VI/NVA), 202 (VI/NVA), 203 (VI/NVA) and 204 (VI/NVA); Fig 363 nos 259 (VIII/WW5), 260 (VIII/PWD), 261 (VIII/WW5)
Versions of the samian Dr 38, a bowl with a flange set well below a plain upright rim, were made at many production centres across Roman Britain from the mid second century to the fourth.

Vessel form 160

Fabric group	*total*	*I*	*II*	*III*	*IV*	*V*	*VI*	*VII*	*VIII*	*total*
160 s A	1367	0.7	12.0	66.1	0.6	19.8	0.4	0.3	0.1	100.0 *sherds*
160 e A	106.09	0.7	12.5	62.8	0.5	22.2	0.6	0.3	0.3	100.0 *EVEs*
160 w A	38988	0.4	12.3	64.2	0.5	21.8	0.4	0.2	0.2	100.0 *grammes*
160 s B		0.0	1.3	2.9	0.1	4.0	0.1	0.1	0.0	1.2
160 e B		0.2	7.0	14.8	0.3	24.6	0.8	0.4	0.3	5.8
160 w B		0.0	3.8	8.8	0.2	13.3	0.3	0.2	0.0	2.8

Phase	*W*	*X*	*Y*	*pre-Z*	*Z*	*post-Z*	*unstratified*	*all phases*
160 e C	2.9	6.7	8.2	7.1	25.6	46.7	2.8	100.0
160 e D	1.4	5.9	4.8	6.5	6.2	8.1	2.8	5.8

All figures are percentages

Vessel form 200

Fabric group	*total*	*I*	*II*	*III*	*V*	*VI*	*VII*	*VIII*	*total*
200 s A	978	36.4	0.5	0.1	9.4	51.7	0.9	0.9	100.0 *sherds*
200 e A	34.85	50.4	0.3	-	9.8	36.8	1.3	1.5	100.0 *EVEs*
200 w A	18449	39.1	0.4	0.1	10.8	47.0	1.3	1.3	100.0 *grammes*
200 s B		1.0	0.0	0.0	1.4	12.1	0.1	0.1	0.8
200 e B		3.5	0.0	-	3.6	15.7	0.6	0.4	1.9
200 w B		1.7	0.1	0.0	3.1	16.2	0.5	0.1	1.3

Phase	*pre-W*	*W*	*X*	*Y*	*pre-Z*	*Z*	*post-Z*	*unstratified*	*all phases*
200 e C	4.4	15.8	6.4	10.4	4.7	19.7	34.9	3.8	100.0
200 e D	6.5	2.6	1.9	2.0	1.4	1.6	2.0	1.2	1.9

All figures are percentages

Although we have not separated the numbers of examples found in genuine samian ware for the table below, in our material such vessels accounted for no more than 3% of all Dr 38-type bowls. A majority are associated with red wares (Fig 368), with large numbers in Oxfordshire red and brown colour-coated ware and almost 10% in Nene Valley colour-coated ware. It should be noted, however, that the red ware examples, such as Fig 350, nos 11 and 12, often have a shorter, flatter flange than the normal samian version, and these are likely to be earlier than the bowls with longer curved flanges. This also seems to have been the case with local versions at Colchester (Symonds and Wade forthcoming, fabrics MP and MQ), and lower Severn Valley versions have been illustrated by Webster (1976, forms 62–4). Painted decoration, usually whorls imitating barbotine decoration, is found most often on the Oxfordshire versions of the form; see Vessel form 200 table.

Form 203: Wall-sided flanged bowl
not illustrated
Sherds in Fabric Groups I, V and VI.
Total: 3 sherds, 0.06 EVEs, 96g.

Form 205: Ritt 12/Curle 11-type flanged bowl, Ritterling 1913 (Hofheim I)
not illustrated
Four of the sherds are in red wares; the others are in Fabric Groups VI (2s) and VII (1s).
Total: 7 sherds, 0.47 EVEs, 170g.

Form 210: flanged bowl, with internal lip
Fig 350, nos 13 (I/R1), 14 (I/R2), 15 (I/R1), and 16 (I/R1)
This form has a curved wall and a thickened in-turned rim. This seems to be one of the more generally widespread Severn Valley forms, corresponding to Webster (1976) forms 45–53. It is found exclusively in the red ware fabrics R1–R4.
Total: 89 sherds, 7.21 EVEs, 2252g.

Form 211: as Form 210, but with groove on rim
Fig 350, nos 17 (I/R1 with rivet) and 18 (I/GR1); Fig 362, no 224 (VII/RC1)
Also entirely in red and grey wares, although Fig 362, no 224 has a cream slip.
Total: 30 sherds, 2.58 EVEs, 764g.

Form 212: as Form 210, but with multiple grooves on rim
not illustrated
Total: 7 sherds, 0.55 EVEs, 183g.

Form 220: dish/bowl with broad curving rim; Young 1977 forms C49/C50 (dated *c* 240/325–400+)
Fig 361, nos 205 (VI/OX1) and 206 (VI/NVA)
Normally decorated with white whorls on the rim. Total: 11 sherds, 0.72 EVEs, 211g.

Bowls

Form 230: Dr 30-type bowl
Fig 354, no 85 (II/G13); Fig 363 no 262 (VIII/WW6)
This cylindrical bowl is not normally slipped, although sometimes white paint occurs. It appears mainly in red or grey wares, although Fig 363, no 262 is a less common example in buff ware with just a hint of a brown-painted decoration at the edge of the sherd.
Total: 32 sherds, 2.24 EVEs, 409g.

Form 232: vertical-walled bowl, with decoration; Young 1977 forms C81–C83 (dated *c* 300/325–400+)
Fig 360, no 182 (V/NVC3); Fig 361, nos 207 (VI/OX1) and 208 (VI/OX1)
The example in Nene Valley ware, Fig 360, no 182, is rouletted, in the manner of Argonne samian prototypes, while most of the remainder are Oxfordshire examples with white-painted barbotine decoration.
Total: 6 sherds, 0.28 EVEs, 69g.

Form 233: as Form 232, but plain
Fig 361, nos 209 (VI/OX1) and 210 (VI/OX1)
Mainly occurring in Oxfordshire ware (roughly 25% occur in red wares), these plain versions of the form are, surprisingly, much more common than the decorated versions.
Total: 228 sherds, 14.28 EVEs, 3288g.

Form 239: 'Severn Valley' tankard
Fig 350, nos 19 (I/R1), 20 (I/R1), 22 (I/R1)
These are often regarded as a classic 'Severn Valley' (Red ware) form (Fig 368). The most common version has a single handle and burnished lattice decoration, but many are plain. It has been suggested (Webster 1975; 1976, forms 38–44) that the more flared examples are a later variant, but it is impossible to confirm or deny this here. They occur by fabrics as shown in Vessel form table 239.

Form 240: vertical-sided bowl with plain out-turned rim
not illustrated
It occurs only in local wares, with a ratio of red to grey wares of roughly 60/40.
Total: 190 sherds, 13.58 EVEs, 3371g.

Form 241: as Form 240, but with internal groove
Fig 351, no 23 (I/R2)
The fabric distribution is much as Form 240, but with slightly more examples in red wares.
Total: 67 sherds, 4.56 EVEs, 1176g.

Form 242: as Form 240, but with external groove
Fig 351, no 24 (I/R2)
Here the fabric distribution is very nearly 50/50 between red and grey ware examples.
Total: 97 sherds, 7.21 EVEs, 1730g.

Form 243: as Form 240, but with both internal and external grooves
not illustrated
Five sherds in grey wares and four in red wares. Total: 9 sherds, 0.59 EVEs, 116g.

Form 244: carinated bowl
Fig 351, nos 25 (I/R2) and 26 (I/R6)
The carinated bowls recorded in this category are clearly related to those in Forms 240–3, and occur with some variety of shape. 90% are in red wares, the rest in grey; the form is probably mainly second century, by comparison with similar forms in oxidised wares found elsewhere (at Colchester, for example, Symonds and Wade forthcoming fabric DJ Types 53–4).
Total: 79 sherds, 4.15 EVEs, 1323g.

Form 250: upright-carinated bowl
Fig 354, no 86 (II/G5); Fig 360, no 183 (V/NVC1); Fig 362, nos 225 (VII/RC1), 226 (VII/RC1), 227 (VII/RC1)
These bowls, which have a thickened and sometimes internally hollowed rim, occur mainly in cream-slipped ware. Some are decorated with rouletted decoration on the upright walls above the carination. Fig 360, no 183 is a Nene Valley version of an Oxfordshire 'parchment ware' bowl (Form 720); some Oxfordshire examples of this form may have been recorded as cream-slipped wares here.
Total: 193 sherds, 8.59 Eves, 2702g.

Form 260: wide-mouthed jar/bowl, with everted and beaded or thickened rim
Fig 360, no 184 (V/NVC1)
This is mainly a local red ware form, but substantial numbers also occur in grey wares and Nene Valley colour-coated ware (Fig 369). As shown in Vessel form 260 table.

Form 270: wide-mouthed jar with thickened, flattened rim
not illustrated
More than 90% occur in red wares, with the rest in grey wares and cream-slipped wares.
Total: 126 sherds, 8.35 EVEs, 2335g.

Form 280: reeded-rimmed bowl
Fig 351, nos 27 (I/R2), 28 (I/R1), 29 (I/R2), and 30 (I/R2)
This form has a flattened rim with one or more grooves on the top. To judge by the number of examples illustrated by Webster (1977, fig 9) and Rawes (1982, fig 6), this is a relatively common form in lower Severn Valley wares. Here, nearly 90% occur in red wares, with 10% in grey wares, and one sherd in cream-slipped ware.
Total: 74 sherds, 6.59 EVEs, 2826g.

Form 290: reeded-rimmed bowl, with rounded rim
Fig 351, no 31 (I/R1)
This is a variation of Form 280, with hooked or grooved rim. Its fabric distribution is almost identical to that of Form 280.
Total: 15 sherds, 1.06 EVEs, 252g.

Form 300: curved-walled bowl, with plain rim
Fig 351, no 32 (I/R1) and Fig 354, no 87 (II/G13)
This is mainly a red ware form, but just under 15% of the examples are in grey wares, and under 12% are in Oxfordshire ware, with a handful of examples in Calcite-gritted ware, Nene Valley ware, and cream-slipped ware.
Total: 121 sherds, 8.29 EVEs, 1533g.

Form 301: curved-walled bowl, with beaded rim
Fig 351, nos 33 (I/R2), 34 (I/R4), 35 (I/R1), and 36 (I/R2)
Bead-rimmed, curve-sided bowl. More than 90% of the examples are in red wares, some with hatched decoration. As with Form 300, however, the remainder are spread across nearly all the other fabrics.
Total: 146 sherds, 9.95 EVEs, 1471g.

Form 302: curved-walled bowl, with external groove
Fig 351, nos 37 (I/GR1), 38 (I/R1), 39 (I/R3), and 40 (I/R2); Fig 361, no 211 (VI/M8)
Examples of this form come as close to the samian Dr 37 as any form in Severn Valley, as has been observed by Webster (1976, form 61). The similarity is confined to the shape, however: the red ware examples here are seldom decorated in any manner.
Total: 96 sherds, 6.91 EVEs, 1661g.

Form 310: curved-walled bowl, cordoned neck; Young 1977 forms C77–C79 (dated *c* 340–400+)
Fig 361, nos 212 (VI/OX1) and 213 (VI/OX1)
Some examples are rouletted immediately under the rim. Exclusively in Oxfordshire red/brown colour-coated ware.
Total: 92 sherds, 5.30 EVEs, 835g.

Form 311: similar bowl to Form 310, but with cordons at mid-body; Young 1977 form C84 (dated *c* 350–400+)
Fig 361, no 214 (VI/OX1)
Most examples are decorated with rouletting and/or stamped decoration. Exclusively in Oxfordshire red/brown colour-coated ware.
Total: 7 sherds, 0.43 EVEs, 63g.

Form 312: similar bowl to Form 310, but with bifid rim; mainly Young 1977 forms C71–73 (dated *c* 270/300–400+)
Fig 361, nos 215 (VI/OX1), 216 (VI/OX1), and 217 (VI/OX3)
Some examples are rouletted immediately under the rim. While most are in Oxfordshire red/brown colour-coated ware, some 13% are in Nene Valley colour-coated ware.
Total: 62 sherds, 3.97 EVEs, 890g.

Vessel form 239

Fabric group	*total*	*I*	*II*	*III*	*total*				
239 s A	272	98.9	0.7	0.4	100.0 *sherds*				
239 e A	18.93	99.4	0.3	0.3	100.0 *EVEs*				
239 w A	5879	99.7	0.1	0.2	100.0 *grammes*				
239 s B		0.8	0.0	0.0	0.2				
239 e B		3.8	0.0	0.0	1.0				
239 w B		1.4	0.0	0.0	0.4				
Phase	*pre-W*	*W*	*X*	*Y*	*pre-Z*	*Z*	*post-Z*	*unstratified*	*all phases*
239 e C	7.0	21.9	4.5	19.4	2.5	16.5	20.5	7.6	100.0
239 e D	5.7	1.9	0.7	2.0	0.4	0.7	0.6	1.3	1.0

All figures are percentages

Vessel form 260

Fabric group	*total*	*I*	*II*	*V*	*VI*	*total*			
260 s A	450	76.9	9.6	13.1	0.4	100.0 *sherds*			
260 e A	33.22	73.0	11.4	15.0	0.6	100.0 *EVEs*			
260 w A	8686	75.8	12.7	11.2	0.3	100.0 *grammes*			
260 s B		1.0	0.3	0.9	0.0	0.4			
260 e B		4.9	2.0	5.2	0.2	1.8			
260 w B		1.6	0.9	1.5	0.1	0.6			
Phase	*pre-W*	*W*	*X*	*Y*	*pre-Z*	*Z*	*post-Z*	*unstratified*	*all phases*
260 e C	0.5	4.8	7.3	8.5	7.3	29.2	36.9	5.5	100.0
260 e D	0.6	0.7	2.0	1.6	2.1	2.2	2.0	1.7	1.8

All figures are percentages

Form 313: other open hemispherical bowl
Fig 360, nos 185 (V/NVC1) and 186 (V/NVC1); Fig 361, nos 218 (VI/OX1); and Fig 362, no 239 (VII/CCC)
While this is also primarily an Oxfordshire form, no more than 65–70% of the examples are in that fabric, with roughly 25% in Nene Valley ware and small numbers also found in red wares, grey wares, and cream-slipped wares.
Total: 87 sherds, 6.14 EVEs, 1586g.

Form 319: other Oxfordshire-type bowls
not illustrated
Total: 205 sherds, 2.60 EVEs, 2132g.

Bowls/jars

These vessels have a rim diameter approximately equal to the height and normally some form of 'S' profile. The rim may be less or more flared, and according to Webster (1976, form 19–33) the later (lower Severn Valley) types are generally more flared than the earlier ones. Rim diameters range from roughly 110mm to more than 200mm. These variations are classified as Forms 330–80.

Form 330: wide-mouthed bowl/jar, with simple everted rim
Fig 351, no 41 (I/R1); Fig 363, no 263 (VIII/PWD)
Almost exclusively in red wares, although the latter illustrated vessel is in a buff 'parchment ware' fabric with worn pale brown horizontal painted bands.
Total: 205 sherds, 16.56 EVEs, 3403g.

Form 335: as Forms 330 and 340–70, but with rim not complete
not illustrated
Total: 30 sherds, 1.44 EVEs, 384g.

Form 340: waisted bowl with S-shaped profile and everted rim
not illustrated
This variant is found almost exclusively in the grey wares (G1, G5, G6). The form is not normally decorated but the contraction at the waist can be quite exaggerated. See Vessel form 340 table.

Form 350: as Form 330, but with pointed, beaded rim
All of the examples are in red wares, except one in grey ware.
Total: 70 sherds, 5.18 EVEs, 1928g.

Form 355: wide-mouthed collar-necked jar/bowl
Fig 351, no 42 (I/R1)
This is a large vessel with an outwardly flaring rim. Although the illustrated vessel is in red ware, 11 of the 13 recorded sherds are in Calcite-gritted ware.
Total: 13 sherds, 1.10 EVEs, 537g.

Form 360: wide-mouthed jar/bowl, with hooked rim turned over
Fig 351, nos 43 (I/R1), 44 (I/R1), 45 (I/R1)
This form occurs mainly in red wares, but three sherds were recorded in grey wares.
Total: 22 sherds, 1.53 EVEs, 363g.

Form 370: as Form 330, but with everted, hooked rim
not illustrated. See Vessel form 370 table.

Form 372: as Form 355 above, but with a thickened and exaggerated rim
not illustrated
Two of the six sherds are in red wares, two are in grey wares, and two are in Nene Valley ware.
Total: 6 sherds, 0.51 EVEs, 160g.

Vessel form 340

Fabric group	*total*	*I*	*II*	*total*					
340 s A	635	2.0	98.0	100.0 *sherds*					
340 e A	53.65	2.0	98.0	100.0 *EVEs*					
340 w A	7757	2.3	97.7	100.0 *grammes*					
340 s B		0.0	4.8	0.5					
340 e B		0.2	27.6	3.0					
340 w B		0.0	5.9	0.6					
Phase	*pre-W*	*W*	*X*	*Y*	*pre-Z*	*Z*	*post-Z*	*unstratified*	*all phases*
340 e C	1.2	17.1	5.7	12.7	3.3	19.5	34.3	6.2	100.0
340 e D	2.7	4.3	2.6	3.8	1.5	2.4	3.0	3.1	3.0

All figures are percentages

Vessel form 370

Fabric group	*total*	*I*	*II*	*VII*	*total*				
370 s A	285	97.2	2.5	0.4	100.0 *sherds*				
370 e A	23.32	97.0	3.0	-	100.0 *EVEs*				
370 w A	6987	96.8	3.0	0.1	100.0 *grammes*				
370 s B		0.8	0.1	0.0	0.2				
370 e B		4.5	0.4	-	1.3				
370 w B		1.6	0.2	0.0	0.5				
Phase	*pre-W*	*W*	*X*	*Y*	*pre-Z*	*Z*	*post-Z*	*unstratified*	*all phases*
370 e C	1.4	5.7	5.1	6.0	6.7	31.1	39.5	4.4	100.0
370 e D	1.4	0.6	1.0	0.8	1.3	1.7	1.5	1.0	1.3

All figures are percentages

Vessel form 390

Fabric group	*total*	*I*	*II*	*III*	*IV*	*total*			
390 s A	458	0.7	7.2	91.3	0.9	100.0 *sherds*			
390 e A	34.71	1.5	7.4	89.9	1.2	100.0 *EVEs*			
390 w A	5481	1.3	6.6	91.0	1.1	100.0 *grammes*			
390 s B		0.0	0.3	1.3	0.0	0.4			
390 e B		0.1	1.4	6.9	0.2	1.9			
390 w B		0.0	0.3	1.8	0.1	0.4			
Phase	*pre-W*	*W*	*X*	*Y*	*pre-Z*	*Z*	*post-Z*	*unstratified*	*all phases*
390 e C	4.4	16.1	6.1	17.8	3.8	19.9	22.5	9.4	100.0
390 e D	6.5	2.6	1.8	3.4	1.1	1.6	1.3	3.0	1.9

All figures are percentages

Form 380: large, wide-mouthed bowl/jar; Webster 1976, form 22
Fig 352, nos 46 (I/R2), 47 (I/R2), 48 (I/R2), 49 (I/R1), 50 (I/R2), 51 (I/R1), and 88 (II/G4); Fig 354, nos 89 (II/G4) and 90 (II/G7)
This is an enlarged version of Form 330, which occurs almost exclusively in red wares (96%), with four sherds in grey wares. The rim diameters normally range from 250 to 350mm, but smaller ones are known (Fig 354, no 88). They are thick-walled, often with an exaggerated everted rim.
Total: 112 sherds, 8.61 EVEs, 5539g.

Jars

Form 390: bead-rimmed jar
Fig 354, no 91 (II/G1); Fig 357, nos 141 (III/G11A) and 142 (III/G12G); Fig 359, no 163 (IV/CM1)
This is a simple upright rim or bead-rimmed jar form which occurs mainly in Black-burnished-type wares (Fig 370). In the latter wares, the rim usually has a small diameter (40mm–80mm) and the fabric is often quite fine. The occurrence by fabrics is shown below. As can be seen from Fig 370 while Forms 390 and 411 are apparently early, Form 420 (Fig 371) is later, or so it would seem from Phase pre-W up to Phase X, with Phases X and Y reversed. See Vessel form 390 table.

Form 391: bead-rimmed jar, with handle(s)
Fig 357, nos 143 (III/BBA), 144 (III/BBA), 145 (III/BBA)
This is a relatively rare version of Form 390, with one or two handles: small examples with one handle are essentially Gillam form 64, but in fact there is not as much difference as there might at first seem, apart from size, between our three illustrated examples.
Total: 8 sherds, 0.61 EVEs, 499g.

Form 395: upright-rimmed jar
Fig 352, no 52 (I/R2)
This form is mainly associated with red wares, but one piece has been recorded in Oxfordshire ware.
Total: 6 sherds, 1.08 EVEs, 158g.

Form 401: hooked-rimmed jar
Fig 359, nos 164 (IV/CSM) and 165 (IV/CSM)
This is a hooked-rimmed version of Form 440. 90% of the examples are in Calcite-gritted ware, with the rest in grey ware.
Total: 33 sherds, 2.62 EVEs, 678g.

Form 402: hooked-rimmed jar, with horizontal rilling
Fig 359, nos 166 (IV/CS2B), 167 (IV/CS2A), 168 (IV/CS2A)
This is a hooked-rimmed version of Form 441. In general the hooked-rimmed versions of these jars are somewhat less common than those with plain everted rims, although it should be clear from the illustrations on Fig 359 that the distinction may be quite subtle (see Fig 372). See Vessel form 402 table.

Form 410: everted-rimmed jar, with decorated neck
Fig 358, no 146 (III/BBA)
This exclusively BB1 jar normally has acute lattice encircling the body from shoulder to just above the base, and a wavy scribed line just under the rim. It is normally associated with the second century (Symonds 1991, 147, fig 9, GA Types 111–18).
Total: 167 sherds, 8.98 EVEs, 2407g.

Form 411: everted-rimmed jar, with plain neck
Fig 358, nos 147 (III/BBA), 148 (III/G11A), 149 (III/BBA), and 150 (III/BBA)
Also with acute lattice encircling the body. The illustrated examples show that the transition from Form 411 to Form 420 was perhaps not as abrupt at Wroxeter as it may have been elsewhere: clearly the shortening and re-orientation of the lattice, along with the re-orientation of the rim, was a process which did not necessarily happen in a single event, from one vessel to the next, and therefore some sherds can be difficult to classify if they appear to combine both earlier and later attributes (Fig 370). The occurrence by fabrics is shown in Vessel form 411 table.

Form 412: as Forms 410/411, but with neck/rim not present
not illustrated
Occurs mainly in Fabric Group III, but one sherd in Group I and five in Group II.
Total: 35 sherds, 1.94 EVEs, 392g.

Form 420: flaring, everted-rimmed jar
Fig 358, nos 151 (III/BBA), 152 (III/G11R), 153 (III/BBA), 154 (III/BBA), 155 (III/BBA), 156 (III/BBA), and 157 (III/BBA)
This latest of the Black-burnished ware jars is characterised by the broad, flaring rim and obtuse lattice at the shoulder which normally fills a rather narrower band than that of the acute lattice of Forms 410/411. As noted above, however, the transition between the latter forms and this form may not have been as abrupt as their respective definitions might suggest (Fig 371). Their occurrence by fabrics is shown in Vessel form 420 table.

Form 430: plain everted-rimmed jars
not illustrated
This is essentially a catch-all category, which includes vessels in every broad fabric group except samian, but the majority of the vessels are locally-made cooking pots in red and grey wares, and in Calcite-gritted wares; see Vessel form 402 table.

Form 431: thickened everted-rimmed jar
Fig 359, nos 169 (IV/CM1) and 170 (IV/CS4A)
The thickened-rimmed version of Form 430, also occurring in all fabric groups except samian, although this form is much more prevalent in Black-burnished ware, and much less so in Calcite-gritted ware. The ratio of weight to EVEs for both Forms 430 and 431 (see tables) shows that most of the recorded examples were rims with little or no accompanying body: the bodies of these vessels must account for a large proportion of the sherds and weight recorded in Form 99. See Vessel form 431 table.

Form 440: triangular-rimmed jar
Fig 352, nos 53 (I/R2), 54 (I/R2), and 55 (I/R1); Fig 359, no 171 (IV/CS2B)
Although three of the four illustrated vessels are in red wares, this form has actually been recorded far more commonly in Calcite-gritted ware (Fig 372). However, this may reflect the possibility that many examples in red wares have been assumed to have belonged to narrow-mouthed jars, such as Form 480, when only the top of the rim is present. Thus red ware examples may well be under-represented in Vessel form 440 table.

Form 441: triangular-rimmed jar, with horizontal rilling
Fig 354, nos 92 (II/M4) and 93 (II/M1); Fig 359, no 172 (IV/CS4A)
This is the most common Calcite-gritted ware jar form (Fig 372), although in a manner similar to Form 440 it also occurs in grey wares. The rims normally range from 70mm to 130mm in diameter. Their occurrence by fabrics is shown in Vessel form 441 table.

Form 460: lid-seated jar
Fig 352, no 56 (I/R8); Fig 354, nos 94 (II/DW), 95 (II/DW), 96 (II/M4), and 97 (II/M4); Fig 359, no 173 (IV/CS1)
Lid-seated jars are found in red wares, Derbyshire ware (DW; Fig 354, no 95) and other grey wares, Malvernian (CM1) and other Calcite-gritted ware, and a few sherds have been recorded in Fabric Groups III, VI, and VIII.
Total: 63 sherds, 6.15 EVEs, 1421g.

Form 470: everted-rimmed jar, with internal groove Fig 359, nos 174 (IV/CSM) and 175 (IV/CM1)
It occurs mainly in Malvernian Calcite-gritted ware (CM1), although more than 22% of the examples are in grey wares, and there are a few sherds in Fabric Groups VI and VII. Total: 18 sherds, 1.51 EVEs, 289g.

Form 480: narrow-necked jar
Fig 352, nos 57 (I/R1), 58 (I/R1), 59 (I/R4), 60 (I/R2); Fig 354, nos 98 (II/G4), and 99 (II/G7); Fig 359, no 176 (IV/CS1); Fig 363, nos 264 (VIII/WW6) and 265 (VIII/WW6)
This version of narrow-necked jar is usually plain, although some red ware examples have a cordon at the neck. As we have observed above (Form 440), the identification of a 'narrow neck' can be difficult if the shoulder is not present, and the diameters of this form do vary considerably. This is the most common form on the site (Fig 368), and it occurs in a wide variety of fabrics as shown in Vessel form 480 table.

Form 481: bifid-rimmed, narrow-necked jar, with frilling
Fig 352, no 61 (I/R2)
This is a characteristically 'Severn Valley' type found almost entirely in red wares, although a handful of sherds have been recorded in grey wares, Black-burnished wares and Calcite-gritted wares. The rim is frilled by horizontal slashing, but sometimes with plastic additions, and a variety of patterns have been observed.
Total: 99 sherds, 13.31 EVEs, 2061g.

Form 482: bifid-rimmed, narrow-necked jar, plain
Fig 352, nos 62 (I/R1), 63 (I/R1), and 64 (I/GR1); Fig 354, nos 100 (II/G5)
This plain version of Form 481 is much the more common of the two, and it occurs in a broad range of fabrics (Fig 369), although an equal proportion are in red wares, as shown in Vessel form 482 table.

Vessel form 402

Fabric group	*total*	*II*	*IV*	*VIII*	*total*				
402 s A	205	1.5	98.0	0.5	100.0 *sherds*				
402 e A	20.59	1.8	97.9	0.3	100.0 *EVEs*				
402 w A	5157	1.3	98.5	0.2	100.0 *grammes*				
402 s B		0.0	2.5	0.0	0.2				
402 e B		0.2	10.4	0.1	1.1				
402 w B		0.1	4.4	0.0	0.4				
Phase	*pre-W*	*W*	*X*	*Y*	*pre-Z*	*Z*	*post-Z*	*unstratified*	*all phases*
402 e C	0.0	0.0	8.1	4.2	7.9	37.0	40.0	2.8	100.0
402 e D	0.0	0.0	1.4	0.5	1.4	1.7	1.3	0.5	1.1

All figures are percentages

Vessel form 411

Fabric group	*total*	*I*	*II*	*III*	*total*				
411 s A	1668	0.3	2.6	97.1	100.0 *sherds*				
411 e A	94.94	0.5	2.9	96.6	100.0 *EVEs*				
411 w A	16847	0.7	2.0	97.3	100.0 *grammes*				
411 s B		0.0	0.3	5.2	1.4				
411 e B		0.1	1.4	20.4	5.2				
411 w B		0.0	0.3	5.8	1.2				
Phase	*pre-W*	*W*	*X*	*Y*	*pre-Z*	*Z*	*post-Z*	*unstratified*	*all phases*
411 e C	2.4	15.0	6.3	10.4	6.9	27.9	25.6	5.5	100.0
411 e D	9.6	6.7	5.0	5.4	5.6	6.1	4.0	4.9	5.2

All figures are percentages

Vessel form 420

Fabric group	*total*	*II*	*III*	*IV*	*total*				
420 s A	1250	1.3	98.6	0.2	100.0 *sherds*				
420 e A	80.53	1.7	98.1	0.2	100.0 *EVEs*				
420 w A	19237	1.6	98.0	0.4	100.0 *grammes*				
420 s B		0.1	3.9	0.0	1.1				
420 e B		0.7	17.6	0.1	4.4				
420 w B		0.2	6.7	0.1	1.4				
Phase	*pre-W*	*W*	*X*	*Y*	*pre-Z*	*Z*	*post-Z*	*unstratified*	*all phases*
420 e C	0.9	11.1	9.6	12.6	8.7	18.2	34.5	4.5	100.0
420 e D	3.2	4.2	6.5	5.6	6.0	3.4	4.5	3.4	4.4

All figures are percentages

Vessel form 430

Fabric group	*total*	*I*	*II*	*III*	*IV*	*V*	*VI*	*VII*	*VIII*	*total*
430 s A	476	30.0	38.2	8.6	18.1	1.5	1.7	0.2	1.7	100.0 *sherds*
430 e A	28.61	28.3	35.4	6.1	24.2	1.6	2.2	0.1	2.1	100.0 *EVEs*
430 w A	4268	22.4	35.2	5.9	32.8	1.0	1.1	0.1	1.5	100.0 *grammes*
430 s B		0.4	1.4	0.1	1.1	0.1	0.2	0.0	0.1	0.4
430 e B		1.6	5.3	0.4	3.6	0.5	0.8	0.0	0.5	1.6
430 w B		0.2	1.2	0.1	1.2	0.1	0.1	0.0	0.0	0.3

Phase	*pre-W*	*W*	*X*	*Y*	*pre-Z*	*Z*	*post-Z*	*unstratified*	*all phases*
430 e C	0.5	7.8	7.5	10.1	7.4	30.4	31.1	5.1	100.0
430 e D	0.6	1.0	1.8	1.6	1.8	2.0	1.4	1.4	1.6

All figures are percentages

Vessel form 431

Fabric group	*total*	*I*	*II*	*III*	*IV*	*V*	*VI*	*VIII*	*total*
431 s A	390	21.3	28.5	43.3	3.6	2.3	0.5	0.5	100.0 *sherds*
431 e A	20.18	20.8	34.2	35.2	4.4	3.2	1.1	1.0	100.0 *EVEs*
431 w A	2716	19.8	31.6	37.0	6.6	3.2	1.0	0.8	100.0 *grammes*
431 s B		0.2	0.9	0.5	0.2	0.1	0.0	0.0	0.3
431 e B		0.8	3.6	1.6	0.5	0.7	0.3	0.2	1.1
431 w B		0.1	0.7	0.4	0.2	0.1	0.1	0.0	0.2

Phase	*pre-W*	*W*	*X*	*Y*	*pre-Z*	*Z*	*post-Z*	*unstratified*	*all phases*
431 e C	0.5	5.4	10.8	13.1	7.2	22.1	34.5	6.3	100.0
431 e D	0.5	0.5	1.8	1.4	1.3	1.0	1.1	1.2	1.1

All figures are percentages

Vessel form 440

Fabric group	*total*	*I*	*II*	*III*	*IV*	*V*	*VII*	*VIII*	*total*
440 s A	790	0.5	1.5	0.3	96.6	0.4	0.5	0.3	100.0 *sherds*
440 e A	55.67	1.6	1.6	0.2	96.4	0.2	-	-	100.0 *EVEs*
440 w A	11580	1.9	1.0	0.4	96.2	0.0	0.1	0.3	100.0 *grammes*
440 s B		0.0	0.1	0.0	9.5	0.0	0.1	0.0	0.7
440 e B		0.2	0.5	0.0	27.6	0.1	-	-	3.1
440 w B		0.1	0.1	0.0	9.7	0.0	0.0	0.0	0.8

Phase	*pre-W*	*W*	*X*	*Y*	*pre-Z*	*Z*	*post-Z*	*unstratified*	*all phases*
440 e C	0.1	1.7	3.6	4.2	7.4	40.9	37.2	5.0	100.0
440 e D	0.1	0.4	1.3	1.7	3.5	5.2	3.4	2.6	3.1

All figures are percentages

Vessel form 441

Fabric group	*total*	*II*	*IV*	*VIII*	*total*
441 s A	1022	2.2	97.7	0.1	100.0 *sherds*
441 e A	88.46	3.1	96.8	0.1	100.0 *EVEs*
441 w A	19916	2.8	97.1	0.1	100.0 *grammes*
441 s B		0.2	12.4	0.0	0.9
441 e B		1.4	44.1	0.1	4.9
441 w B		0.4	16.8	0.0	1.4

Phase	*W*	*X*	*Y*	*pre-Z*	*Z*	*post-Z*	*unstratified*	*all phases*
441 e C	1.7	7.2	6.8	6.9	31.7	43.7	2.0	100.0
441 e D	0.7	5.3	3.3	5.2	6.4	6.3	1.7	4.9

All figures are percentages

Vessel form 480

Fabric group	*total*	*I*	*II*	*III*	*V*	*VI*	*VII*	*VIII*	*total*
480 s A	1395	75.6	19.3	0.4	2.4	0.6	0.3	1.5	100.0 *sherds*
480 e A	156.29	75.8	19.1	0.4	2.1	0.6	0.3	1.7	100.0 *EVEs*
480 w A	22614	73.9	19.1	0.5	1.1	0.3	0.2	4.9	100.0 *grammes*
480 s B		3.0	2.1	0.0	0.5	0.2	0.1	0.3	1.2
480 e B		23.7	15.6	0.1	3.3	1.2	0.6	2.1	8.6
480 w B		4.0	3.4	0.0	0.4	0.1	0.1	0.5	1.6

Phase	*pre-W*	*W*	*X*	*Y*	*pre-Z*	*Z*	*post-Z*	*unstratified*	*all phases*
480 e C	1.0	17.3	6.6	9.1	6.7	19.0	33.4	6.9	100.0
480 e D	6.8	12.6	7.8	8.6	8.9	6.8	8.5	10.1	8.6

All figures are percentages

Vessel form 482

Fabric group	*total*	*I*	*II*	*III*	*V*	*VI*	*VII*	*VIII*	*total*
482 s A	510	90.6	4.7	0.2	2.0	0.2	0.2	2.2	100.0 *sherds*
482 e A	57.03	91.4	5.1	0.3	1.4	0.1	0.1	1.7	100.0 *EVEs*
482 w A	7821	88.7	6.7	0.4	1.3	0.1	0.1	2.8	100.0 *grammes*
482 s B		1.3	0.2	0.0	0.1	0.0	0.0	0.1	0.4
482 e B		10.4	1.5	0.0	0.8	0.0	0.1	0.8	3.1
482 w B		1.7	0.4	0.0	0.2	0.0	0.0	0.1	0.6

Phase	*pre-W*	*W*	*X*	*Y*	*pre-Z*	*Z*	*post-Z*	*unstratified*	*all phases*
482 e C	0.4	13.2	8.0	8.9	9.2	17.3	40.4	2.6	100.0
482 e D	1.0	3.5	3.8	2.8	4.5	2.3	3.7	1.4	3.1

All figures are percentages

Vessel form 505

Fabric group	*total*	*I*	*II*	*IV*	*VIII*	*total*
505 s A	494	74.9	1.4	0.6	23.1	100.0 *sherds*
505 e A	3.85	72.7	16.1	-	11.2	100.0 *EVEs*
505 w A	20963	80.3	1.1	0.5	18.1	100.0 *grammes*
505 s B		1.1	0.1	0.0	1.4	0.4
505 e B		0.6	0.3	-	0.3	0.2
505 w B		4.1	0.2	0.1	1.6	1.5

Phase	*W*	*X*	*Y*	*pre-Z*	*Z*	*post-Z*	*unstratified*	*all phases*
505 e C	0.0	8.3	3.1	9.6	18.2	60.8	0.0	100.0
505 e D	0.0	0.3	0.1	0.3	0.2	0.4	0.0	0.2

All figures are percentages

Form 490: narrow-necked jar/broad-necked flagon
Fig 362, nos 228 (VII/RC1), 229 (VII/RC1), 230 (VII/RC1), and 231 (VII/RC1)
This form might be described as a jug, but has been classified as a narrow-necked jar as not all examples have handles. Most examples are in cream-slipped ware (RC1), although 19% are in red wares, and a few sherds are grey wares and white wares.
Total: 121 sherds, 14.29 EVEs, 2485g.

Form 500: grooved-necked narrow-necked jar
Fig 352, no 65 (I/R1)
This form occurs mainly in red wares, although two sherds have been recorded in Fabric Group VIII.
Total: 21 sherds, 1.91 EVEs, 180g.

Storage jars

Form 504: storage jar, with hooked rim
Fig 354, no 101 (II/G5); Fig 363, no 266 (VIII/SV2)
This form occurs mainly in the tempered storage-vessel fabrics, especially SV2, although Fig 354, no 101 is in grey ware.
Total: 20 sherds, 0.1 EVEs, 1088g.

Form 505: other storage jars
Fig 352, nos 66 (I/GR1) and 67 (I/GR1); Fig 354, nos 102 (II/G5) and 103 (II/G5)
This broad category includes jars mainly in coarse red ware (R2/R3), plus a few in grey ware and in storage-vessel fabrics (SV), as shown in Vessel form 505 table.

Flagons

Form 510: miscellaneous ring-necked flagon
Fig 363, no 267 (VIII/WW5)
Perhaps surprisingly, vessels in this form are spread over fewer fabrics than Form 511, and only just over 50% are in Fabric Group VIII. Seventeen sherds are in other fine wares, and 13 are in red wares.
Total: 68 sherds, 10.10 EVEs, 825g.

Form 511: plain (early) ring-necked flagon
Fig 353, no 68 (I/R2)
While this is mainly an early form with more than 60% (22 sherds) in miscellaneous wares (mostly white wares/*mortaria*/amphorae), and the remainder are mainly in other fine wares, single sherds have been recorded in red wares, grey wares, and Oxfordshire ware.
Total: 36 sherds, 5.90 Eves, 270g.

Form 512: developed (late) ring-necked flagon
Fig 363, no 268 (VIII/WW5)
This will normally have a thicker rim than Form 511, and vestigial lower 'rings'. Its occurrence in other fine wares is representative of several imported fabrics, including Hadham ware, see Vessel form 512 table.

Form 513: 'screw-necked' flagon
not illustrated
Both sherds in Fabric Group VIII.
Total: 2 sherds, 0.22 EVEs, 8g.

Vessel form 512

Fabric group	*total*	*I*	*II*	*VII*	*VIII*	*total*	
512 s A	140	4.3	2.1	55.7	37.9	100.0	*sherds*
512 e A	27.97	8.1	2.9	51.4	37.5	100.0	*EVEs*
512 w A	1592	7.3	3.4	61.7	27.6	100.0	*grammes*
512 s B		0.0	0.0	1.3	0.7	0.1	
512 e B		0.5	0.4	18.7	8.1	1.5	
512 w B		0.0	0.0	2.0	0.2	0.1	
Phase	*W*	*X*	*Y*	*Z*	*post-Z*	*unstratified*	*all phases*
512 e C	19.8	2.9	5.7	26.6	27.6	17.4	100.0
512 e D	2.6	0.7	0.9	1.7	1.3	4.5	1.5

All figures are percentages

Form 520: 'pulley-wheel' flagon
not illustrated
Five sherds in red wares, one in other fine ware.
Total: 6 sherds 0.95 EVEs, 121g.

Form 525: bead-rimmed flagon
not illustrated
These are spread across five fabric groups, with most examples in other fine wares and red wares (almost 30% in each), with miscellaneous wares (17 sherds), grey wares (8 sherds) and Nene Valley ware (6 sherds) also represented.
Total: 95 sherds, 19.12 EVEs, 1179g.

Form 527: lid-seated flagon
not illustrated
These occur mainly in other fine wares (nearly 60%), with between one and three sherds in Fabric Groups I, II, V, VI, and VIII.
Total: 29 sherds, 5.60 EVEs, 338g.

Form 530: expanded, ring-necked flagon
Fig 353, no 69 (I/R1), Fig 358, no 158 (III/BBA)
Half of the sherds are in red ware, but Fig 358, no 158 is an unusual form in BB1, and the other two sherds are in Nene Valley and other fine wares.
Total: 6 sherds, 1.20 EVEs, 57g.

Form 535: flange-necked flagon
not illustrated
These are spread across Fabric Groups I (3 sherds), Group V (3 sherds), Group VI (1 sherd), and Group VIII (1 sherd).
Total: 6 sherds, 1.50 EVEs, 67g.

Form 536: flanged-necked flagon, variant
Fig 362, no 232 (VII/RC1)
These occur mainly in other fine wares (nearly 50%), red wares, and Nene Valley wares (roughly 20% each), with a few sherds in all other fabric groups except Calcite-gritted (and samian) wares.
Total: 48 sherds, 8.26 EVEs, 525g.

Form 540: miscellaneous flagon handle
not illustrated
Fabric Groups I (3 sherds), Group VII (5 sherds), and Group VIII (2 sherds).
Total: 10 sherds, 0.03 EVEs, 191g.

Form 545: Nene Valley 'bottle'; Howe, Perrin, and Mackreth 1980, fig 6, no 67
Fig 360, nos 187 (V/NVC1), 188 (V/NVC3), and 189 (V/NVC3)
The illustrated examples show that there is some variety in the shapes of these narrow-necked flagon/bottles, which may have one or two handles. All are in Nene Valley ware.
Total: 9 sherds, 1.26 EVEs, 176g.

Form 550: Miscellaneous bottles
not illustrated
Fabric Groups I (8 sherds), Group V (6 sherds), Group VI (8 sherds), Group VII (1 sherd), and Group VIII (1 sherd).
Total: 24 sherds, 2.18 EVEs, 368g.

Form 565: other flagon type
Fig 353, no 70 (I/R2); Fig 362, nos 233 (VII/RC1) and 234 (VII/RC1); Fig 359, no 269 (VIII/WW5)
These are spread through all fabrics except Calcite-gritted (and samian) wares, with concentrations in Fabric Groups I, VII and VIII, although the proportions vary considerably according to the unit of measurement: the percentages by EVEs are quite different to those by sherd count and weight, largely owing to the characteristic form of flagons as compared with other vessels which produces a very different breakage and recovery pattern.
Total: 462 sherds, 9.12 EVEs, 5952g.

Jugs

Form 570: miscellaneous jugs sherds, including some spouts
not illustrated
These occur mainly in red wares, with some sherds also in Fabric Groups II (2 sherds), Group III (2 sherds), Group V (7 sherds), Group VII (1 sherds), and Group VIII (2 sherds).
Total: 25 sherds, 2.69 EVEs, 399g.

Form 571: pinched-mouthed jug
Fig 361, no 219 (VI/OX1); Fig 363, no 270 (VIII/WW5)
More than 40% in red wares, the rest spread through Fabric Groups II (4 sherds), Group V (21 sherds), Group VI (2 sherds), Group VII (3 sherds), and Group VIII (1 sherds).
Total: 54 sherds, 6.79 EVEs, 797g.

Form 572: pierced and applied spout jug
not illustrated
In grey ware. Total: 1 sherd, 9g.

Form 575: face-mask flagon
Fig 361, no 220 (VI/OX3); Fig 362, no 257 (VII/HA)
The two illustrated vessels are in Oxfordshire red colour-coated ware and Hadham oxidised ware, respectively. These account for the majority of the sherds, although others were recorded in Fabric Groups I (1 sherd) and Group VIII (2 sherds).
Total: 21 sherds, 0.59 EVEs, 477g.

Form 576: an unusual spout
not illustrated
In red ware. Total: 1 sherd, 0.10 Eves, 12g.

Beakers

Form 604: early globular beaker
Fig 362, nos 240 (VII/REC), 241 (VII/KWW), and 242 (VII/CLP)
All examples are in other fine wares.
Total: 4 sherds, 0.50 EVEs, 19g

Form 605: early roughcast beaker
Fig 362, no 243 (VII/LYC)
While the illustrated example in Lyon ware probably represents the largest imported type classified here, in fact more than 75% of the category is in red wares, and may well date more to the second and third centuries than to the first.
Total: 962 sherds, 5.93 EVEs, 7326g.

Form 610: 'bag-shaped' beaker with simple bead rim
The fabric distribution illustrates that this is more of a 'dustbin' category than one of precise definition. At less than 6.5 grammes per sherd, these are generally very small pieces; see Vessel form 610 table.

Form 611: everted-rimmed, 'bag-shaped' beaker
Fig 353, no 71 (I/R5); Fig 354, nos 104 (II/M12) and 105 (II/M12)
In the local versions, represented in red ware by Fig 353, no 71 and in grey ware by Fig 354, no 104, these are a Wroxeter version of plain 'poppy-head' beaker, not dissimilar to the Colchester version Cam form 122 (Hawkes and Hull 1947, Hull 1958, and Hull 1963, or Symonds and Wade forthcoming fabric GP, Types 20–26). Fig 301, no 105 has an unusually upright rim, similar to that of beakers in Rhineland Granular Grey ware (Anderson 1981, fig 6.2 no 11 and fig 6.3, no 17), but its fabric is much finer than those vessels.
Total: 45 sherds, 3.39 EVEs, 178g.

Form 612: plain-rimmed and other bag-shaped beaker
Fig 362, no 244 (VII/KWW)
This is mainly a 'dustbin' category, with few rims represented. Most of the sherds are in grey wares or Nene Valley ware.
Total: 100 sherds, 0.63 EVEs, 511g.

Form 615: cornice-rimmed bag-shaped beaker
Fig 353, no 72 (I/R5); Fig 362, nos 245 (VII/CLR), 246 (VII/CLR) ?local fabric, 247 (VII/CLR), and 248 (VII/CLR)
This form, like samian forms, was made at potteries across western Europe in the second century (Symonds 1990). The percentages listed strongly suggest that Wroxeter was yet another source of the form. It seems possible that a number of the examples in fabric CLR, including some of those illustrated, are actually in Wroxeter red ware (Tomber, above), see Vessel form 615 table.

Form 620: decorated beaker/bowl
not illustrated
One sherd in red ware, the rest in grey wares.
Total: 17 sherds, 0.90 EVEs, 414g.

Form 630: indented/folded beaker
Fig 362, nos 249 (VII/REC) and 250 (VII/CLR)
This classification encompasses considerable variety, as the two illustrated vessels show. Both are likely to be of the first half of the second century. Some of the other examples are similarly early.
Total: 253 sherds , 0.55 EVEs, 1052g.

Form 631: indented beaker with funnel neck and thickened rim
not illustrated
Half of the sherds in this category are in Oxfordshire ware, while the remainder are split between red wares (7 sherds) and other fine wares (10 sherds).
Total: 33 sherds, 3.43 EVEs, 179g.

Vessel form 610

Fabric group	*total*	*I*	*II*	*III*	*V*	*VI*	*VII*	*total*	
610 s A	314	57.0	24.8	1.0	10.5	0.6	6.1	100.0	*sherds*
610 e A	29.04	59.4	25.2	0.9	9.7	1.1	3.7	100.0	*EVEs*
610 w A	2040	63.7	25.0	0.8	6.8	0.8	3.0	100.0	*grammes*
610 s B		0.5	0.6	0.0	0.5	0.0	0.3	0.3	
610 e B		3.5	3.8	0.1	2.9	0.4	1.4	1.6	
610 w B		0.3	0.4	0.0	0.2	0.0	0.1	0.1	

Phase	*pre-W*	*W*	*X*	*Y*	*pre-Z*	*Z*	*post-Z*	*unstratified*	*all phases*
610 e C	0.3	8.1	6.4	14.1	5.2	27.4	28.3	10.2	100.0
610 e D	0.4	1.1	1.6	2.2	1.3	1.8	1.3	2.8	1.6

All figures are percentages

Vessel form 615

Fabric group	*total*	*I*	*II*	*V*	*VI*	*VII*	*total*	
615 s A	250	63.2	4.8	12.8	0.8	18.4	100.0	*sherds*
615 e A	22.87	65.6	5.7	11.0	1.4	16.3	100.0	*EVEs*
615 w A	1864	74.2	4.9	8.5	1.8	10.6	100.0	*grammes*
615 s B		0.5	0.1	0.5	0.0	0.7	0.2	
615 e B		3.0	0.7	2.6	0.4	4.8	1.3	
615 w B		0.3	0.1	0.2	0.1	0.4	0.1	

Phase	*pre-W*	*W*	*X*	*Y*	*pre-Z*	*Z*	*post-Z*	*unstratified*	*all phases*
615 e C	2.7	14.7	6.2	11.1	5.4	21.9	25.6	12.6	100.0
615 e D	2.3	1.4	1.0	1.2	0.9	1.0	0.8	2.3	1.1

All figures are percentages

Vessel form 650

Fabric group	*total*	*I*	*II*	*V*	*VI*	*VII*	*VIII*	*total*
650 s A	283	9.3	1.4	54.0	11.1	23.5	0.7	100.0 *sherds*
650 e A	21.24	14.7	2.9	50.2	11.9	20.2	-	100.0 *EVEs*
650 w A	1593	12.7	2.8	52.5	14.1	16.9	0.9	100.0 *grammes*
650 s B		0.1	0.0	2.3	0.8	1.0	0.0	0.2
650 e B		0.6	0.3	11.1	3.1	5.6	-	1.2
650 w B		0.0	0.0	1.3	0.4	0.5	0.0	0.1
Phase	*pre-W*	*W*	*Y*	*pre-Z*	*Z*	*post-Z*	*unstratified*	*all phases*
650 e C	3.9	14.3	23.3	35.5	17.6	5.4	-	100.0

All figures are percentages

Vessel form 690

Fabric group	*total*	*I*	*II*	*III*	*V*	*VI*	*VII*	*VIII*	*total*
690 s A	2131	6.0	5.1	0.4	54.6	5.0	28.3	0.7	100.0 *sherds*
690 e A	8.48	29.1	2.5	2.9	18.9	17.5	22.2	7.0	100.0 *EVEs*
690 w A	11340	13.7	8.9	0.9	46.8	11.5	17.3	1.0	100.0 *grammes*
690 s B		0.4	0.8	0.0	17.3	2.5	9.7	0.2	1.8
690 e B		0.5	0.1	0.1	1.7	1.8	2.4	0.5	0.5
690 w B		0.4	0.8	0.0	8.3	2.4	4.0	0.0	0.8
Phase	*pre-W*	*W*	*X*	*Y*	*pre-Z*	*Z*	*post-Z*	*unstratified*	*all phases*
690 e C	5.0	16.3	6.6	4.7	4.1	29.1	31.3	2.9	100.0
690 e D	1.8	0.6	0.5	0.2	0.3	0.6	0.4	0.2	0.5

All figures are percentages

Form 640: frilled-rimmed beaker
not illustrated
Examples in Fabric Groups V (5 sherds), Group VI (5 sherds), and Group VII (1 sherd).
Total: 11 sherds, 117g.

Form 645: hunt cup
not illustrated
Almost entirely represented in Nene Valley ware, with the exception of 5 sherds in Oxfordshire ware, and 3 sherds in other fine ware.
Total: 66 sherds, 0.10 EVEs, 244g.

Form 650: globular beaker
Fig 360, nos 190 (V/NVC3), 191 (V/NVC3), and 192 (V/NVC3); Fig 361, no 221 (VI/OX1); Fig 362, nos 251 (VII/FWNF), 252 (VII/CCC), 253 (VII/CCC), and 254 (VII/TRR)
As with Form 630, this is a rather all-encompassing classification, although in this case most of the pieces are third or fourth century. While a majority are in Nene Valley ware, there are a few vessels in unusual fabrics, such as Fig 362, no 251, in New Forest colour-coated ware, and Fig 362, no 254, in late Trier Rhenish ware with white painted barbotine decoration and a painted inscription (late third to fourth century; Symonds 1992, fig 47, Group 63). Although it lacks an inscription, Fig 360, no 190, in Nene Valley ware, is perhaps an even more finely executed vessel, but it is clearly a direct imitation of third century Trier Rhenish ware, rather than the later type (and its fabric is not as fine). The example in Oxfordshire ware, Fig 361, no 221, is also a relatively unusual piece. All of these designs are ultimately derived from the types first created in Central Gaulish fine colour-coated ware, shown in Fig 362, no 252 and 253. See Vessel form 650 table.

Form 655: handled cup
Fig 362, no 255 (VII/CCC)
This form occurs mainly in other fine wares, including Central Gaulish fine colour-coated ware, but two examples are in red wares.
Total: 47 sherds, 1.50 EVEs, 181g.

Form 685: pentice beaker
Fig 360, no 193 (V/NVC3)
This is a surprisingly rare form at Wroxeter; the illustrated vessel accounts for roughly half the total. It seems likely that some further examples may have been classified in Forms 650 or 690, when the shoulder has not been clearly visible.
Total: 27 sherds, 0.67 EVEs, 331g.

Form 690: other beaker type
Fig 354, nos 106 (II/G15), 107 (II/M21), and 108 (II/G1); Fig 362, no 256 (VII/REC; ?'Raetian ware')
Fig 354, no 106 is a barrel-shaped beaker, in a fine grey fabric which resembles terra nigra (Symonds 1992, fig 12, no 258 and fig 36, Group 45). Fig 362, no 256 is a wholly characteristic sherd of so-called 'Raetian ware' from central or northern Switzerland or southern Germany (Kaenel 1974, pl XXII and pl XLII). See Fig 373 and Vessel form 690 table.

Castor boxes

This is one of the few wholly original Romano-British forms of the late third to fourth century, but our illustrated examples show that there is some variety in the shape. Two of the lids, Fig 360, nos 195 and 197, are similar to Howe, Perrin, and Mackreth 1980, fig 6, no 73, while the third is not closely paralleled; it is curious that the lower part of the 'box' may be formed by either a fairly shallow bowl with a narrow foot-ring base (Howe, Perrin, and Mackreth 1980, fig 7, no 89), or by a globular bowl, with a broad, flat, or slightly sagging base (Perrin, forthcoming, fig 8, no 86). Fig 360, no 194 seems likely to be one of the latter forms.

Form 700: otherwise indistinguishable Castor boxes
not illustrated
Exclusively in Nene Valley colour-coated ware.
Total: 46 sherds, 0.29 EVEs, 323g.

Form 701: Castor box bowl/jar
Fig 360, no 194 (V/NVC1)
Exclusively in Nene Valley colour-coated ware.
Total: 128 sherds, 3.21 EVEs, 1280g.

Form 702: Castor box lid
Fig 360, nos 196 (V/NVC1) and 197 (V/NVC1)
Exclusively in Nene Valley colour-coated ware.
Total: 30 sherds, 1.60 EVEs, 320g.

Miscellaneous bowls/dishes

Form 710: other Nene Valley bowl/dish
Fig 360, no 195 (V/NVC1)
Exclusively in Nene Valley colour-coated ware.
Total: 22 sherds, 0.80 EVEs, 331g.

Form 720: parchment ware bowl; Young 1977, P24/P25
not illustrated
These forms frequently have red or brown painted decoration, normally consisting of horizontal bands on the exterior, and more complicated motifs on the interior. The examples occur exclusively in Fabric Group VIII.
Total: 64 sherds, 2.59 EVEs, 1350g.

Amphorae

Form 750: Dressel 20 amphora
Fig 364, nos 280–82, stamps
Total: 61 sherds, 1.04 EVEs, 5891g.

Form 755: Dressel 2–4 *amphora*
not illustrated
Total: 8 sherds, 180g.

Form 760: Gauloise 4 *amphora*
not illustrated
Total: 6 sherds, 0.25 EVEs, 136g.

Form 765: 'carrot' *amphora*
not illustrated
Total: 3 sherds, 18g. **Form 770**: Palestinian *amphora*
Fig 363, nos 271 (VIII/AMP) and 272 (VIII/AMP)
The first of the illustrated pieces has the shape of a 'Hollow-foot' *amphora* (Peacock and Williams 1986, 193–5, Class 47), but the fabric of a 'carrot' *amphora*; it may be similar to Peacock and Williams 1986, 216, no 65. The latter piece may be part of the same or a similarly-shaped *amphora*.
Total: 5 sherds, 80g.

Form 775: Beltrán 2A/Cam 186C *amphora*
Hawkes and Hull 1947, Hull 1958, and Hull 1963
not illustrated
Total: 2 sherds, 11g.

Form 776: Beltrán 2B *amphora*
not illustrated
Total: 1 sherd, 290g.

Form 780: 'Rhodian' *amphora*
not illustrated
Total: 1 sherd, 111g.

Form 799: other *amphora*
not illustrated
Total: 1 sherd, 37g.

The inscribed sherds

by Mark Hassall

Fig 364
278 Sherd of *amphora* in buff paste from the latest levels of the city. A graffito cut before firing perhaps reads]TII[...|...]HIIS[, but the meaning is unclear. *WP73 G.20 SF558*
279 Two sherds (which do not join) from the tubular neck of an *amphora* in red fabric coated with a buff slip, found in the fill of the north wall robber trench. A graffito, very lightly incised after firing, reads:]XTV[, conceivably for (*vinum*) *mi*]*xtu*[*m*, 'mixed (wine)'. For the restoration *cf* MIXST which occurs as part of an inscribed text on an *amphora* found in Pompeii (CIL **4**, 6914), and contrast the motto that occurs on some Rhenish Beakers, *da merum*, 'serve unmixed (wine)' eg *J Roman Stud* 60 (1961), 197 no 40(a) from *Verulamium*. *WP72 G.35 SF535*

Mortaria

Form 850: hammer-head *mortarium*
not illustrated
Six sherds recorded in Nene Valley ware, the rest in Fabric Group VIII.
Total: 82 sherds, 5.41 EVEs, 2901g.

Form 860: Oxfordshire-type *mortaria*
Fig 361, nos 222 (VI/OXM3) and 223 (VI/OXM3)
In Oxfordshire red/brown colour-coated ware.
Total: 73 sherds, 3.99 EVEs, 2142g.

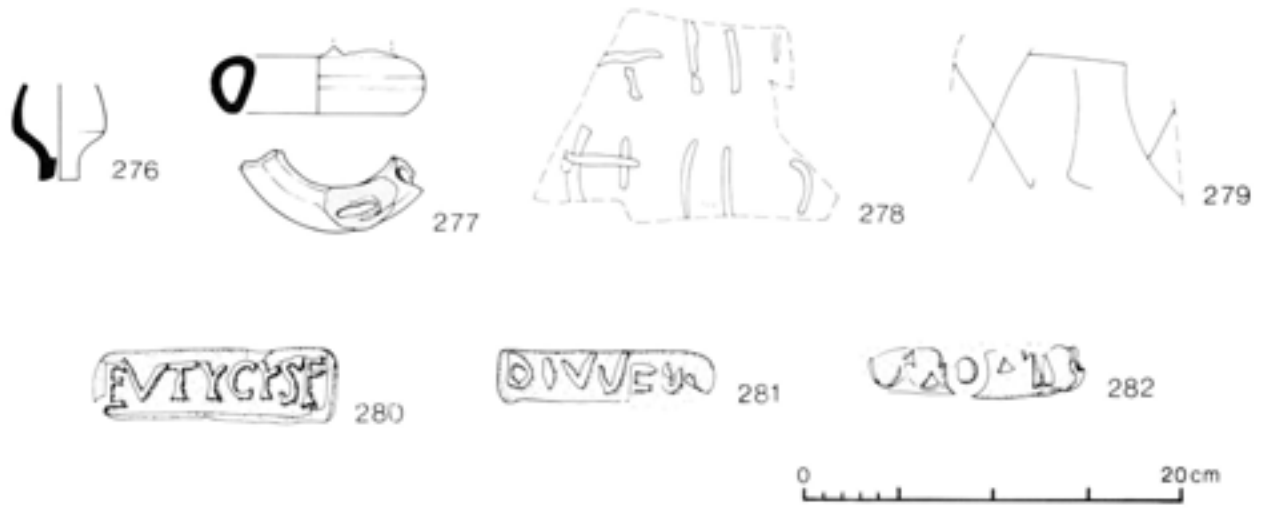


Fig 364 Pottery form series: Miscellaneous wares, graffiti, and stamps

Form 880: wall-sided *mortarium*
Fig 360, no 198 (V/NVC1)
More than 60% of the examples were recorded in Fabric Group VIII, and more than 30% in Group VI, with only 9 sherds in Nene Valley ware.
Total: 137 sherds, 5.95 EVEs, 2347g.

Form 900: *mortarium* with Curle 11-style rim
not illustrated
Two sherds in Fabric Group VII, the remainder in Group VIII.
Total: 70 sherds, 4.31 EVEs, 3393g.

Form 910: *mortarium* with bead rim and curved flange
Fig 362, no 235 (VII/RC1); Fig 363, no 273 (VIII/WW1)
Entirely in Fabric Group VIII, except for a few sherds in Group I (1 sherd), Group VI (2 sherds) and Group VII (2 sherds).
Total: 77 sherds, 3.68 EVEs, 3614g.

Form 930: *mortarium*-like bowl
not illustrated
Two sherds in red ware, the remaining four in Fabric Group VIII.
Total: 6 sherds, 0.38 EVEs, 87g.

Form 935: other *mortarium*
Fig 363, no 274 (VIII/WW4)
The illustrated example is a huge vessel which is sadly not sufficiently complete to see either the rim shape or the the interior. See Fig 373 and Vessel form 935 table. Figs 362, no 235, and 363, no 273 show the only stamps recovered.

Other forms

Form 940: *tazza*
Fig 362, no 236 (VII/RC1)
This form is relatively rare, probably because it belongs mainly to the first and second centuries. It occurs mainly in other fine wares (87%), but also in Fabric Groups I (7 sherds), Group II (2 sherds) and Group VIII (4 sherds).
Total: 35 sherds, 1.57 EVEs, 972g.

Form 945: lid
Fig 353, no 73 (I/R2); Fig 355, nos 109 (II/G5) and 110 (II/G5)
There is a considerable range of lids at this site with simple, angled, or thickened rims. It is possible that some of the smaller Dr 38 bowls may also have functioned as lids (those in red wares and Nene Valley ware in particular), and there are a number of chipped bases, re-worked possibly to act as lids. The size range of most of the lids lies between 100mm and 130mm, which would make them suitable for use with the jar/bowls and jars in particular (Fig 368). See Vessel form 945 table.

Form 950: Spindle whorl
not illustrated
These are rare, although broken bases and other sherds may also have been trimmed and/or perforated and used for similar purposes. Seven sherds were recorded in red wares, while the rest were in Fabric Groups II (4 sherds), Group III (2 sherds), Group V (2 sherds), and Group VII (1 sherd).
Total: 16 sherds, 0.25 EVEs, 136g.

Form 955: colander
Fig 353, nos 74 (I/R1) and 75 (I/GR1)
This form occurs almost exclusively in red wares, apart from a handful of sherds in Fabric Groups II (2 sherds), Group III (3 sherds), and Group VI (1 sherd). It is normally bowl-shaped, although the two illustrated examples show quite different forms, and may have round or square perforations produced by puncturing from the outside. Occasionally the perforations are arranged in patterns.
Total: 51 sherds, 1.01 EVEs, 853g.

Form 961: cheese press
Fig 353, no 76 (I/R1)
These occur in Fabric Groups I (11 sherds), Group II (6 sherds), Group III (1 sherd), Group V (6 sherds), and Groups VI (2 sherds).
Total: 26 sherds, 2.72 EVEs, 436g.

Vessel form 935

Fabric group	*total*	*I*	*II*	*V*	*VI*	*VII*	*VIII*	*total*
935 s A	2721	0.1	0.1	0.7	16.9	1.5	80.6	100.0 *sherds*
935 e A	81.06	0.1	0.1	0.2	19.4	2.0	78.3	100.0 *EVEs*
935 w A	98342	1.0	0.3	0.3	9.6	2.2	86.5	100.0 *grammes*
935 s B		0.0	0.0	0.3	11.0	0.7	27.4	2.3
935 e B		0.0	0.1	0.1	19.3	2.1	49.2	4.5
935 w B		0.2	0.2	0.5	17.6	4.5	36.6	7.1

Phase	*pre-W*	*W*	*X*	*Y*	*pre-Z*	*Z*	*post-Z*	*unstratified*	*all phases*
935 e C	0.3	4.1	7.9	10.3	8.9	26.0	36.2	6.3	100.0
935 e D	0.9	1.6	5.4	4.6	6.2	4.8	4.8	4.7	4.5

All figures are percentages

Vessel form 945

Fabric group	*total*	*I*	*II*	*III*	*IV*	*V*	*VI*	*VII*	*VIII*	*total*
945 s A	271	69.0	17.0	5.9	0.4	1.1	1.1	1.1	4.4	100.0 *sherds*
945 e A	18.57	66.3	18.3	3.6	0.4	1.6	1.1	1.7	7.1	100.0 *EVEs*
945 w A	3874	68.5	18.9	4.8	1.5	1.4	1.1	0.9	2.9	100.0 *grammes*
945 s B		0.5	0.4	0.1	0.0	0.0	0.1	0.0	0.2	0.2
945 e B		2.5	1.8	0.1	0.0	0.3	0.2	0.4	1.0	1.0
945 w B		0.6	0.6	0.1	0.0	0.1	0.1	0.1	0.0	0.3

Phase	*pre-W*	*W*	*X*	*Y*	*pre-Z*	*Z*	*post-Z*	*unstratified*	*all phases*
945 e C	3.6	16.5	7.8	12.7	2.2	18.5	26.8	12.1	100.0
945 e D	2.9	1.4	1.2	1.3	0.3	0.8	0.8	2.1	1.0

All figures are percentages

Form 985: triple vase
Fig 364, nos 276 (I/R1) and 277 (II/G1)
Only five sherds of this form were identified, four in red wares and one in grey ware.
Total: 5 sherds, 188g.

Form 990: cauldron, or bucket
Fig 353, no 77 (I/R2)
The only example is in red ware.
Total: 1 sherd, 0.08 EVEs, 9g.

Form 999: other unusual vessel type
Fig 350
21 (I/R1, an unusual 'tankard' with two? handles);

Fig 353
78 (I/R1, a possible louver, with round finger-made hole),
79 (I/GR1, a very thick unusual base),
80 (I/GR1, a thickened rim with vertical burnished scribed lines), and
81 (I/R1, a hand-moulded applied strip of clay, possibly detached from part of the vessel of no 78);

Fig 355
111 (II/G5, a lug-handle set in the shoulder of a large jar);

Fig 362
237 (VII/RC3, apparently a beaker/jar with part of a large finished hole below the neck)
238 (VII/RC1, an oval-shaped clay lump on the side of an unidentifiable vessel, not obviously a face-pot);

Fig 363
275 (VIII/M99, a large 'Romano-Saxon' jar in grey Hadham ware decorated with bosses, dimples, and diagonal incisions)

Otherwise unclassifiable vessels have been recorded in all fabrics except Nene Valley ware (although some unusual vessels in that ware have been noted above). It is interesting that by far the largest group of these pieces (more than 40%) are found in red wares: this is also true at Colchester, where by far the largest numbers of unusual items, including hand-moulded shapes, face-pots, possible musical instruments, as well as *tazze*, *mortaria*, and cheese-presses, occur in unslipped oxidised wares (Symonds and Wade forthcoming, fabrics DZ and DJ). Other Fabric Groups represented are: Group II (21 sherds), Group III, (1 sherd), Group IV (9 sherds), Group VI (3 sherds), Group VII (2 sherds), and Group VIII (18 sherds).
Total: 91 sherds, 5.39 EVEs, 1419g.

Forms 1207–95: samian forms
A total of 68 individual forms were recorded in samian wares, as shown in table 20 and Vessel form 1207–95 table.
Space precludes a complete breakdown of samian forms by sub-fabrics, but such a breakdown will be available with the report archive and further details can be found in Wild below, however, the proportions of all forms by sub-fabrics, are shown in a table, and these proportions are surely of considerable significance. See Vessel forms 1207–95 table.

The low proportion of South Gaulish wares shows how little first-century material was disturbed to form the later contexts. East Gaulish samian seems poorly represented also: even when combined with pieces recorded as Central/East Gaulish ware, it reaches no more than 4.6% at most, whereas the comparable figure at Colchester is roughly 10% (Symonds and Wade forthcoming). When the large proportion of Central Gaulish samian is set against the relatively low amounts of coarse wares which are clearly second century rather than later, the possibility must be considered that at least some of the former wares belong not to the second but rather to the third century. This is one of the great unresolved problems of recent Roman pottery studies, and it is unfortunate that the stratigraphy of the baths basilica can offer no precise help, but the composition of the assemblage as a whole must argue for at least a substantial proportion of third century Central Gaulish wares, unless evidence can be found to show that these wares are residual in a disproportionate manner to other pottery.

Table 20 Samian quantification by form

form	*samian type*	*sherds*	*EVEs*	*gms*
1207	Ritterling 1	4		1
1208	Ritterling 8	3	0.31	13
1209	Ritterling 9	20	0.24	86
1211	Curle 11	38	0.93	323
1213	Rt 12:Curle 11	12	0.11	85
1214	Curle 15	15	0.29	79
1215	Dr 15	25	0.34	115
1216	Dr 15/17	27	0.11	210
1217	Dr 15/17R	1		13
1218	Dr 18	141	2.41	643
1219	Dr 18/31	169	5.99	1992
1220	Dr 18/31R	44	0.22	365
1221	Curle 21	5	0.35	69
1222	Dr 22	1	0.04	4
1223	Curle 23	8	0.43	174
1225	Dr 24/25	12	0.33	42
1227	Dr 27	442	9.37	1710
1228	Dr 27:33	2		3
1229	Dr 29	25	0.12	152
1230	Dr 30	32	0.35	309
1231	Dr 31	262	5.98	3175
1232	Dr 32	5	0.02	120
1233	Dr 33	720	23.15	5056
1234	Dr 31R	117	0.89	2312
1235	Dr 35	36	1.46	198
1236	Dr 36	56	1.17	429
1237	Dr 37	993	12.26	10249
1238	Dr 38	126	1.17	1717
1239	Dr 35/36	15	0.69	122
1240	Dr 40	1	0.04	2
1242	Dr 42	20	0.61	98
1243	Dr 43	3	0.17	74
1245	Dr 45	80	2.09	2303
1246	Dr 46:Curle 15	15	0.86	167
1247	Dr 38:45	1	0.05	4
1249	Dr 30:37:38	2	0.09	11
1250	Dr 18R	3		74
1251	Dr 18/31:31	58	1.09	252
1252	Dr 38:44	7	0.08	75
1253	Dr 18:18/31	728	16.37	5235
1254	Dr 18/31R:31R	15	0.14	189
1255	Dr 18:18/31:31	149	2.35	2526
1256	Dr 18:18/31:31 or similar	10	0.03	42
1257	Dr 15/17:18	8		24
1258	Dr15/17R:18R	4		35
1260	Dr 29:37	1		1
1261	Dr 31:variant	13	0.45	116
1262	Dr 33:46	1		1
1264	Dechelette 64	4	0.02	23
1267	Dechelette 67	7		36
1272	Dechelette 72	19	0.65	66
1278	Walters 78	2	0.11	6
1279	Walters 79	22	0.52	85
1280	Walters 80	3	0.02	16
1281	Walters 81	2		17
1282	Ludowici S?	1		9
1283	Ludowici Tx	1	0.07	18
1284	Ludowici T?	4	0.12	46
1285	cup	6		20
1286	bowl	80	0.70	643
1287	beaker	59	0.04	135
1288	bowl:dish	1		9
1289	mortaria	9		119
1290	open vessel			
1291	closed vessel	2		4
1292	counter	3		34
1293	inkwell	2		4
1294	dish	5		118
1295	spindle whorl	3		15

Vessel forms 1207–95

	total	*IX*	*total*	*SG*	*CG*	*CEG*	*EG*	*Unk*	*total*
1207–95 s A	4710	100.0	100.0	s 13.6	83.3	1.4	1.4	0.3	100.0 *sherds*
1207–95 e A	95.40	100.0	100.0	e 12.2	84.9	1.3	1.6	-	100.0 *EVEs*
1207–95 w A	42418	100.0	100.0	w 7.8	87.4	1.9	2.7	0.1	100.0 *grammes*
1207–95 s B		78.1	4.0	s 0.7	4.3	0.1	0.1	0.0	
1207–95 e B		99.1	5.3	e 0.7	4.5	0.1	0.1	-	
1207–95 w B		91.8	3.1	w 0.3	2.9	0.1	0.1	0.0	
Phase	*pre-W*	*W*	*X*	*Y*	*pre-Z*	*Z*	*post-Z*	*unstratified*	*all phases*
1207+ e C	2.2	14.6	6.2	13.4	6.0	22.1	25.5	9.9	100.0
1207+ e D	9.1	6.5	5.0	7.0	4.9	4.8	4.0	8.7	5.3

All figures are percentages

Samian ware

by Felicity Wild

The site produced a total of 46,227g of samian ware (6032 sherds), of which 7.53% was South Gaulish, 87.43% Central Gaulish, and 2.71% East Gaulish. The overall proportion of decorated ware was less than 20%.

The samian was all residual in its context. Much of the assemblage clearly represents material on and immediately under the surface soil in the late Roman period. A notable feature was the very small size of many of the sherds. A number of sherds were heavily abraded on one side only and it seems likely that these represent the material current in well-trampled surfaces.

The nature and dating of the assemblage as a whole is summarised above. As might be expected, the bulk of the material was of Antonine date or later, with a small but significant proportion of East Gaulish pieces of probable third-century date. There was a fall-off in the proportion of earlier wares, with little that was demonstrably pre-Flavian. The decorated ware included sherds from a maximum of only 12 examples of form 29.

Of 76 identifiable potters' stamps from the site, only 10 were South Gaulish: five from La Graufesenque and five (two of Felicio iii and three of Q. V- C-) probably from Montans and dating to the period *c* AD 110–45. Decorated ware in the style of Felicio iii was also present (no 1 below). It is clear that small quantities of South Gaulish ware continued to reach the site throughout the first half of the second century AD. The majority of the stamps were Central Gaulish: six attributable to the potteries at Les Martres-de-Veyre, 56 to Lezoux and 1, of Butelus, uncertain. Only three of the stamps were East Gaulish, all attested at Rheinzabern, where they may be dated to the period *c* AD 180–240. Two (Fig 364, nos 3 and 5 below) were on decorated bowls. The decoration on the Perpetus bowl (no 5) suggests possible manufacture at Trier, to which the potter later moved, rather than Rheinzabern. Nos 6 and 7 are also probable Trier products, suggesting that small quantities of samian ware were reaching the site from both production centres until the middle of the third century AD. At Trier, Perpetus was producing decorated ware in association with Primanus and Dignus. It is interesting, though may be no more than coincidental, that the third East Gaulish stamp from the site is of Primanus iv of Rheinzabern. There is no evidence as yet, however, to connect this potter, who appears at Rheinzabern solely as a maker of plain ware, with Primanus of Trier.

As the material from the site was all residual, detailed publication of the decorated ware, particularly that from Central Gaul, seems unnecessary. The sherd from Montans and six of the late second or, more probably, third-century East Gaulish bowls are published below for their intrinsic interest. Nos 2–7 clearly represent examples of the latest imports of samian to the site. How long they may have continued in use remains a matter for speculation, but no 7 had been mended with lead rivets.

Figure types and motifs from Rheinzabern are quoted from Ricken-Fischer 1963 (RF)

Fig 365

1 Form 37, South Gaulish, showing leaf motif and triple medallion containing an animal type, over a chevron wreath. The ovolo, smaller leaf, and wreath occur on a bowl in the Museum of London with a mould stamp of Felicio iii of Montans (Museum no S450G). The larger leaf is paralleled on an unpublished sherd in Felicio's style from Exeter. *c* AD 100–45 (*WP73 G48 C LI*).

2 Form 37, East Gaulish. One fragment in thin orange fabric with orange slip, showing the ovolo (RF E1), figure type (RF M196), and astragalus (RF O204) across the top of the vertical border. The motifs all occur on bowls in the style of Cerialis I of Rheinzabern: the ovolo and figure type (Ricken 1948, *Taf* 50, 6), the ovolo and astragalus (*ibid*, *Taf* 50, 12). Late second to early third century AD, (*WP G39F D81*).

3 Form 37, East Gaulish, showing the mould stamp LATINNI (Latinnus die 1a) among the decoration. The stamp is attested at Rheinzabern in association with stamps of Comitialis (Ricken 1948, *Taf* 96, 9, etc.). The ovolo (RF E17), archer (RF M174), and stag (RF T102) occur commonly on their work. *c* AD 180240. (*WP81 G37Q D188 SF480*).

4 Form 37, East Gaulish, showing festoon (RF KB143) with leaf and large rosette (RF O56). The rosette and festoon both appear on Ricken's 'Ware mit E25, E26' (Ricken 1948, *Taf* 115, 1, 3, 4; *Taf* 116, 2). The leaf, however, is not that which is commonly used on bowls in this style, but appears closer to RF P58, cf Florentinus (Ricken 1948, *Taf* 113, 3). First half of the third century AD (*WP G33 LI*).

5 Form 37, East Gaulish, showing the mould stamp PERPETVS (Perpetus die 5c) among the decoration. Although the stamp is attested at Rheinzabern, the potter appears to have moved later to Trier and this may be one of his Trier products. The ovolo appears at both centres (RF E42, Gard 1937 R23), as did the panther (RF T28, not attributed there to Perpetus). No precise parallel to the cockerel appears at either site, though it is perhaps closest to a Trier type (Fölzer 1913, *Taf* 30, 685). The ovolo and rosette occur together on a mould of the Perpetus group at Trier (Gard 1937, *Taf* 25, 10). At Rheinzabern, Perpetus' work is dated *c* AD 180–240. At Trier, the Perpetus/Primanus/Dignus group is considered to have started production *c* AD 235. Their work occurs at New Fresh Wharf, London (Bird 1986, 143). If this is indeed a Trier product, the date is likely to lie in the second quarter of the third century AD (*WP74 G18 B100B SF79*).

6 Form 37, East Gaulish, with a thick, wide plain band above the decoration, showing the same ovolo and rosette as no 5 above, and probably of similar origin and date (*WP G21 LI*).

7 Form 37, East Gaulish. Three fragments, two joining, of another bowl with thick, wide plain band above the decoration. The ovolo, although similar in size to that on nos 5 and 6, has the tongue corded from right to left and is probably Gard 1937, R12 (Fölzer 1913, *Taf* 18, 24). The figures are both Trier types: the Diana (Fölzer 1913, 478) and shell (*ibid*, 707, *cf Taf* 18, 21, and 20). The non-joining fragment (*not illustrated*) contains a lead rivet.

Second quarter of the third century AD (*WP76 G9D D u/s; WP G8N D1568; WP84 G22H D1494 SF597*).

A full list of the potters stamps from the excavations by Brenda Dickinson and Felicity Wild is in the site archive.

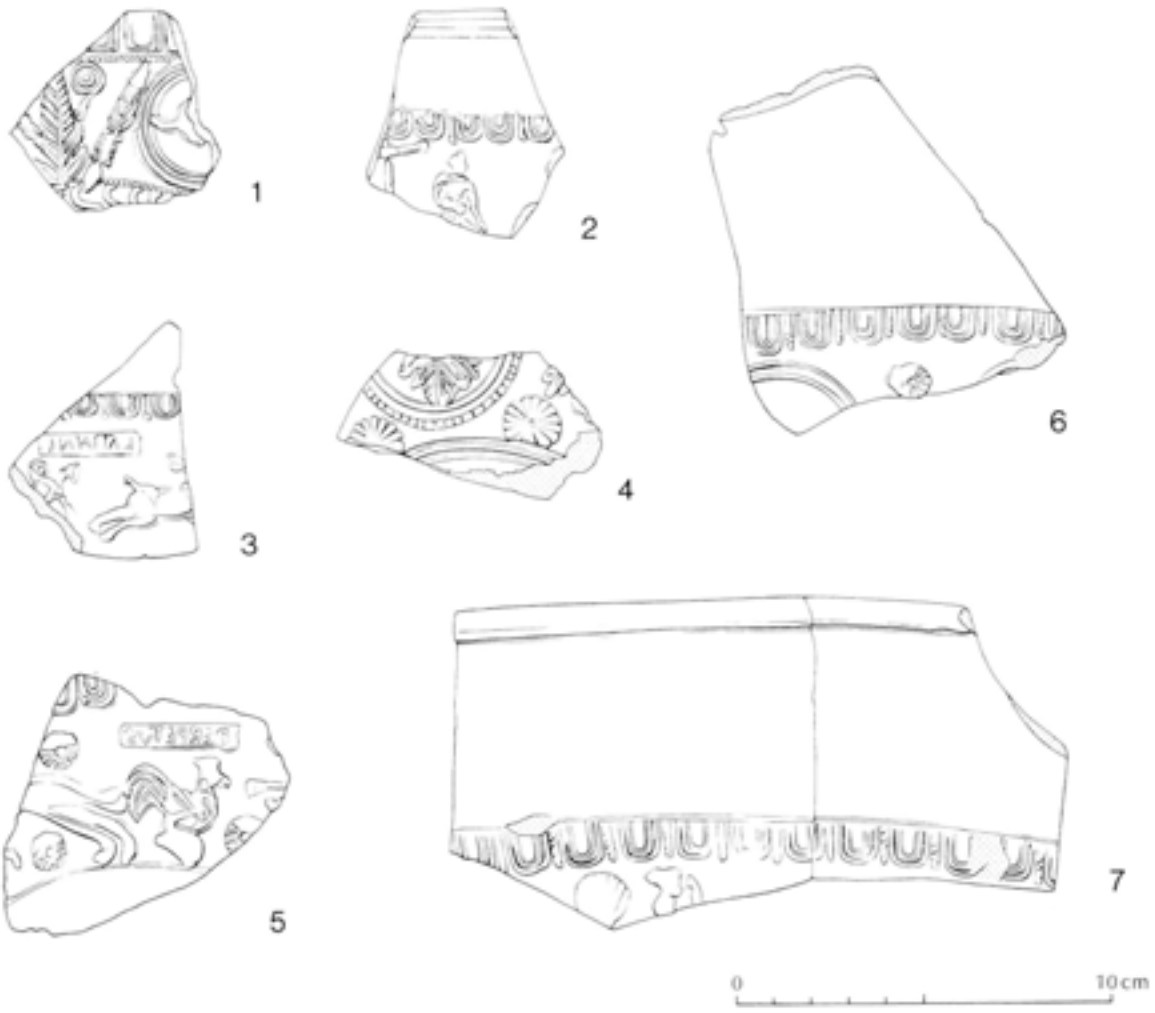


Fig 365 Decorated samian sherds. Scale 1:1

Pottery distribution

by Roger White

The pottery, as with all other finds on site, was recorded both by context and by site grid, the latter being sub-divided into 16 sub-squares. Restrictions of time and money meant that the pottery could be analysed only for distribution by phase and by ware over the whole site. It was hoped that this analysis would highlight when pottery use began to decline and whether it might be possible to differentiate residual from non-residual pottery. The processes and the computer software used have been discussed elsewhere (Laflin, *et al*, 1993) but it is true to say that there was time only to scratch the surface of the database and much more could be done on, for example, specific forms, abrasion, and sherd size distributions. It is hoped that further work on the database will be possible in the future.

Distribution by phase

The distribution plots by phase were only calculated for Phases W, X, Y, and Z as only these provided enough data. Two of the plots, Phases X and Y, had relatively little pottery and are not reproduced here (but see Laflin *et al* 1993, figs 7 and 8). Phases W and Z provided two contrasting plots which reflected the differing activities in these phases (Figs 374 and 375).

Phase W

In this phase the bulk of the pottery was found in dumps both inside and outside the basilica but the greatest density of all is, surprisingly, to be seen in the road-side accumulation of material between the north portico colonnade and the street (Fig 374). The reason for this is probably because of the artificial division of the roadside deposits into two phases: Phase S (original basilica, not plotted) and Phase W. From the archaeological point of view this conflicts with an observed phenomenon on site which pointed to a gradual and steady accumulation of this deposit, rather than a sudden deposition in these two phases. Unfortunately, the pottery had to be amalgamated in this way because the street surfaces relating to this roadside accumulation had in nearly all cases been completely removed in Phase pre-Z, making it impossible to detect the lenses of weathering within the overall dump and so allow tighter phasing. Thus not too much archaeological significance should be read into this area of the distribution map.

Nonetheless, it is interesting to note that the north portico, adjacent to the street, produced equally high levels of pottery, especially in the centre and east end. This becomes even more apparent when comparison is made with the relatively barren area of the west portico. The pottery in the north portico is coming not from the floors but from their make-up dumps (eg C527) which in some places were up to 0.5m thick.

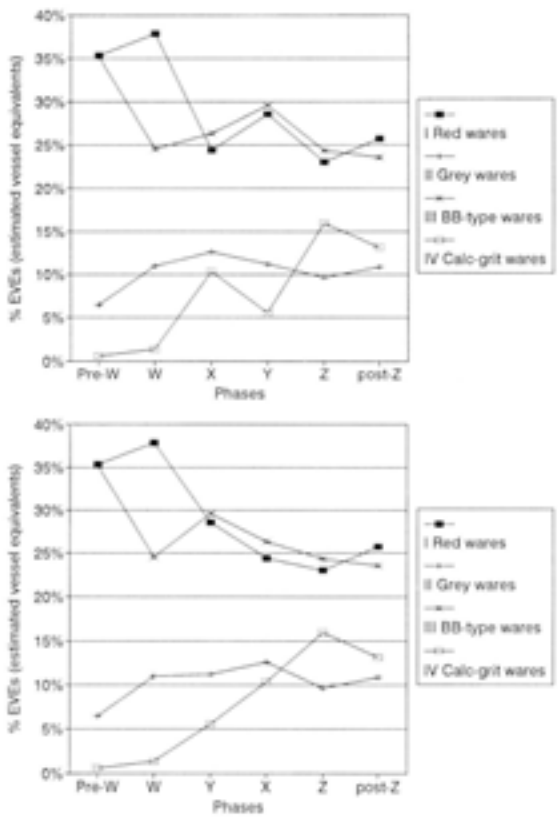


Fig 366 Coarse ware fabrics; above) in stratigraphic phase order, and below) with Phases X and Y reversed

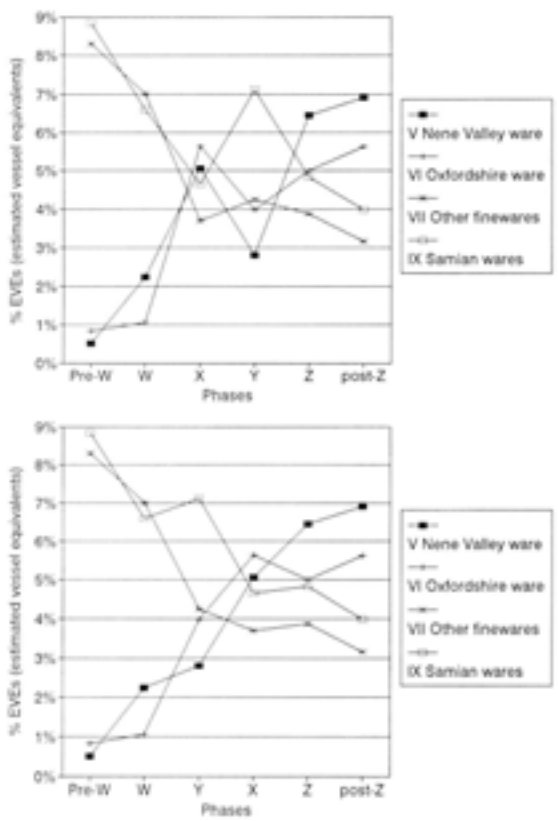


Fig 367 Fine ware fabrics; above) in stratigraphic phase order, and below) with Phases X and Y reversed

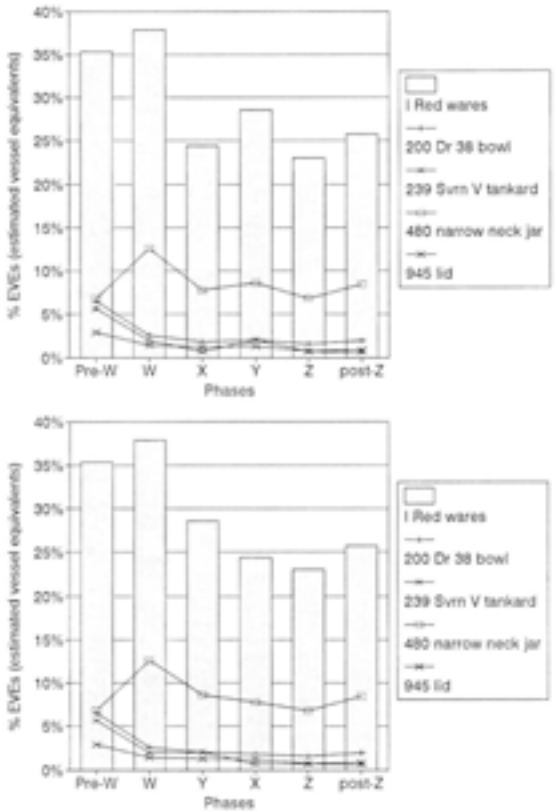


Fig 368 Red ware fabrics and forms; above) in stratigraphic phase order, and below) with Phases X and Y reversed

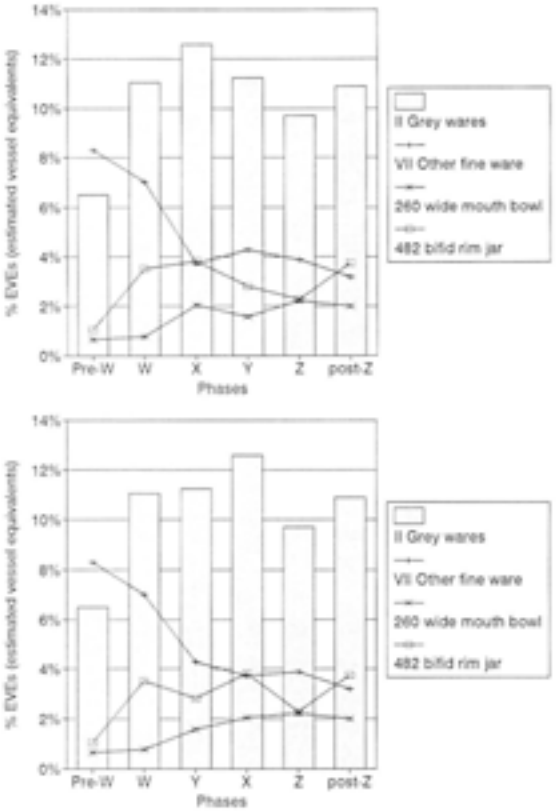


Fig 369 Grey and slipped ware fabrics and forms; above) in stratigraphic phase order, and below) with Phases X and Y reversed

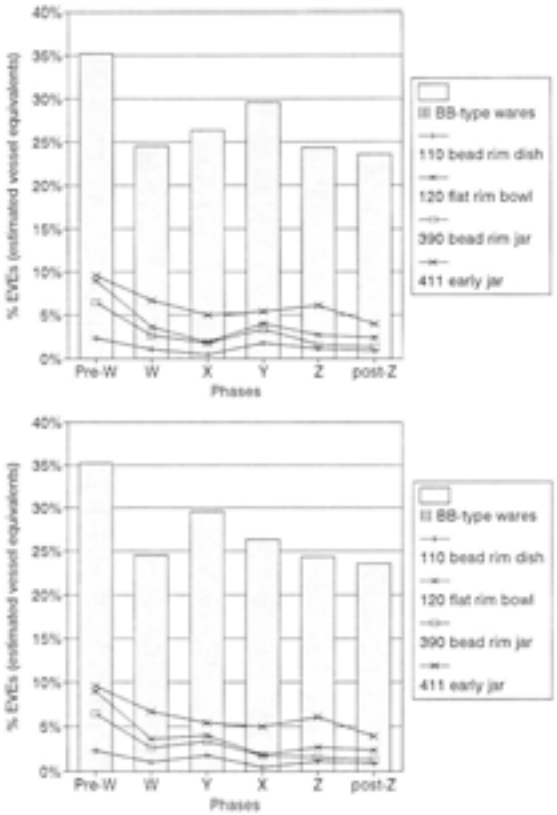


Fig 370 Black-burnished ware fabrics and early forms; above) in stratigraphic phase order, and below) with Phases X and Y reversed

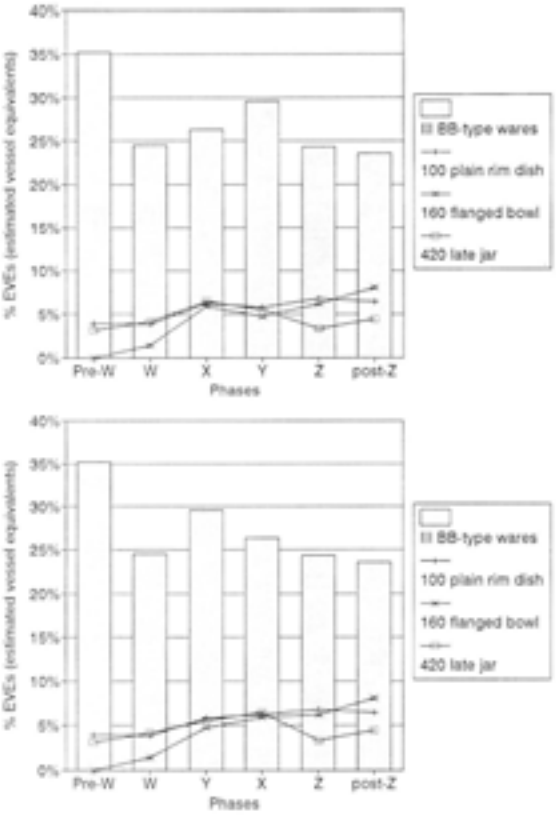


Fig 371 Black-burnished ware fabrics and late forms; above) in stratigraphic phase order, and below) with Phases X and Y reversed

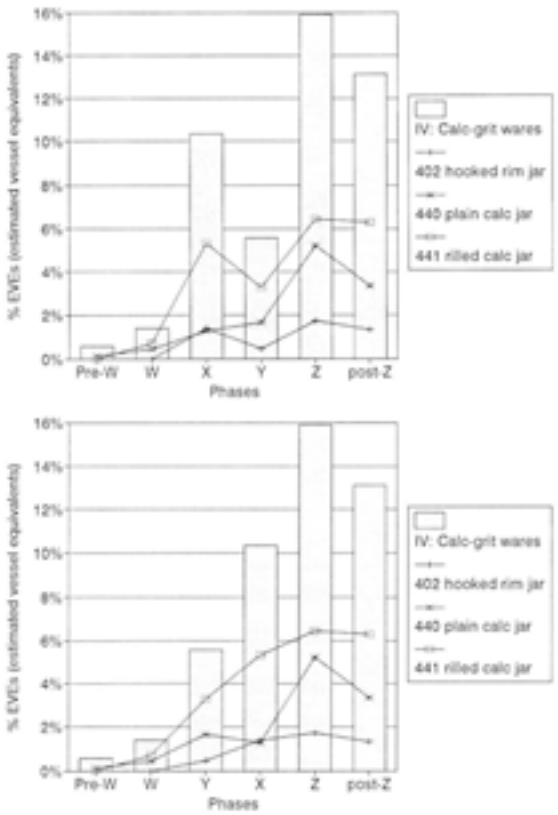


Fig 372 Calcite-gritted ware fabrics and forms; above) in stratigraphic phase order, and below) with Phases X and Y reversed

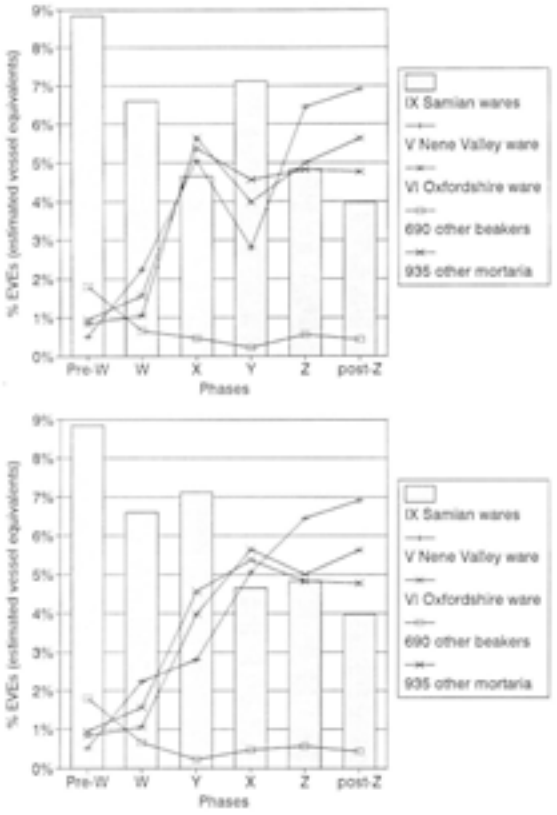


Fig 373 Various imported wares, fabrics and forms; above) in stratigraphic phase order, and below) with Phases X and Y reversed

The same phenomenon may be seen in the north room of the annexe which also had a thick layer of dumping in this phase and, to a lesser degree, in the basilica itself. Here, Phase W consisted of three phase floors (Phases W1–3) which were laid, patched, and replaced in turn. Presumably, the pottery had been brought in with the make-up and thus the map shows where the bulk of repair (and wear) has been recorded. The relatively low concentrations of pottery recorded reflect both areas where there has been considerable wear, such as around doorways in the south aisle which have eroded the make-up dumps (and their pottery), and little-used areas, such as the west end of the north aisle, where no patching (and thus no pottery) was needed. The only other dense area of pottery is at the east end of the *insula* 2 frontage where deep pitting has caused a large amount of earlier pottery to be redeposited.

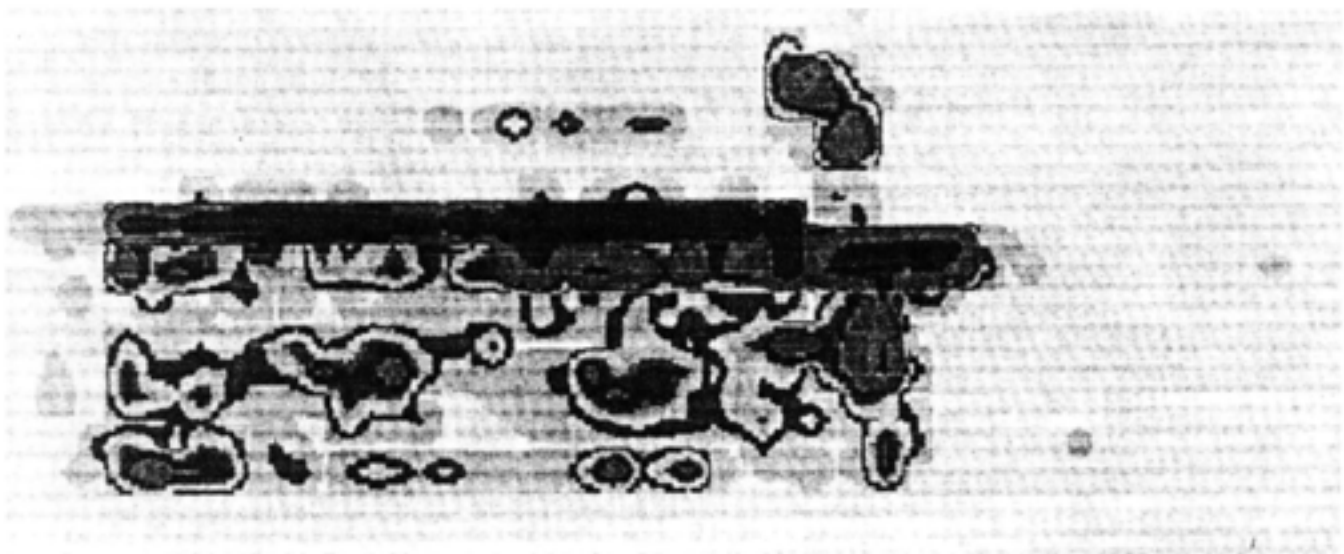


Fig 374 Distribution plot of pottery in Phase W

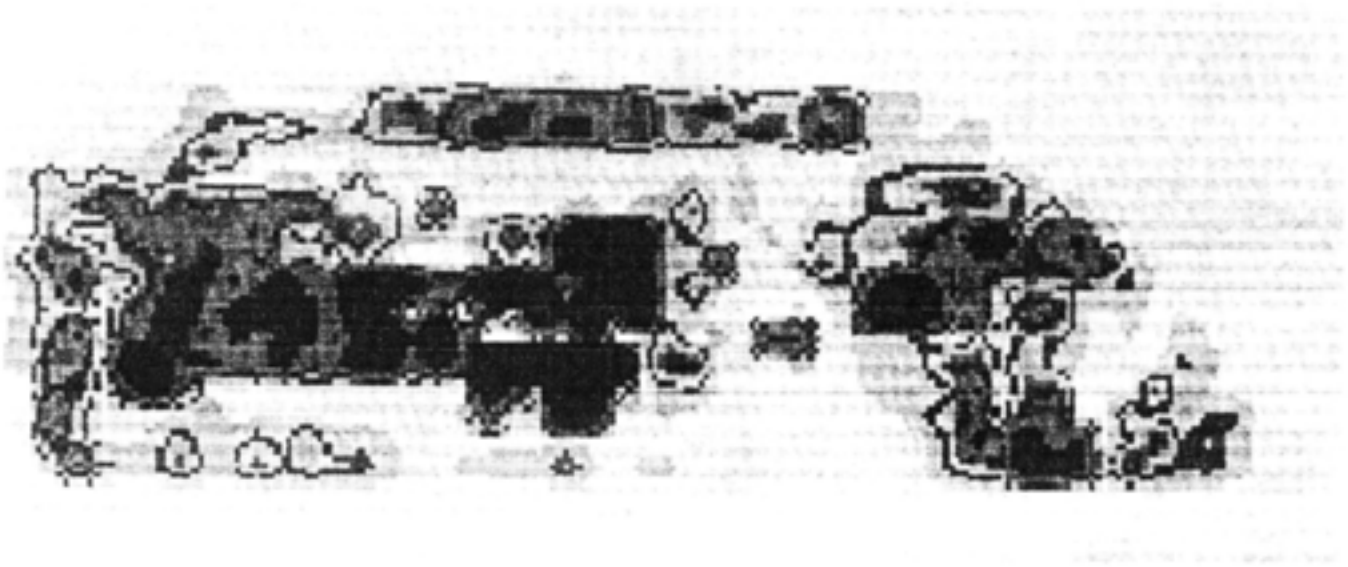


Fig 375 Distribution plot of pottery in Phase Z

Phase Z

In this phase although there is a heavy overall distribution of pottery, some localisation is seen, as in Phase W (Fig 375). The densest areas of distribution are in the building platforms; specifically those of Buildings 10 and 11 (nave, north aisle, north portico centre, and west), and to a lesser degree on the west portico and the south aisle. Clearly the implication must be that pottery was being brought in with the rubble dumps making up the platforms and this is confirmed by the fact that where Building 10's platform is thinnest (at the east end), the amount of pottery has significantly declined. Other buildings are also picked out on the *insula* 2 frontage, at the east end of the nave (Building 31) and in the Precinct (Building 6). Significantly, in the precinct, the post-built Buildings 23, 24, and 68 do not show up at all well, unlike 6 which had a platform. The densest area of pottery in the precinct (SW corner) is the by-product of pit digging (see conclusions on wares, below). Dumping in the north room of the annexe and at the east end of the north portico has led to significant concentrations in these areas. Finally, on the gravel street there is an extraordinary dearth of pottery which is probably a result of the careful sifting, by its constructors, of the material making up the street. This picture is slightly modified where buildings occur on the southern edge. Here, an apparent correlation may be seen between two of the concentrations and the areas of Buildings 43 and 12.

What these plots seem to tell us, therefore, is that pottery is not related significantly to use of the inhabited areas in Phase Z. Rather, the interpretation is that the pottery was no longer in use by this phase and was merely occurring in rubbish deposits brought into the site as make-up layers.

Distribution by wares

If the conclusion is that pottery was no longer in use in Phase Z, this then raises the question when did pottery finally go out of use on the site. Analysis of Figs 366a and 367a may suggest a possible date. Looking in particular at later wares, specifically the fine ware fabrics of Oxfordshire and the Nene Valley, and the coarse Calcite-gritted wares, all three are seen to increase rapidly in Phase W (roughly 367 to the end of the fifth century), peak in Phase X (end of the fifth to the mid-sixth century) decline in Phase Y (mid-sixth century), increase again in Phase Z (mid-sixth to seventh century), and level off or decline in post-Z (seventh century or later). A more usual pattern on a Roman site would first show a steady growth in the quantity of pottery recovered, then a relative decline in the latest phase, precisely the picture that is obtained by swapping Phases X and Y (see Figs 366b and 367b).

A more detailed examination of the key forms and wares appears to confirm this conclusion. Figures 364a and 365a plot early wares and forms, and show a steady decline in the amounts of these fabrics and forms, or at best a levelling out. It is instructive to compare these graphs with Figures 368a and 369a which show the EVEs of the important Calcite-gritted forms, Nene Valley, and Oxford wares, and other mortaria. All show the late peak in Phase X and an abrupt decline in Phase Y followed by another, larger peak in Phase Z when, possibly, much of the pottery was residual. The picture is even clearer with Black-burnished ware. Figure 366a plots the EVEs of the early forms and Figure 367a those of the later forms. It is apparent that Figure 366a follows the general decline seen in the early wares while the late forms show the pattern of growth, peak, decline, and peak seen in the late wares. It is interesting, however, that the overall amount of Black-burnished ware stays at about the same level.

How can we account for these apparently fluctuating levels of pottery? It may be argued that the late wares and forms were only imported in bulk into the town in the second half of the fourth century. These will have been in use from the beginning of Phase W but, if current thinking on the collapse of the Romano-British pottery industry is correct, then the importation of new pottery should have ceased after about 420–30. At first, the quantities of pottery in use would have led to comparitively large amounts of discarded sherds being incorporated into the dumps of Phase W, hence the steady rise shown in Figs 366a and 367a. This rise reached a peak in Phase X about fifty or more years after new supplies of pottery were no longer available. Pottery still seems to have been in use but presumably discarded in declining amounts. In Phase Y when the archaeological evidence shows that the basilica was once again in full public use and may possibly, have been used as a make-shift forum (*see chapter 7*), the late wares however show a rapid decline. Following the cessation of pottery production in the mid-fifth century, the pottery in use may well have been more carefully curated as demonstrated by the increased number of mended and riveted pots found in Phase Y (Table 16; *see chapter 6*) and in any case reduced levels of production mean that less pottery would be available to be thrown away. Thus the amount of pottery discarded on the site in this phase was significantly less than the comparatively high quantities in Phases W and X and continued to show decline. Pottery use seems, therefore, to have largely ceased by the mid-sixth century. By Phase Z both the increase in the quantity of pottery and its distribution, in the foundation platforms, indicates that much of the pottery was being brought onto the site as rubbish.

Analysis of the distribution plots of Fabric Groups I–IX was also carried out. These were plotted regardless of phase as there was not enough data within each phase to give them meaning otherwise. The resulting plots show two distinct groups, represented here by their clearest examples: Severn Valley (Fig 376) and Nene Valley wares (Fig 377).

The first distribution pattern, represents the earlier pottery fabrics present: Severn Valley wares, Grey wares, Other fine wares, White wares, and samian. The distribution is widespread but most dense in those areas of the site where disturbance of early layers through pit digging has taken place; the south-west corner of the precinct, the east end of *insula* 2, and the east side of *insula* 5, but another significant group is in the street drain and water pipes on the southern edge of the east to west street. This was probably the only stratified early group of pottery on the site (see Phase W above).

The second distribution pattern, of later wares, includes Calcite-gritted, Nene Valley, and Oxfordshire wares. The first two are quite similar but the Oxfordshire ware distribution is much sparser. Calcite-gritted ware was concentrated most strongly on the west portico, just inside the west door of the basilica, and at the east end of the north portico. Presumably these concentrations are being caused by material in the rubble dumps of Phase Z but if so, they do not show Building 10 at all clearly. This might support the hypothesis that Calcite-gritted ware was still in use at this time, at least at the west end of the basilica and on the west portico. If so, it would also make sense of the concentration outside the porch of Building 10 in the centre of the basilica. The general level of distribution seems to reflect Phase Z activity as well. The Nene Valley ware distribution is similar to that of the Calcite-gritted ware but stronger, which might confirm the use of Nene Valley pottery in the later phases in the life of the site. There is a possible concentration apparently in the drain but probably this is actually in the neighbouring robber trench, a late feature dug in Phase pre-Z. Oxfordshire ware is sparser than the other two fabrics, particularly on the west portico, although there is no apparent reason for this. There is, however, a clear distribution of this ware in the centre of the basilica, to the east of Building 10 and its related features. Again, this pattern is difficult to explain.

The last group, Black-burnished ware, shares characteristics of both groups. It shows the drain and water pipes well, as well as the areas of pit digging referred to above. Inside the basilica, Black-burnished ware is found in the north aisle robber trench which relates to Phase pre-Z robbing, and in the north portico and annexe which relates to dumping. This pattern is the result of plotting all Black-burnished sherds without differentiating between the early and late forms.

The production of the distribution maps has provided corroboration for some of the archaeological interpretations offered for the site. In addition, the distribution maps for the wares show very clearly the distinction between residual and non-residual wares. Additional work on the pottery data may well refine and develop our knowledge in some of these areas.

Conclusions

The pottery from the baths basilica has effectively been treated as a single large assemblage. Considerable efforts have been made to look for evidence of chronological or geographical variations which might indicate progressive deposition of the material onto the site, and there are some clear hints that the composition of some parts of the assemblage may be systematically different from the site average, but we do not yet have a clear understanding of either how the material was deposited where it was found, or from where it had been previously obtained. This does not mean that the material cannot be dated: the vast majority of the pottery was made in the third and fourth centuries, with types definitely made before *c* AD 200 accounting for no more than about 5% of the total (bearing in mind the subjectivity of the dating of Central Gaulish samian ware, see Symonds 1991, 138–9 and 150). Although to a large extent the local red and grey wares

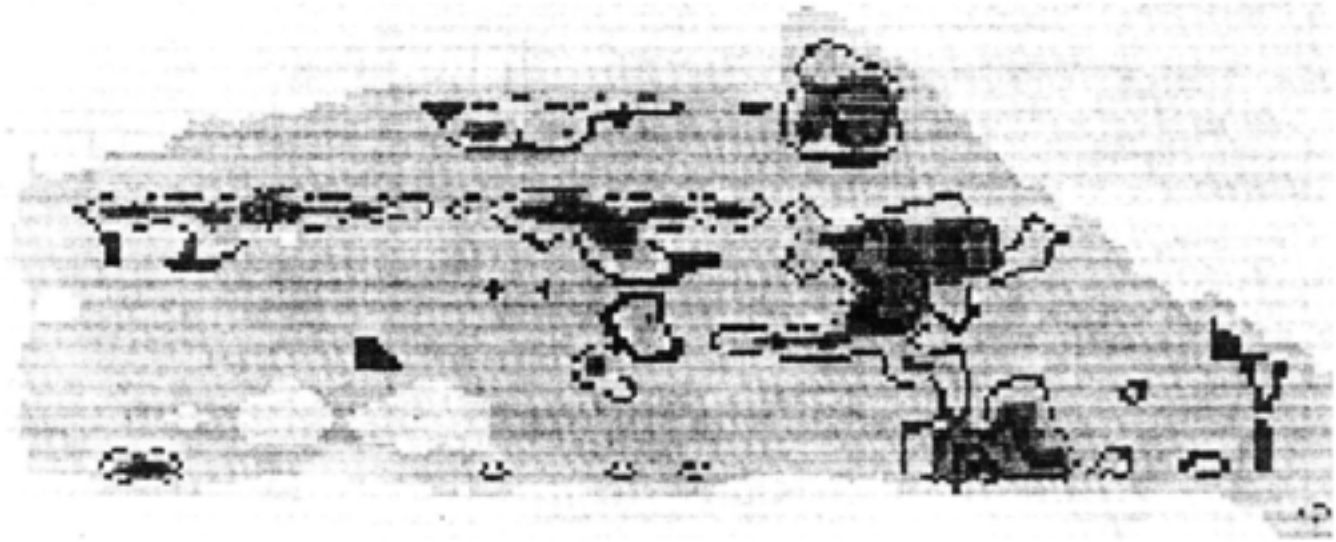


Fig 376 Distribution plot of Severn Valley ware, all phases

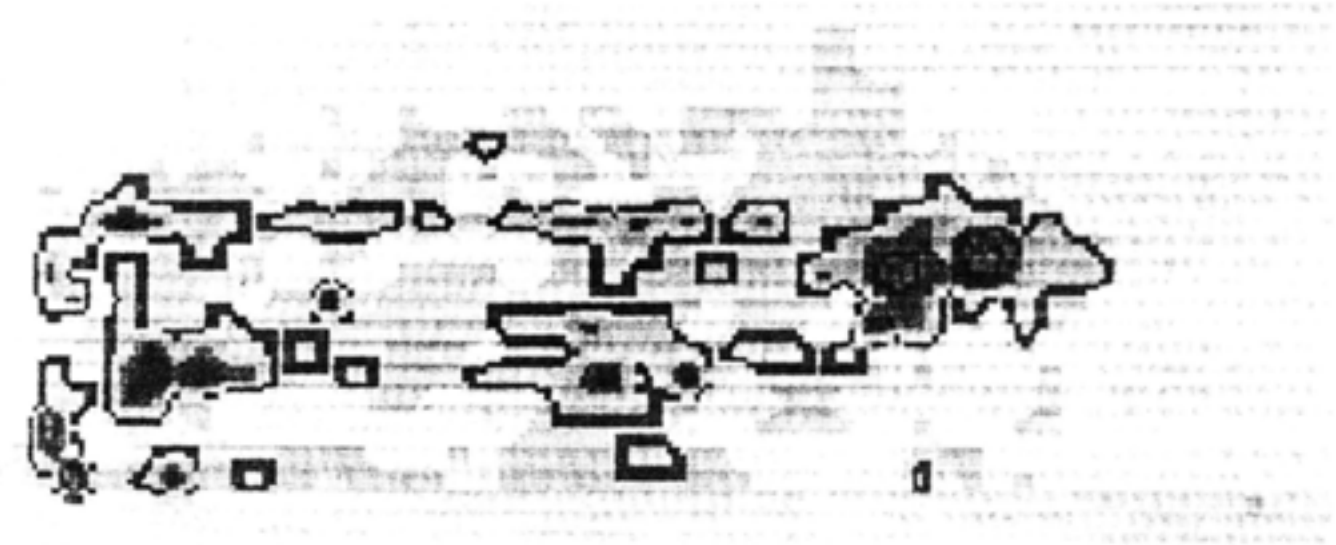


Fig 377 Distribution plot of Nene Valley ware, all phases

are not specifically dateable, the quantitative importance of other dating elements, such as Black-burnished wares, Calcite-gritted wares, and Nene Valley, Oxfordshire, and other colour-coated wares, tends to support the view that most of the material belongs to the fourth century, rather than the third.

The quantified data shows that the assemblage is dominated by Severn Valley-type red wares, which form nearly 30% of the pottery present. The analysis by Roberta Tomber (above), and comparisons with other more southern assemblages of Severn Valley-type wares suggest that those found at Wroxeter are very likely to have been made relatively locally, by potters for whom the town of Wroxeter was their principal market. While there are some forms in common with red wares found in the Gloucester region, for example, other forms are clearly wholly independent of lower Severn Valley connections, and the fabrics are separable, if sometimes only by thin-section analysis.

A curious feature of late Roman pottery assemblages in western Britain, in comparison with those from eastern Britain, is the small proportion of coarse grey ware fabrics present, and the more significant role played both by red wares and by Black-burnished wares. Whereas the latter wares (Fabric Group III) account for between 20% and 26% of our material, the former (Group II) add up to no more than 9% to 11%. This can be contrasted with eastern sites such as Colchester and London, where coarse grey wares often account for between 30% and 50% of late assemblages, while Black-burnished wares might comprise no more than about 5% to 10%. At Wroxeter the latter wares are serving as the main grey ware fabric, but grey/black wares as a whole are not as significant as on eastern sites, and oxidised wares play a more important role. At 7% to 11% of the total, Calcite-gritted wares (often described elsewhere as late shell-tempered wares) are also more important at Wroxeter than at

sites in the east, and these also seem to be playing a more important role as a supplementary ware to grey cooking pots. Possible confirmation of this may be indicated by the wide variety of Calcite-gritted forms found on the site including a full range of Black-burnished ware copies.

By contrast, Figures 369a and b show that the fine wares seem generally to occur almost precisely as one might have predicted at a typical late Roman site anywhere in southern Britain. The peak of samian ware of 8.8% in Phase pre-W lies just between the peaks of 9.6% and 8.3% recorded in phase 4 (*c* AD 160–75 to 200–210) and phase 5 (*c* AD 200–210 to 250–60) at Chelmsford (Going 1987, 107, table 9), where the proportion of samian tapers off in the subsequent phases in the same manner as it does at Wroxeter. The rise of Nene Valley and Oxfordshire wares also matches that at most contemporary sites, with the former wares reaching 6.9% of the pottery in Phase post-Z, and the latter reaching 5.6% in Phases X and post-Z. Such percentages are somewhat higher than those recorded at Chelmsford, where both fabrics reach less than 4% at their peak (Phase 8 in *ibid*), but at Colchester Nene Valley wares reach 10.4% in the phase equivalent to Wroxeter Phase post-Z (Symonds and Wade forthcoming), while Oxfordshire wares are less than 4%, as at Chelmsford (Going 1987). Nene Valley colour-coated wares reach 12.5% in contexts dated late-second to early-third century at Milton Keynes, and then 11.6% in contexts dated mid to late fourth-century (Marney 1989), while they reach 15.4% in London at Dowgate Hill, dated *c* AD 270–400 (Symonds 1991, 149, figs 11 and 12; Symonds and Tomber forthcoming). The same Milton Keynes contexts contained even higher quantities of Oxfordshire wares (as much as 19.6% in the mid to late fourth century), whereas at the peak of 5.4% at Billingsgate Bath House is almost identical to the Wroxeter percentage.

Clearly the proportions of samian wares found at sites such as those quoted above cannot be directly related to the distances of the sites from the production centres. With Nene Valley and Oxfordshire wares, which seem to more or less replace samian, the Milton Keynes percentages probably do indicate a distortion caused by the site's relative proximity to both industries, and especially to the Oxfordshire industry. Wroxeter and Colchester, however, are almost equidistant from the two industries, in opposite directions, and the similarity of the percentages therefore suggests that the distributions of these industries radiated in all directions, in a relatively uniform manner.

It should be noted that *mortaria* and *amphorae* are in general poorly represented in the Wroxeter assemblage. In such late material this is not surprising, although the numbers of *mortaria* may be disproportionately low. It was necessary to include Oxfordshire red/brown colour-coated *mortaria* within the form classification of vessels in the ware (Fabric Group VI), because of the difficulty of successfully differentiating ungritted rim or body sherds from other bowl forms. This unfortunately has the effect of separating them from the main classification of other *mortaria* in Fabric Group VIII. While the importation of *amphorae* into Britain tapers off almost completely in the course of the third century, mortaria change radically in style (and probably in function), and become much more assimilated into contemporary colour-coated wares, as simply another form in the repertoire. Curiously, one possible exception to this picture is the Palestinian *amphora*, Fig 364, nos 271 and 272, but while the rim-form is akin to that of a late (fourth to sixth century) 'hollow-foot' *amphora* (Peacock and Williams 1986, 193–5, class 47), the fabric is the hard brown fabric of 'carrot' *amphorae*, which were imported into Britain in both 'carrot' and 'cigar' shapes from the first century onwards (*ibid*, 109–10 and 216–17, classes 12, 65, and 66).

In terms of pottery forms, much has already been summarised in the graphs and their captions. In general there are few surprises with regard to the behaviour of either forms or fabrics, but it is perhaps worth noting that almost all of the pottery represented on the graphs seems either to begin at a peak and then steadily decline, or to begin at the base line and steadily rise: we are seeing, in other words, a very clear transition from an early type of assemblage to a late type of assemblage, and relatively few pottery types seem to belong to both. This is a phenomenon which is sometimes rather more marked in other types of artefact (such as glass and metalwork), and in the architecture of structures, but which is sometimes less obvious in pottery. This is because in pottery there are effectively two transitions, the first of which probably began soon after the demise of the South Gaulish samian industry and the rise of exportation from the Black-burnished ware industry in Dorset, ie *c* AD 120, but which was then followed by another transition sometime in the early to mid third century, marked by the disappearance of Central and East Gaulish samian wares, *amphorae*, and, in colour-coated wares, 'bag-shaped' beakers. Because the Wroxeter baths basilica material contains very little first century material, the transition between the second to early third-century types and the late third to fourth-century types is rather more clearly defined, and it also becomes clear that there was perhaps much less continuity in the pottery than might have been expected.

The pottery reported on here is a substantial assemblage, being more than 1.3 tonnes of pottery, therefore a much more substantial report could have arisen from this material, had the circumstances for the production of such a report been more favourable. It is probable that further work on the late Roman pottery at Wroxeter, and in particular for a much more detailed consideration of stratified deposits would produce useful results. We have suggested here that a pottery sequence may be detected in the excavated phases: this could be contrasted with other Wroxeter assemblages which may not have been so thoroughly redeposited.

Appendix 5: Vessel glass

by Kate Pretty

Introduction

The baths basilica site has produced about 10,000 pieces of glass, both window glass and vessel glass. Like the pottery, window glass and body sherds of vessel glass were collected in the upper layers and larger contexts in a subdivision of the overall 10 metre grid, so that the material could be provenanced to a 2.5 metre square within the 560m^2 site. In contexts smaller than 2.5m^2, the material was more exactly provenanced by the limits of the context. Rims, bases, and handles, together with decorated body sherds, were exactly provenanced using the six-figure grid reference for each 10 metre square on the whole site.

All the glass has been classified using a short form of the system evolved by Hilary Cool and Jennifer Price to whom the author is indebted. Hilary Cool supervised and advised on the analysis of the vessel glass and allowed us to make use of her then unpublished work on the glass from Wroxeter Baths and from Colchester. The discussion below shows the benefit of her scholarship, but we take full responsibility for the conclusions. Neither the window glass nor the undecorated body sherds will be discussed further in this report except to note that there were about 5000 pieces of window glass and 3737 body sherds in the entire assemblage. The discussion below is based on the analysis of 1122 pieces of vessel glass. The aim of the authors is not to produce a standard glass report but to elucidate the history of the site. A full catalogue exists in the Level III Archive and since this is primarily a fourth-century assemblage which merits further publication, it is hoped to publish it elsewhere in due course. Some items are singled out for special consideration, but on the whole the material is dealt with in the aggregate as are the coins (see above).

Description

As is usual in a standard report, the glass is classified by colour and then by vessel form. The brief catalogue below gives comparative forms, all from Cool's Colchester catalogue (Cool and Price, 1995) unless from other sources which are specified. Vessel numbers represent an underestimate based on rim numbers, together with other distinct vessels. This catalogue shows the range of material and then goes on to describe in detail a small number of pieces of particular interest.

Strongly-coloured

includes body sherds

dark-blue, 33 sherds: 10+ vessels, including a cylindrical cup, small jar, flagon and handled bowl; *cf* Colchester 258–72, 465–540.

purple: 4 sherds: 2+ vessels, including a jug or flagon and a jar; *cf* Colchester 871–954.

amber: 22 sherds: 7+ vessels, including a jar or cup and a flask or bottle; *cf* Colchester 871–954.

strong green: 7 sherds: 4+ vessels, including a flask or bottle, a jug and an emerald carinated bowl.

Pillar-moulded bowls

11 sherds: 4+ vessels, including two polychrome vessels; *cf* Colchester 1–184.

Cast vessels

10 sherds: 8+ vessels, including 3 pieces of polychrome vessels, and light blue and colourless, wide-rimmed bowls; *cf* Colchester 212–28.

Colourless

269 sherds: 144+ vessels, including painted vessels, snake-thread decoration, beakers with cracked-off rims, facet-cut bowls and cups, cups with free-hand curvilinear decoration, indented beakers, arcaded beakers, wheel-cut beakers, cylindrical beakers with fire-rounded rims and trailed decoration, cylindrical cups (Isings 1957, 85), truncated conical beakers, funnel-mouthed jugs with a thick cordon below the rim, stemmed beakers, and bottles; *cf* Colchester 395–410, 415; Lullingstone (Cool 1987, 113–18); Harden 1987, nos 107–108; Wint Hill (Harden 1960); Colchester: 385–93, 426–64, 465–540, 541–2, 276, 543–50, 553–614, 1005–1006, 1017–18, 1037–42, 1001, 1019, 1045–50, 1052–3.

Blue-green

462 sherds: 220+ vessels, including a Hofheim cup, Claudian wheel-cut beaker, cylindrical cups and beakers, tubular-rimmed bowls, collared jars, funnel-mouthed jars and jugs, spouted jugs, conical jugs, funnel-mouthed flasks, amphorisks, bath flasks, globular, tubular, conical and discoid unguent bottles, prismatic and cylindrical bottles; *cf* Colchester 279–331, 701, 332–51, 630–92, 713–20, 807–30, 771–806, 1005–1006, 1017–18, 1037–42, 871–954, 1001, 1019, 1045–50, 1052–3, 1165–9, 1190–1209, 1210–42, 1243–50; Towcester (Price and Cool 1983, fig 47.36, 38); 1160–61, 1834–2239.

Green

304 sherds: 136+ vessels including a mould-blown hemispherical cup, hemispherical cups with cracked-off rims decorated with blue blobs and abraded bands,

conical truncated beakers, hemispherical cups with fire-rounded rims, indented truncated conical bowls, tubular-rimmed bowls, funnel-mouthed jugs, some with thick horizontal trail below the rim, optic-blown fragments from funnel-mouthed jugs, globular jugs, spherical flasks, Frontinus bottles, cylindrical bottles, funnel-mouthed jars, decorated body fragments from arcaded beakers, optic-blown vessels, applied bosses and curvilinear free-hand trail; cf. Winchester (Cool personal comment); Colchester 553–614, 618–29, 720–31, 1160–61, 1164, and Lankhills Class VI (Harden 1979); 1184–7, 2259–62, 2245, 2257, 2263); Barnsley Park no 18 (Price 1982).

Dating

Cool Phase 1: AD 43–70

This phase is characterised by purple and opaque pale-blue fragments, and by G0259, a thick green pedestal base from a Claudian wheel-cut beaker and G0506, a Hofheim cup. G1063 (Fig 374, no 12) is the rim of a cast polychrome, wide-rimmed bowl, decorated with white spirals in a dark ground. The piece is very weathered.

Cool Phase 2: AD 70–100 (Flavian)

In this phase there is a noticeable amount of material including strongly coloured, pillar-moulded bowls, a pale blue cast plate, and polychrome cast vessels. In blue-green glass there are amphorisks and G0258, the fire-rounded, everted rim of a fine-walled, cylindrical beaker with a single wheel-cut line around the shoulder.

Cool Phase 3: AD 100–160/170

A noticeable feature of this phase are the cast millefiori pieces G1110 and G1111 which are parts of the body and flat base with a low base-ring, of a shallow bowl consisting of a checkerboard design formed by arranging small square-sectioned canes in rings radiating out from the centre. The colours run from the centre as follows: dark red-brown, opaque white, opaque pinkish, emerald green, opaque turquoise, opaque yellow, reddish brown, opaque white (Price 1979, 1985a). From this phase are a rim and part of the body wall of a dark blue cylindrical cup (G1026) with a fire-rounded rim and a body decorated with applied trail (Fig 374, no 11) paralleled at Newstead and Lincoln (H. Cool personal comment). A body sherd from a painted cylindrical cup (G1112) is of colourless glass with a convex-curved side bearing a design in yellowish-brown outlined with maroon and a design in yellowish-brown fringed with small maroon dots on a pale blue opaque ground (Fig 374, no 13). This is probably Isings 1957, Form 85, but because of the convex-curved side may be a flask (Harden 1987, no 151). A third decorated cup (G0026) is facet-cut with vertical rice-grain facets and free-hand feathery lines around them, and a horizontal wheel-cut line edged by free-hand inscribed circles (Fig 374, no 2), paralleled at Leuna-Merseberg. Other facet-cut cups and bowls which continue through Phases 3 and 4 are represented by G0007 which is the base of a hemispherical bowl bearing a central circular facet with a raised central boss, surrounded by seven small circular facets and part of a row of four rice-grain facets on the body (Fig 374, no 1). The other facet-cut vessels mostly carry a geometric decoration and are all of good quality colourless glass, except for G1023 which is greenish.

Cool Phases 6 and 7: AD 300–450+

Inevitably much of the glass from Wroxeter is fourth-century in origin and green in colour, ranging from a deep, strong olive colour to a pale, watery, bubbly greenish tinge. Among the individual vessels of note is G0718, the rim of a mould-blown, hemispherical cup (Isings 1957, Form 107a) with a cracked-off rim and a body decorated in a shallow honeycomb pattern (Fig 374, no 5). Hilary Cool (personal comment) has recently commented on the British examples of this type in a discussion of a fragment from Chester Road, Winchester. Colourless examples are known from Shakenoak (Harden 1968, 79, no 25, fig 26.10; 1973: 103, nos 214–15, fig 52), York (Charlesworth 1976, 17, no 53, fig 14) and Chichester (Charlesworth 1978, 269, no 29, fig 10.22), and yellow/green fragments, like this Wroxeter example, from Chesterholm and Winchester (Price 1985b, 310, no 31, fig 77).

There are at least 157 examples of fourth-century drinking vessels. Of the rim fragments, about two-thirds have cracked-off rims, the remainder are fire-rounded. Although hemispherical bowls or cups with fire-rounded rims are usually regarded as later than vessels with cracked-off rims, at Wroxeter cracked-off rims are more consistently found in the latest levels of Phase Z and in Layer I/II, perhaps reflecting a local conservatism in taste. Table 21 shows the proportion of drinking vessels found in Phase Z and later and also the number of olive-green and other-coloured vessels in each vessel type.

Table 21 Proportion of types of drinking cups in the latest levels

type	*HC*	*TC*	*OC*	*FC*
number of rims	28	21	28	32
% in Phase Z or Layer I/II	75	81	54	53
number of olive-green pieces	19	10	1	1
number of colourless	0	0	11	0
number of blue green-pieces	0	0	2	1

HC: hemispherical cups with cracked-off rims
TC: truncated conical beakers with cracked-off rims
OC: other cups and beakers with cracked-off rims
FC: cups with fire-rounded rims

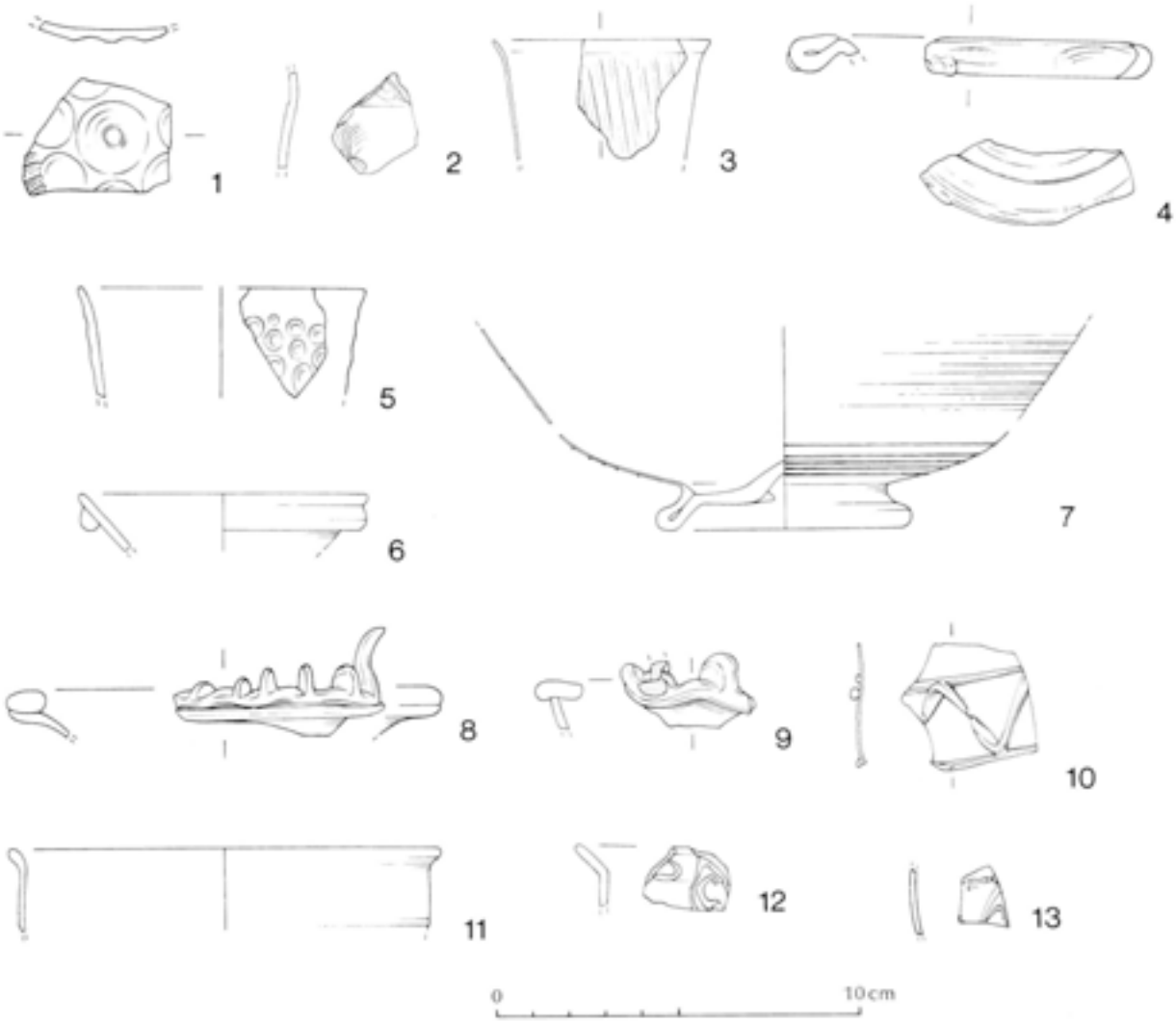


Fig 378 Fragments of glass vessels (scale 1:1)

The deep olive-green colour is almost exclusively associated with vessels with cracked-off rims, particularly with hemispherical cups or bowls (68%) and with conical beakers (48%). Of all the olive-green sherds from the site, including bases and body sherds, 76% are from Phase Z and Layer I/II, and none are earlier than Phase Y, suggesting at least a late fourth-century date for these vessels at Wroxeter. Similarly there are no fourth-century cups with fire-rounded rims before Phase Y at Wroxeter. Together with a liking for strongly coloured drinking vessels is an apparent liking for vessels decorated with dark blue blobs of which there are an unusually high number (Hilary Cool, personal comment; Harden 1980, 41, no 1).

The hemispherical cups and conical beakers with cracked-off rims range in rim thickness from 4 mm to 1 mm, three-quarters of them having a thickness of 2 mm or more. In contrast there are a number of very thin-walled cups or beakers in green and blue-green glass with cracked-off rims whose thickness runs from 0.5 mm and does not exceed 1.5 mm. Among these finer-walled vessels are a number with an unusual purplish tinge to the glass (*cf* G0736, G0743), which is probably the result of attempts to decolourise the glass using manganese in the manner discussed by Cole for window-glass (1966, 46–7). G0144 is a colourless, optic-blown example with diagonal ribbing (Fig 374, no 3). The survival of these eggshell-thin vessels into the fifth century or later is remarkable.

Among the decorated cups is G0961 (Fig 374, no 10) which is part of a hemispherical cup decorated with a zigzag free-hand trail, a motif often combined with coloured blobs as on the drinking vessels from Köln (Fremersdorf 1959, 78–9, *Tafel* 131–33). The same motif also occurs on unusual forms such as the Mucking claw beaker (Harden 1987, no 146) and drinking horns (Fremersdorf 1962, 49, *Tafel* 136) and ranges in date from the first half of the fourth-century, as on a drinking horn from grave 1213 at Krefeld-Gellep (Pirling 1966, 112, *Tafel* 100, no 3) to the late fourth century at Mucking. British examples are rare and the closest parallels to Wroxeter are from Traprain (Curle 1931–32, fig 43) and Caistor-by-Norwich (Cool personal comment).

Another group of vessels in olive-green glass is represented by funnel-mouthed jugs with a fire-rounded rim and a thick trail below the rim and with fine trail on the shoulder below. G0848 (Fig 374, no 6) illustrates the rim form and from the colour may belong to the same vessel as G0859/860 (Fig 374, no 7) which is the base of a funnel-mouthed jug with a tubular, pushed-in base ring and a marked pontil scar, complete with the remains of the body wall decorated with a fine trail. Fourteen other fragments of the same jug show that the vessel was optic-blown with a wall thickness of only 1 mm. Another fourth-century jug type is represented by G1120 (Fig 374, no 8) which is the rim and handle from a jug with an out-turned, fire-rounded rim bearing a thick trail with a pinched projection from the upper handle attachment. A similar but earlier example in blue-green is G1125 (Fig 374, no 9) from a spouted jug.

Also in blue-green is G0279, the rim of a very large bottle. The rim is massive and tubular with a flattened upper surface decorated along the outside edge with small radial nicks. The piece has been re-used as a polisher, is worn smooth with use (see Fig 374, no 4) and may perhaps be compared with the polishing stones noted in Appendix 1. There are nine other examples of the reuse of glass vessels, eight of them circular bases, grozed flat possibly for reuse as counters as at Krefeld-Gellep (Pirling 1972, 73, *Tafel* 59, nos 13–16), and one prismatic bottle base also grozed flat for an unknown purpose. The re-use of both ceramic and glass for what has been called 'large counters' is noted in Appendix 1.

The glass and its relationship to the site

The vessel glass has been assigned by Hilary Cool to seven chronological phases. The assignments are based upon her chronology established for Colchester and discussed in detail in her report on the Colchester glass (Cool and Price, 1995). Since regional variation in the glass is less marked than in pottery types, we have adopted the same phasing save that Colchester has a finer division in the first century, while at Wroxeter we have divided the fourth century into early and late. The phasing is shown in Table 22, with the Wroxeter site phases shown for convenience.

Table 22 Glass and site phases

Glass phases	*site phases*
Phase 1: AD 43–70	
Phase 2: AD 70–100	
Phase 3: AD 100–170	
Phase 4: AD 170–230	
Phase 5: AD 230–300	
Phase 6: AD 300–350	
Phase 7: AD 350–450	
	Phase W: after AD 367
	Phase X: AD 410–650 (Birm-1181; 1520±60 BP)
	Phase Y: AD 390–660 (Birm-1186; 1530±70 BP)
	Phase Z: AD 600–790 (Birm-1045; 1340±60 BP)

As with the pottery and coins, the vessel glass shows that middle to late fourth-century glass vessels were being deposited in some numbers in Phase W, although the very late (Phase 7) glass does not appear until Phase X. Thereafter Phase 7 glass appears in all Wroxeter phases. The chronology of the glass corroborates that of the other finds and underlines the importance of the structural stratigraphy for the dating of the site.

The vessel glass is less widely distributed than the coinage and distribution plots show marked local concentrations in most phases. The largest deposits are in the north portico in Phases W and Z, in the nave in Phase W, and in the baths precinct in Phase Z. There is very little glass in the west portico until Phase Z, when there are 18 drinking vessels, nine of them olive-green glass. Such a concentration of type and function is rare in the mixed deposits of Wroxeter. It is tempting to relate the drinking vessels to the booths erected in the west portico fronting Watling Street, but this would suggest some fairly high-class drinking in a public place, and it may be more reasonable to regard them as stemming from a dump whose contents derived from a well-to-do household. On the other hand, the material in the North Portico in Phase W and in the baths precinct in Phase Z is clearly dump material with large numbers of Phase 1 and 2 vessels together with later material. In the nave the Phase W concentration is largely third-century from Phases 4 to 6, although fourth-century vessels are also present. By Phase Z the north portico material is largely late fourth-century as are the vessels from *insula* 2, the south aisle, and the material from Layer I/II. As described in the discussion of dump material in chapter 6, the distribution and chronology of the glass provide some information about its original deposition, but not much about the structures on the baths basilica site.

The function of the glass vessels has also been analysed in order to provide comparative material for Hilary Cool's work on the change in the proportions of glass vessels throughout the Roman period. She has divided Roman glass vessels by function into Tableware Classes A, B, and C, and Container Classes D and E. Tableware includes drinking cups (Class A), vessels for serving food (Class B) and vessels for serving liquids (Class C).

Table 23 Functional analysis of glass vessels

Glass phase	*function %*					*no*
	A	*B*	*C*	*D*	*E*	
Phase 1	23.0	38.5	38.5	-	-	13
Phase 2	25.7	34.4	37.1	-	2.8	35
Phase 3	43.2	23.0	17.6	-	16.2	74
Phase 4	44.0	8.0	6.7	4.7	36.6	150
Phase 5	45.2	1.6	34.4	1.6	17.2	64
Phase 6	75.8	-	24.2	-	-	33
Phase 7	70.7	2.2	17.1	1.4	8.6	222
Caistor by Yarmouth	77.0	2.0	8.0	13.0	-	83
Towcester	75.0	-	14.0	11.0	-	36

Containers for solids are Class D and for liquids Class E. Table 23 shows the numbers of vessels of each Class by chronological phase (see also Table 22). The sites of Caistor-by-Yarmouth, a fort with occupation from the mid third to the late fourth century, and a suburb of the Roman town of Towcester dated to the middle third of the fourth century have been added for comparison.

It can be seen that in the fourth century, Wroxeter fits the general trend with a high proportion of drinking vessels in the final phases and a virtual disappearance of containers for solids. In her 1991 paper (Price and Cool 1991) Hilary Cool drew attention to the way in which the changes in the role of glass vessels by function must indicate changes in the role of glass vessels within the entire social assemblage. In this respect Wroxeter mirrors normal Romano-British patterns and, as expected, it is the drinking vessels which survive into the fifth century, maintaining Roman habits, although in this case it is more difficult to define differences between late Roman and Anglo-Saxon practice, given the predominance of Romano-Frankish forms in both societies.

Taken as a whole the glass vessels from the baths basilica site reinforce the patterns which have been seen in other large groups of finds, the pottery and coins, and the small finds discussed in chapter 6. It is clear that Wroxeter had access to international glass markets up to the end of the Roman period and that good fourth-century glass continued in use well into the fifth, and possibly sixth century.

B: THE ENVIRONMENTAL EVIDENCE

Appendix 6: Plant remains

by M Charles, S Colledge, and M Monk

Introduction

In 1975 a group of archaeological features, thought to be baking hearths, was found during the early stages of the baths basilica excavation and samples were taken for the extraction of charred plant remains. In advance of the following season, one of the authors (Monk) was approached by the excavators to set up an on-site sampling and recovery programme for small scale bioarchaeological material and, in particular, for charred plant remains. The criteria for sampling at that stage was based on judgements made by the excavation supervisors and the sampling supervisor. Only those contexts that were reasonably well sealed and definable entities were sampled, especially those contexts that were seen to contain a high incidence of charred material.

Even from the initial stages of the project it was apparent that there was inter-deposit mixing because the site as a whole had been subjected to extensive post-depositional movement during and subsequent to the main period of occupation in late and post-Roman times. Also noted in the samples was a high incidence of modern uncharred plant material including modern seeds of *Galium aparine* (goosegrass), *Sambucus nigra* (elder), *Fumaria* sp. (fumitory), *Rumex* spp. (docks), *Polygonum aviculare* (knotgrass), and members of the Chenopodiaceae family. This contamination was partly due to the fact that archaeological surfaces were left open from season to season, but it was also due to faunal activity through the many loose unconsolidated deposits that formed the later levels of the site. Certainly the effects of burrowing snails and earthworms created problems, but the occurrence of a number of *Fumaria* sp. (fumitory) seeds with gnawing marks on their surfaces, together with finds of rodent bones, would suggest possible inter-deposit mixing by small mammals in the recent and presumably more distant past. The degree and depth of modern contamination was investigated by one of us (Monk) in a series of samples taken from a trench section at the east end of *insula* 2 (Site C), above grid 32, where it was noted that modern contaminants were present in some numbers to a depth of 200mm, even where the overburden had not been removed. In addition a find of apparently recently charred barley (in the robber trench D242) suggested infiltration through unconsolidated deposits, and also introduced the possibility that present day stubble burning in this area of former farmland, might have given rise to contamination by modern charred material.

Despite the problems with the security of the evidence, the majority of the contexts sampled in the decade 1975–85 produced interpretable remains.

Analyses of the archaeobotanical material recovered from the site were undertaken by Monk for the 1975–80 seasons and by Charles/Colledge for the 1981–5 seasons. In order to make it quite clear where the responsibility for interpretations (etc) lay it was considered relevant in certain parts of the text, to add the authors' names. The methodologies practiced and analyses undertaken in the years 1981–5 by Charles and Colledge were based on discussion and collaboration with Monk.

Methods

On-site sampling

The majority of the plant remains recovered had been preserved by charring, though a small number of mineralised seeds were also found. Samples were taken from deposits which comprised high concentrations of charred plant material and, where the contexts or features were large enough, *c* 10–20 litres of soil (one or two large plastic sacks) were collected (Table 24). A range of context types was sampled. Other less obviously rich deposits were sampled not only for plant remains but also for analysis of soil chemistry, molluscs etc, and these formed useful controls for the archaeobotanical study. A grid of one metre squares was laid out in areas where there were high densities of charred plant remains and in these areas samples were taken from each grid square in order to monitor any changes in the distribution of the material throughout the deposits.

Extraction of charred plant remains

The soil samples were not sieved prior to flotation and only small finds were removed from the deposits during excavation. Bucket flotation was used to retrieve the plant remains. By using this method it was possible to monitor the recovery process closely and to ensure that a high proportion of the plant remains were retrieved. The heavy residue was retained on a 5mm mesh.

Flot processing

1975–80 samples

A total of 96 contexts were sampled producing 245 samples over this five year period. Of these 93% produced some plant remains although many had only a very low incidence of material (12% of the total contained between one and two items). By contrast 41 contexts (70 samples, 17% of the total) produced a high incidence of remains. All 245 samples recovered in the 1975–80 seasons were fully sorted and identified by Monk.

Table 24 1981–5 charred plant remains

context no	*D312*	*D328*	*D343*	*D369*	*D393*	*D466*	*D469*	*D469*	*D474*	*D474*	*D474*	*D474*	*D474*	*D474*
soil sample no	*31*	*40*	*47/14*	*66*	*67*	*105*	*139*	*140*	*68*	*74*	*80*	*82*	*86*	*92*
grid square	*27D*	*13*	*40C*	*14F*	*14F*	*14G*	*14F*	*14F*	*28A*	*28A*	*28A*	*28A*	*28A*	*28A*
lts of deposit floated	1	40	10	10	10	3	10	10	10	10	10	10	10	10
% of flot sorted	10%	100%	100%	25%	100%	100%	12.5%	20%	100%	50%	100%	100%	100%	100%
grain														
Hordeum sativum Pers, naked	-	-	-	2	-	-	-	1	-	-	-	-	-	-
Hordeum sativum Pers, straight	-	1	-	-	-	-	1	-	-	-	-	-	-	-
Hordeum sativum Pers, twisted	-	-	-	-	-	-	1	-	-	2	2	-	-	-
Hordeum sativum Pers, indet	5	-	21	2	3	2	5	11	7	2	7	2	3	7
Triticum dicoccum/spelta	69	23	27	150	266	220	211	470	99	54	51	23	52	80
Triticum dicoccum/spelta, sprouted	19	2	-	9	6	3	7	10	6	4	2	3	3	1
Triticum dicoccum/spelta, tail	1	-	2	-	-	3	1	1	-	-	-	-	-	-
Tacstricum/aestivo-compactum	-	-	36	4	1	8	10	18	5	4	2	-	-	-
Secale cereale L.	-	-	2	-	2	4	-	4	-	-	1	-	-	-
Avena sp. indet	1	-	-	-	5	3	-	-	-	2	-	2	-	3
chaff														
Triticum dicoccum/spelta, glume bases	-	1	-	4	5	-	4	16	6	2	-	3	1	-
Hordeum sativum Pers, indet rachis internodes	-	-	2	1	-	-	-	-	3	-	3	2	1	3
cereal indet culm nodes	1	-	2	-	2	-	-	-	5	-	-	3	-	3
other cultivated														
Pisum sativum L., grain	-	-	-	-	-	-	-	2	1	-	-	-	-	1
Corylus avellana L., nut fragment	-	1	-	-	5	1	2	1	4	-	1	-	-	3
weeds														
Agrostemma githago L.	-	-	-	-	-	-	-	-	1	1	-	-	-	-
Avena sp.	1	-	-	3	4	-	-	-	-	1	1	1	-	2
Bromus cf *secalinus*	3	-	-	-	3	-	-	1	17	2	3	11	1	2
Carex sp., small	-	-	-	1	-	1	-	-	2	-	1	-	-	-
Centaurea sp.	-	-	-	-	-	-	-	-	2	-	1	-	-	-
Cruciferae, indet pod	-	-	-	-	-	1	-	1	-	-	-	-	-	-
Fallopia convolvulus (L.) A. Love	-	-	-	-	-	-	-	-	3	-	-	2	-	-
Galium aparine L.	-	-	-	-	-	1	-	-	1	-	-	-	-	-
Gramineae, indet large	-	1	4	-	2	1	-	-	13	-	-	-	-	-
Gramineae, indet small	-	-	1	1	-	1	5	-	1	1	-	-	-	-
Leguminosae, small	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Malva sp.	-	-	-	-	-	-	3	1	-	-	-	-	-	-
Phalaris sp.	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Plantago media L.	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Polygonum arviculare L.	-	-	-	-	-	-	-	-	2	-	-	-	-	-
Rumex acetosella agg.	-	-	-	-	1	-	-	-	-	-	-	1	-	-
Rumex crispus L.	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Rumex obtusifolius L.	-	-	-	-	1	-	-	1	-	-	1	-	-	1
Setaria type	1	-	-	-	-	-	-	-	-	-	-	1	-	-
Suaeda sp.	-	-	-	-	-	-	-	-	1	-	-	-	-	-
type X	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Urtica sp.	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Vicia/Lathyrus sp.	3	-	-	-	1	-	-	1	2	-	-	-	-	2
total items	105	30	97	177	311	250	252	543	189	75	77	54	61	113
items/lt	104.6	0.7	9.7	17.7	31.1	83.3	25.2	54.3	18.9	7.5	7.7	5.4	6.1	11.3

1981–5 samples

Over 600 samples were processed for the retrieval of charred plant remains in the 1981–5 seasons by Charles and Colledge, and all the resultant flots were examined. As a result of the earlier analyses by Monk it was considered unnecessary to sort and identify all the flot material from each of the samples.

Initially the samples were scanned by eye to establish the richness of the remains and to determine which ones warranted further study. At this stage the proportions of the various constituents in the flots were scored according to a DAFOR scale (D, dominant; A, abundant; F, frequent; O, occasional; R, rare). Subjective assessments were made on this basis of the amounts of cereal grains, weed seeds, wood charcoal, molluscs, bone, stone, fine mineral material, modern seeds and modern roots. This also provided information about the level of modern contamination of the samples, the frequency of charred remains etc. An initial sort was made of *c* 50 ml of each sample, and on the basis of the material present a decision was made on how much more of the flot to process (providing the initial sort did not include all of the flot). Of all the 1981–5 samples only 41 (from 34 contexts; see Tables 24 and 25) were considered rich enough to be sorted in their entirety and these samples comprised at least 100 cereal items (based on criteria for minimum sample size described by van der Veen, 1984). The reason for this decision was to concentrate on samples which might contain high numbers of weed seeds and for

Table 24 Cont

context no	*D626*	*D715*	*D719*	*D743*	*D749*	*D719*	*D820*	*D845*	*D845*	*D885*	*D933*	*D1016*	*D1147*	*D1169*
soil sample no	*48*	*59*	*29*	*61*	*51*	*156*	*90*	*121*	*114*	*145*	*136*	*158*	*18*	*66*
grid square	*23F*	*27F*	*14G*	*12R*	*27B*	*26E*	*27E*	*27/28*	*28/22*	*21 42H*	*26J*	*14C*	*23N*	*28A*
lts of deposit floated	1	3	10	10	3	10	3	10	10	10	10	3	10	20
% of flot sorted	100%	100%	25%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
grain														
Hordeum sativum Pers, naked	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Hordeum sativum Pers, straight	-	-	2	-	-	-	-	1	1	-	-	-	-	-
Hordeum sativum Pers, twisted	-	-	1	-	-	-	1	-	-	-	1	-	-	-
Hordeum sativum Pers, indet	1	-	4	3	2	4	1	8	7	-	7	1	1	1
Triticum dicoccum/spelta	81	28	270	4	24	11	15	12	26	21	36	61	52	27
Triticum dicoccum/spelta, sprouted	13	17	10	2	16	3	-	-	-	-	12	7	3	2
Triticum dicoccum/spelta, tail	-	-	4	-	-	-	-	-	-	3	4	-	1	-
Tacstivum/aestivo-compactum	-	13	-	-	1	-	-	-	-	-	2	3	-	
Secale cereale L.	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Avena sp. indet	-	-	8	1	-	-	-	-	1	1	-	-	-	1
chaff														
Triticum dicoccum/spelta, glume bases	410	-	72	-	-	-	-	1	3	-	-	20	6	-
Hordeum sativum Pers, indet rachis internodes	1	1	-	3	-	1	-	-	-	-	1	-	1	-
cereal indet culm nodes	1	-	2	-	-	-	3	-	5	-	2	-	-	-
other cultivated														
Pisum sativum L., grain	-	-	1	-	-	-	-	-	-	-	1	-	-	-
Corylus avellana L., nut fragment	-	-	3	-	1	-	1	-	5	5	1	1	1	-
weeds														
Avena sp.	-	-	-	1	-	-	-	-	-	1	-	-	-	1
Bromus cf *secalinus*	25	-	3	-	1	1	-	6	15	-	2	1	1	1
Carex sp., small	-	-	-	-	-	-	-	-	-	-	2	-	-	-
Chenopodium sp	-	-	-	-	-	-	-	3	-	-	-	-	-	-
Cruciferae, indet pod	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Fallopia convolvulus (L.) A. Love	-	1	-	-	-	-	1	1	1	-	-	-	-	-
Galium aparine L.	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Gramineae, indet large	-	-	-	1	1	2	1	-	-	-	2	-	-	-
Gramineae, indet small	-	-	1	-	1	-	-	-	1	-	5	-	-	-
Juncus sp.	-	-	-	-	-	-	-	-	1	-	-	-	-	1
Leguminosae, small	-	-	1	1	-	-	-	-	-	-	-	-	-	-
Malva sp.	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Plantago media L.	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Potentilla sp.	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Ranunculus flammula L.	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Ranunculus sardous Crantz	-	-	-	1	-	-	1	-	-	-	-	-	-	1
Rumex acetosella agg.	-	-	2	-	-	-	1	-	-	-	-	-	-	-
Rumex obtusifolius L.	-	-	-	1	-	-	3	-	-	-	-	-	-	-
total items	534	47	402	19	47	23	31	32	72	37	77	94	70	35
items/lt	534.2	15.7	40.2	1.9	15.7	2.3	10.4	3.2	7.2	3.7	7.7	31.3	7.0	1.8

which there would be a greater possibility of investigating aspects of crop husbandry, such as types of soil cultivated, intensity of cultivation, etc. This information is derived primarily from studying the biology and ecology of the weed seeds. Other samples, which had been taken from contexts which appeared to be rich during excavation, were subsequently found to have either low frequencies (and definitely less than 100 cereal items) of all charred material including cereals and food plants, or to have low frequencies of identifiable food plant remains but high frequencies of wood charcoal.

The sorting of the samples was done using a low-power binocular microscope at magnifications between ×10 and ×40.

Flotation

Metal bowls were half filled with water, and *c* 2 or 3 litres of soil was added. The water was poured off through fine mesh sieves (1.0 and 0.25mm) and any charred material which floated after the initial immersion was retrieved. More water was added and the soil was agitated by hand, breaking up any persistent lumps. When the mineral matter had been allowed to settle the water and flotant were again poured off through the mesh. This process was repeated for each sample until no further charred remains were seen in the last dregs being poured off into the sieve. The charred material in the sieve (the flot) was rinsed under a fine water spray to remove any small mineral particles and foam. This procedure

Table 24 Cont

context no	*D1197*	*D1201*	*D1372*	*D1378*	*D1595*	*D1664*	*D1845*	*D2009*	*D2016*	*D2017*	*D2081*	*C308*	*E74*
soil sample no	*VAR*	*44*	*1*	*73*	*95*	*48*	*25*	*24*	*22*	*21*	*27*	*14*	*22*
grid square	*14E*	*28B*	*6H*	*25*	*26R*	*12N*	*17D*	*12*	*23*	*23*	*20R*	*34*	*36*
lts of deposit floated	20	3	3	3	3	3	10	6	10	10	4	19.5	3
% of flot sorted	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
grain													
Hordeum sativum Pers, straight	-	-	5	-	-	-	-	2	2	3	-	-	2
Hordeum sativum Pers, twisted	-	-	1	-	-	-	-	-	-	4	-	-	1
Hordeum sativum Pers, indet	-	4	10	-	4	33	4	14	3	25	-	1	16
Triticum dicoccum spelta	43	8	143	8	35	43	103	91	1	2	-	16	46
Triticum dicoccum spelta, sprouted	4	-	4	-	-	6	-	-	-	-	-	-	-
Triticum dicoccum spelta, tail	-	-	4	1	-	-	-	1	-	-	-	-	-
T estivum\actitio-compactum	-	-	2	4	-	-	1	3	-	-	-	-	-
Secale cereale L.	-	1	19	3	-	1	-	-	-	-	-	3	-
Avena sp. indet	-	-	-	-	-	-	6	-	-	2	-	-	-
chaff													
Triticum dicoccum\spelta glume bases	1	-	90	-	2	-	1	-	-	2	-	-	1
Hordeum sativum Pers, indet rachis internodes	-	-	1	-	1	6	2	13	2	11	-	3	6
cereal indet culm nodes	-	1	6	1	2	-	6	-	-	-	-	-	-
Avena sp. floret base	-	-	-	-	-	-	-	-	-	-	-	-	-
other cultivated													
Corylus avellana L. nut fragment	-	-	46	4	-	-	6	4	1	1	21	-	5
weeds													
Avena sp.	-	-	2	-	-	-	5	-	-	1	-	-	-
Bromus cf *secalinus*	-	2	8	-	2	1	2	1	-	-	-	1	4
Carex sp., small	-	-	-	-	-	-	1	-	-	-	13	-	-
Centaurea sp	-	-	-	-	1	-	-	-	-	-	-	-	-
Chenopodium sp	-	-	-	-	-	-	-	-	-	-	1	-	-
Cruciferae, indet pod	-	-	-	-	-	-	-	1	-	-	1	-	-
Eleocharis uniglumis (Link) Schultes	-	-	1	-	-	-	1	-	-	-	6	-	-
Fallopia convolvulus (L.) A. Love	-	-	1	-	1	-	-	-	-	-	-	-	2
Galium aparine L.	-	-	-	-	-	-	-	-	-	-	-	1	1
Gramineae, indet large	-	-	-	1	-	2	2	-	-	-	-	1	4
Gramineae, indet small	-	-	-	-	-	-	-	-	-	-	1	-	1
Juncus sp.	-	-	-	-	-	-	1	-	-	-	-	-	-
Malva sp.	-	-	-	-	-	-	-	-	-	-	14	-	-
Matricaria sp.	-	-	-	-	1	-	-	-	-	-	-	-	-
Plantago media L.	-	-	1	-	-	-	-	-	-	-	-	-	-
Polygonum aviculare L.	-	-	-	-	-	-	-	-	-	-	1	-	-
Polygonum lapathifolium L.	-	-	-	-	-	-	-	-	-	-	10	-	-
Potentilla sp.	-	-	-	-	-	-	-	-	-	-	1	-	-
Ranunculus sardous Crantz	-	-	-	-	1	-	-	-	-	-	-	-	-
Rumex crispus L.	-	-	1	-	-	-	-	-	-	-	-	-	-
Rumex obtusifolius L.	-	-	1	-	-	-	-	-	1	-	-	-	-
Salix indet	-	-	-	-	-	-	-	-	1	2	-	-	-
Sambucus nigra L.	-	-	-	-	-	-	-	-	-	2	-	-	-
Solanaceae, indet	-	-	-	-	-	-	1	-	1	-	-	-	-
Vicia\Lathyrus sp.	-	-	-	-	1	-	1	1	-	-	-	-	-
total items	48	16	392	26	51	92	148	135	13	56	90	26	93
items/lt	2.4	5.3	130.6	8.8	16.9	30.8	14.8	22.4	1.3	5.6	24.0	1.3	31.1

was repeated until all the soil from the context had been processed. The volume of soil floated for each sample was noted.

After flotation the volume of the non-floating residue was measured using a simple calibration based on the measured depth of material in the metal bowls. The composition and colour of the soil were recorded at this stage. The residue was then tipped on to a 5mm. mesh and agitated in water to wash out all the smaller material (fine mineral particles, sand, silt, clay, and small stones). When all the residue from the same context had been sieved (the wet sieving residue) it was sorted for finds. The composition was described in terms of the proportion of micaceous flagstone, tile, pottery etc. The degree of fragmentation of the constituents of the wet sieving residue was measured.

Identifications

Identifications were made after comparison with modern reference collections belonging to the authors and to the Department of Human Environment at the Institute of Archaeology (University of London).

For fuller details of identifications see the end of this appendix

Table 25 1981-5 Charred plant remains, total and ratios

context no	*D312*	*D328*	*D343*	*D369*	*D393*	*D466*	*D469*	*D469*	*D474*	*D474*	*D474*	*D474*	*D474*	*D474*
soil sample no	*31*	*40*	*47/14*	*66*	*67*	*105*	*139*	*140*	*68*	*74*	*80*	*82*	*86*	*92*
grid square	*27D*	*13*	*40C*	*14F*	*14F*	*14G*	*14F*	*14F*	*28A*	*28A*	*28A*	*28A*	*28A*	*28A*
totals and ratios														
total cereal grain	95	26	88	167	283	243	236	515	117	68	65	30	58	91
total chaff various	1	1	4	5	7	-	4	16	14	2	3	8	2	6
total other cultivated grain	-	1	-	-	5	1	2	3	5	-	1	-	-	4
total weeds seeds	9	1	5	5	11	5	8	6	48	5	7	16	1	8
weeds:cereal grain	0.09	0.04	0.06	0.03	0.04	0.02	0.03	0.01	0.41	0.07	0.11	0.55	0.02	0.09
glume wheat:hulled barley grain	13.8	22.6	1.3	75.0	88.7	110.0	30.1	42.7	14.1	13.6	5.7	11.3	17.4	11.5
glume wheat grain:chaff	-	22.6	-	37.5	53.2	-	52.8	29.4	16.5	27.1	-	7.5	52.1	-
barley grain:chaff	-	-	10.5	2.0	-	-	-	-	2.3	-	3.0	1.0	3.0	2.3
glume wheat grain:sprouted grain	3.6	11.3	-	16.7	44.3	73.3	30.1	47.0	16.5	13.6	25.6	7.5	17.4	80.3
glume wheat grain:tail grain	68.8	-	13.7	-	-	73.3	211.0	470.0	-	-	-	-	-	-
total no large weeds	5	1	4	3	8	2	-	1	35	4	4	14	1	4
total no small weeds	4	-	1	2	3	3	8	5	13	1	3	2	-	4
large/small weeds	2	-	4	2	3	1	-	-	3	4	1	7	-	1
total no of items	**105**	**30**	**97**	**177**	**311**	**250**	**252**	**543**	**189**	**75**	**77**	**54**	**61**	**113**
no of items per lt of deposit	**104.6**	**0.7**	**9.7**	**17.7**	**31.1**	**83.3**	**25.2**	**54.3**	**18.9**	**7.5**	**7.7**	**5.4**	**6.1**	**11.3**

context no	*D626*	*D715*	*D719*	*D743*	*D749*	*D719*	*D820*	*D845*	*D845*	*D885*	*D933*	*D1016*	*D1147*	*D1169*
soil sample no	*48*	*59*	*29*	*61*	*51*	*156*	*90*	*121*	*114*	*145*	*136*	*158*	*18*	*66*
grid square	*23F*	*27F*	*14G*	*12R*	*27B*	*26E*	*27E*	*27/28*	*28/221*	*42H*	*26J*	*14C*	*23N*	*28A*
totals and ratios														
total cereal grain	97	45	312	10	42	19	17	21	35	25	60	71	60	31
total chaff various	412	1	74	3	-	1	3	1	8	-	3	20	7	-
total other cultivated grain	-	-	4	-	1	-	1	-	5	5	2	1	1	-
total weeds seeds	26	1	8	6	3	3	9	10	19	2	11	1	1	4
weeds:cereal grain	0.26	0.02	0.03	0.58	0.07	0.16	0.52	0.45	0.54	0.08	0.18	0.02	0.02	0.13
glume wheat:hulled barley grain	80.7	-	38.6	1.5	12.1	2.8	7.6	1.3	3.3	-	4.5	60.5	51.7	27.3
glume wheat grain:chaff	0.2	-	3.8	-	-	-	-	12.0	8.7	-	-	3.0	8.6	-
barley grain:chaff	1	0.0	-	1.0	-	4.0	-	-	-	-	8.0	-	1	-
glume wheat grain:sprouted grain	6.2	1.6	27.0	2.2	1.5	3.7	-	-	-	-	3.0	8.6	17.2	13.7
glume wheat grain:tail grain	-	-	67.5	-	-	-	-	-	-	6.9	8.9	-	51.7	-
total no large weeds	25	1	3	3	2	3	3	7	16	2	4	1	1	2
total no small weeds	1	-	5	3	1	-	6	3	3	-	7	-	-	2
large/small weeds	25	-	1	1	2	-	1	2	5	-	1	-	-	1
total no of items	534	47	402	19	47	23	31	32	72	37	77	94	70	35
no of items per lt of deposit	534.2	15.7	40.2	1.9	15.7	2.3	10.4	3.2	7.2	3.7	7.7	31.3	7.0	1.8

context no	*D1197*	*D1201*	*D1372*	*D1378*	*D1595*	*D1664*	*D1845*	*D2009*	*D2016*	*D2017*	*D2081*	*C308*	*E74*
soil sample no	*VAR*	*44*	*1*	*73*	*95*	*48*	*25*	*24*	*22*	*21*	*27*	*14*	*22*
grid square	*14E*	*28B*	*6H*	*25*	*26R*	*12N*	*17D*	*12*	*23*	*23*	*20R*	*34*	*36*
totals and ratios													
total cereal grain	47	13	188	16	39	83	114	111	6	36	-	19.5	65.4
total chaff various	1	1	97	1	5	6	9	13	2	13	-	3	7
total other cultivated grain	-	-	46	4	-	-	6	4	1	1	21	-	5
total weeds seeds	-	2	15	1	7	3	13	3	3	5	48	3	11
weeds:cereal grain	-	0.11	0.08	0.06	0.17	0.04	0.12	0.03	0.54	0.15	-	0.15	0.17
glume wheat:hulled barley grain	-	2.1	8.9	-	8.8	1.3	25.8	5.7	0.1	0.1	-	15.5	2.4
glume wheat grain:chaff	43.1	-	1.6	-	17.6	-	103.0	-	-	1.0	-	-	46.4
barley grain:chaff	-	-	16.0	-	4.0	5.5	2.0	1.2	2.5	2.9	-	0.3	3.2
glume wheat grain:sprouted grain	10.8	-	35.8	-	-	7.2	-	-	-	-	-	-	-
glume wheat grain:tail grain	-	-	35.8	8.4	-	-	-	90.5	-	-	-	-	-
total no large weeds	-	2	11	1	4	3	8	1	-	1	1	3	10
total no small weeds	-	-	4	-	3	-	5	2	3	4	47	-	1
large/small weeds	-	-	3	-	1	-	2	1	-	-	-	-	10
total no of items	48	16	392	26	51	92	148	135	13	56	90	26	93
no of items per lt of deposit	2.4	5.3	130.6	8.8	16.9	30.8	14.8	22.4	1.3	5.6	24.0	1.3	31.1

Comments on the key identifications

Indeterminate *Triticum* species

Wheat 'tail' grains: there were wheat grains in these samples which were noticeably smaller and these were scored under the category of 'tail' grains. It was assumed that these 'runt' grains had formed at the extremities of the wheat ear, whereas the prime grains which had formed in the mid-section were larger and more fully developed. The lengths and breadths (maximum) of the 'tail' grains were measured and plotted on a scattergram (Fig 379). The same measurements were taken for the prime *Triticum dicoccum* (emmer wheat) and *Triticum spelta* (spelt wheat) grains (a total of 54) in the samples containing the 'tail' grains, and these were also plotted on the scattergram. The resultant plot shows two distinct clusters, with minimal overlap (two specimens of emmer which fall within the assumed size range of the smaller grains), thus confirming the justification for isolating the 'tail' grains. The average dimensions of the 'tail' grains in comparison with the prime emmer and spelt grains in the same samples are given below:
Triticum dicoccum: 34 grains; length 5.32mm; breadth 2.85mm;
Triticum spelta: 20 grains; length 6.01mm; breadth 2.75mm;
'tail' grains: 21 grains; length 3.86mm; breadth 1.85;

The maximum breadth of the 'tail' grains was *c* 1.9mm, and it was assumed that this was the size of the mesh used at the fine sieving stage of the crop cleaning. The weed seeds in the samples were classified as large or small on the basis of this size limit.

Sprouted wheat grains: on the dorsal surfaces of these wheat grains there were sprouts from the embryos or impressions in the form of grooves, where the sprouts had been pressed on to the grains and had subsequently become detached. These grains were shrivelled but were still recognisable to genus. In certain of these samples there were high percentages of sprouted wheat grains. Samples D1372 and D626 contained high numbers of grains which had apparently become shrivelled before charring and indicating, perhaps, that they had begun to sprout. In D626 there were 54 detached, sprouted embryos and the presence of these in the sample would tend to confirm the reason for the shrivelled grains.

Chaff (including wheat glume bases, spikelet forks): the broken glume bases and spikelet forks from glume wheats were extracted from many of the samples. In most cases these were poorly preserved and time was not spent identifying these to species level. For one sample, D626, metrical analysis of 30 randomly selected spikelet forks was undertaken in order to attempt to differentiate between the two most commonly occurring glume wheats. After the method used by Helback (1952) two measurements were taken for each spikelet fork; the width of the spikelet fork at the point of articulation; and the width of the glume base at the same height on the spikelet fork. These two measurements were plotted on a scattergram (Fig 380). Size limits, as defined by Helback for modern populations of spelt and emmer/einkorn, were imposed on the plot. Using these parameters all but two of the spikelet forks fell within the size range for spelt.

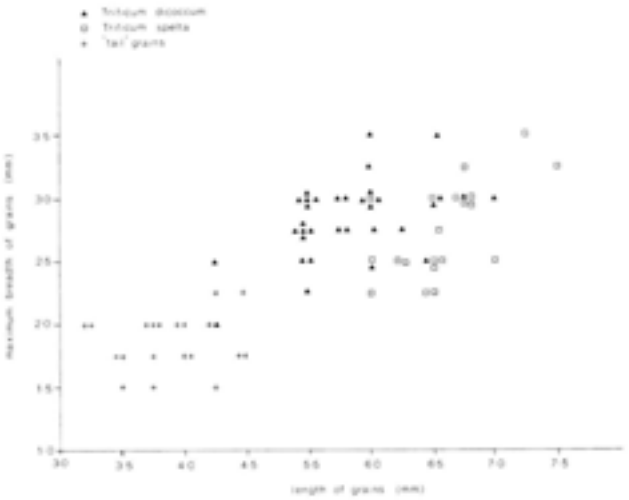


Fig 379 Scattergram of measurements of wheat prime versus tail grains

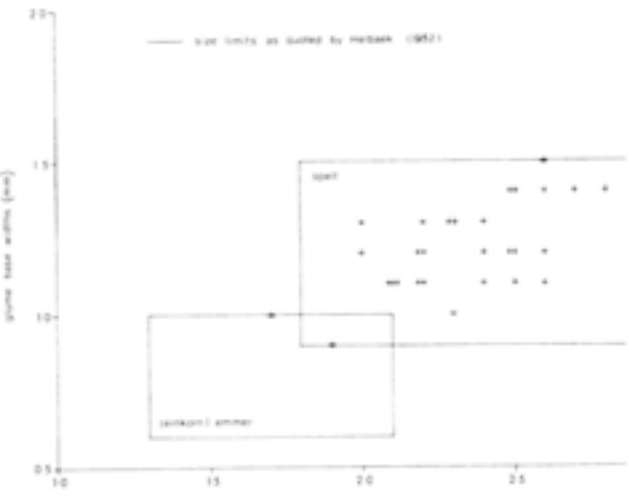


Fig 380 Scattergram of spikelet measurements for 30 specimens from D626

Sample composition 1975–85

By far the largest group of remains was cereals, of which the most prolific were caryopses of wheat, *Triticum* sp. Many of these grains were in a poor state of preservation; broken, abraded, and earth-encrusted. Where there was a high incidence of remains, however, as at the west end of the basilica, some proportion of the grains was well preserved enough to allow identification to species. Most of the grains appeared to be the glume wheat spelt, while a minority were the other glume wheat grain common in later prehistoric and early historic Britain, emmer wheat. In the analysis of the 1981–5 samples the glume wheat material has been amalgamated due to the problems of reliably separating

the two species in the samples. A large proportion of the grains were considered more likely to be a compact form of *Triticum aestivo-compactum* (free-threshing bread-wheat). *Hordeum sativum* (six-row barley) grains were also present. In addition to these, the most common cereals represented were grains of *Secale cereale* (rye) found particularly in the hearths on the north portico (C195 and C231), and *Avena* spp. (oats).

Few other remains of food plants were found in the samples. The only cultivated legume identified in the early samples from the site was *Pisum sativum* (pea). The legumes may be under-represented because they were less likely to have been exposed to fire and charring in pre-treatment prior to consumption than other plant foods for example cereals. Remains of wild or domestic fruits were seldom found preserved, possibly for similar reasons, but some indication of fruit exploitation was evident from finds of charred fragments of *Prunus spinosa* (sloe), charred drupes of *Rubus fruticosus* (blackberry), pips of *Sambucus nigra* (elder), and fragments of *Corylus avellana* (hazel nuts), and *Juglans regia* (walnut). The only exotic in evidence, if it was such, was a pip of *Vitis vinifera* (grape) preserved in the sump pit A345-3 at the east end of the site.

The incidence of charred seeds of weed plants that might be considered contemporary with the deposits was low overall. These included such cornfield weeds as *Polygonum convolvulus* (black bindweed), *Vicia* spp. (Vetches, mainly *Vicia sativa*), *Galium* spp. (probably *G. aparine*, goosegrass), *Rumex* spp. (the docks), *Chenopodium album* (fat hen), *Plantago* spp. (plantain), *Euphorbia helioscopia* (sun spurge), *Ranunculus acris/repens* (buttercup), and especially *Bromus* spp. (probably *B. secalinus*), a ubiquitous weed of cornfields and waste places.

The spectrum of remains (high incidence of grain, low incidence of chaff and weed seeds) was considered not untypical of the context, a late Roman town, and added to the picture already gained from the samples recovered from other Wroxeter excavations. Wright (1872, 121) found a heap of charred grain in the *frigidarium* which may have been stored there when that part of the baths was being used as a granary, while Bushe-Fox (1913, 6–7) found grain in association with a corn-drying kiln in *insula* 8 south of the forum which was identified as *Triticum aestivum* with *Bromus* sp. also present. In 1977 the baths excavations by Graham Webster produced a well preserved deposit of grain in a sound context which in the main consisted of spelt wheat, *Triticum spelta* (Monk, forthcoming in Ellis).

Sampled contexts; the presence of plant remains

The contexts sampled included make-up deposits for structures, floor layers, posthole and post-pit fills, general pit fills, road drain fills, redeposited midden material in the gravel street, general 'dark earth' deposits, water pipe or gully fills, robber trench fills, hearth deposits, and spreads.

The incidence of remains averaged 7.3 identifiable items per litre of dug soil in 75 samples from the 1979–80 seasons of excavation (ranging from 0.2 to 43.8 items per litre), and 32.4 items per litre in the 41 samples from the 1981–5 seasons (ranging from 0.7 to 534.2 items per litre; see Table 24). Those contexts with the highest incidence of remains were, for the most part, at the western end of the baths basilica (Site D), in the area of the two hearths, D370 and D369, which were found during the 1980 season; this area also produced a couple of postholes with a high incidence of remains. Other areas of the site produced some concentrations of remains, for example around the hearths on the north portico (Site C, Phase pre-Z) and amongst some dumped midden material in the gravel street (E74).

Sample composition 1981–5

The 41 samples which were selected for further investigation (see Tables 24 and 25) were those comprising at least 100 cereal items. Ratios were calculated (see below) in order to enable description of the sample compositions in terms of human activities from which they derived, for example, the different stages of crop processing. Equivalent ratios were calculated from already published sets of data for other sites with similar assemblages of crop types, and comparisons were made with the relevant values for this site. Interpretations of them are discussed with reference to these inter site comparisons.

Triticum dicoccum/spelta: *Hordeum sativum* grains

Glume wheats and hulled barley were the most common crop types, and this ratio defines the relative proportions in each sample and allows discussion of whether they represent a single or mixed crop.

Storage samples from the Roman granary at South Shields (van der Veen 1988) comprised a low level of barley grain contamination (less than 1%) in the wheat crop (greater than 90%). This gave a very high ratio of wheat: barley (>100:1). For the purposes of describing these samples the maximum frequency of a secondary crop likely to have arisen by contamination eg due to the crop occurring as a weed, or its presence in crop processing equipment, rather than deliberate planting as a mixed crop, was taken as 10:1. A ratio of <10:1 would thus imply a mixed crop, whereas a figure of >10:1 would imply that the crop was predominantly of just one species.

Site samples: Glume wheat grains were more frequent than those of barley in all but two of these samples. There were, however, 16 samples in total with a ratio of less than 10:1 and even in these cases wheat grain was dominant, 4 samples had no barley grains at all. In the 20 samples with a ratio of greater than 10:1, 12 showed values more than double that being used in this analysis (ie >20:1).

These figures indicate that the glume wheats were the dominant cereal crop represented in these samples, with barley present at low levels, perhaps as a tolerated weed in the wheat fields or deriving from stages of crop processing as a grain contaminant.

Glume wheat grain: *T. dicoccum/spelta* glume bases

This ratio defines the relative amounts of glume wheat grains and glume bases and thus provides a measure of the relative abundances of crop processing products and by products in each of the contexts. The ratio of grain to glume bases for a typical *T. dicoccum* spikelet is 1:1, but in some spikelets other arrangements are possible eg:

3:2 (1.5:1) in a 3 grained spikelet (rare)
1:2 (0.5:1) in a single grained spikelet
0:2 in a sterile spikelet

In an unprocessed glume wheat crop the expected ratio of grain to glume bases would fall in the range 0.5–1.5:1. Calculations from modern specimens of *T. dicoccum* showed an average ratio of 1:1 (grain to glume bases) whereas in ears of *T. spelta* a slightly higher ratio of 1.2:1 was observed, a result of the relatively frequent occurrence of three-grained spikelets in this species. Chaff, including glume bases, is removed as the crop is processed to produce clean grain, and certain crop cleaning residues will, therefore, have higher levels of glume bases than the original crop. These residues occur in the latter stages of glume wheat processing after the spikelets have been broken up by pounding, eg fine sievings (Hillman 1984, 10).

In van der Veen's report (1988) there was a ratio of *c* 40:1 for cereal grain to chaff, based on the following figures: 93.12% wheat (50% was glume wheat, and 50% bread wheat); 2.27% glume bases.

As in the previous example, a ratio of 10:1 was chosen to determine whether the crop remains had been processed or not, ie where the ratio was >10:1 it was assumed that some glume material had been removed indicating a processing product and where the ratio was <0.1:1 it was proposed that the sample was a cleaning residue with little grain. The figure of 10:1 was used to take account of differential preservation of the grain and chaff material. Any spikelet forks present were converted into glume base equivalents (ie multiplied by two).

Site samples: Almost 50% of the samples here had no glume bases or spikelet forks, although glume wheat grains were present in these samples in quite high percentages. Of the remaining samples the majority (13) had an excess of grain over glume bases of more than 10:1, in many cases greater than 20:1, ie representative of partially cleaned crop. Seven samples fell within the predicted range of an unprocessed crop, and only one of the samples had more glume than grain material. The glume wheat crop in the majority of these samples appeared, therefore, to have been cleaned quite thoroughly of chaff material and possibly represented fine sieve crop products (ie the product of processing glume wheat, emmer and spelt).

Barley grains: barley rachis

As with the ratio of wheat grain to chaff described above, this ratio also provided a measure of the extent of crop processing (ie cleaning of the barley grain) which had taken place prior to the charring of the barley material.

Barley is a free threshing crop, like the bread wheat group, and lacks prominent glume bases. After threshing and coarse sieving of the crop the fine chaff component comprises mainly rachis internode segments, and these are normally separated from the grain by a fine sieve (Hillman 1984, 4). For two-row and six-row barley the expected ratios of grains to rachis would be 1:1 and 3:1 respectively. The proportions of two-row to six-row barley in these samples was calculated as just over 1:1, which means the expected ratio of grains to rachis internodes in an unprocessed crop would be *c* 2:1. A study of traditional farming practices in Greece (Jones 1983) gives figures for the ratios of barley grains to rachis internodes after the three major stages of crop processing as follows: original crop 1.9 (reconstituted); winnowing 0.1 by-product, 4.2 product; coarse sieving 0.4 by-product, 64.9 product; fine sieving 27.95, by-product, 79.0 product (average figures for all the cereal samples in each group).

In this example relatively little of the rachis material was removed by winnowing, but in the later stages of processing the amount of rachis left with the grain was drastically reduced, until in the fine sieved product the ratio of grain to rachis was *c* 580:1. It should, however, also be noted that the level of grain present in the by product of this process was high, outnumbering rachis internodes (28:1). At South Shields van der Veen (1988) calculated that the ratio of barley grain to chaff was *c* 90:1.

Site samples: These samples were divided roughly into two groups on the basis of the barley material:

Eighteen samples had approximately equal amounts of grain and chaff fragments and these could be considered as representing an unprocessed barley crop.

Eleven samples had no rachis internode segments. In the majority of cases this coincided with a low frequency of barley grain, but in one sample, D1201, the level of barley grain was relatively high compared with that of the glume wheats and thus may have derived from a processed barley crop. The one other sample that may have represented a partly cleaned barley crop was D343, which contained an almost equal mixture of glume wheat, bread wheat and barley, and where the ratio of barley grain to rachis internode was >10:1

Prime glume wheat grain: sprouted grain

Samples with relatively high proportions of sprouted grain, which may have arisen as a result of one of the following: deliberate sprouting for malting purposes; accidental sprouting due to poor storage facilities; natural sprouting of wheat grains in the ears.

There is no absolute basis for determining whether the number of sprouted grains in an assemblage is significant or otherwise. For a site in Roman London, Straker (1984) describes grain samples where 44% of wheat grains had sprouted, *c* 1.3:1. In cases where almost half was sprouted the grain would have had a limited use as a food source, whereas a level of less than 10% sprouted grain presumably could have been tolerated.

Site samples: While the majority of the samples had little or no sprouted grain there were nine samples where between 10 and 50% of the wheat grain was sprouted, five of them in one area of the site (see subsequent discussion of the North Aisle).

Glume wheat prime grains:tail grains

This ratio also provides a basis for assessing aspects of crop processing at the site. The tail grains would have been extracted from the prime grain at the fine sieving stage ie as a fine sieve by product. An average of *c* 10:1 prime grain to tail grain was observed in modern specimens of *T. monococcum* and *T. dicoccum*.

Site samples: A comparison of these figures with the site material would seem to indicate that some selective removal of tail grain had taken place, presumably by fine sieving.

Weed seeds:cultivated grains

The ratio of weed seeds to crop seeds and the type of weeds represented in the harvested crop is determined by several factors including the level of weed infestation in the fields, the fruiting time of the weeds and the crops, the growth habit of the weeds relative to that of the crop, ie whether they grow to the same height as the crop and thus would be gathered in with the ears, and the reaping height used in harvesting the crop. As the harvested crop is processed to remove unwanted contaminants such as chaff and weed seeds, the ratio of weed to cultivated seeds becomes progressively lower. After fine sieving the ratio of weed to crop seeds is typically relatively low (<0.1:1) but there was usually a final stage of weed seed removal by hand to extract any that were either potentially poisonous eg *Agrostemma githago* or unpleasant tasting, prior to human consumption.

The following figures (based on Jones 1983) show average ratios of weed to cultivated seed in modern cereal samples from Kolofana, Greece:

winnowing by-product	7.12:1
coarse sieve by-product	5.97:1
fine sieve by-product	1.15:1
fine sieve product	0.24:1

These compare with figures of weeds to cultivated seed in archaeological samples from Assiros (*ibid*):

fine sieve by-product	1.15:1
fine sieve product	0.04:1
contamination	12.2:1

This suggests that fine sieved crop products (in traditionally processed cereal crops from Greece) have an average ratio of weed seeds to cultivated grains of *c* 0.2:1, and after hand sorting this ratio would decrease further. At West Meare (Jones 1979) one sample, thought to be a cleaned crop, had a ratio of 0.07–0.11:1 whereas samples that probably represented cleaning residues had ratios ranging from 0.45–2.03:1. Samples identified as fine sieve products at the site of South Shields, (van der Veen 1988), had an average ratio of 0.03:1.

Site samples: In these samples the general frequency of weed seeds was low, almost half had a ratio of weeds to crops of less than 0.1:1 and in some samples there were no weed seeds at all. On this basis it could be concluded that the crops in them were the product of fine sieving.

The size, headedness and aerodynamic properties of the weed seeds also determines at which stage of processing they would be selectively removed, eg all affect the ease of removal from the crop (Jones 1984). Due to the low number and poor preservation of the weed seeds it is difficult to identify specimens to species level and therefore to assign these attributes.

Large:small weed seeds

The size of the weed seeds also indicates the stages of crop processing ie small seeds would be expected to be sieved off early in the cleaning, together with small chaff items whereas larger seeds (and those of a similar size to the cereal grains) would only be removed at the later stages during hand sorting. Based on the prime and tail grain dimensions (see above) it was calculated that the fine sieve mesh size, was *c* 1.5–2.0mm (ie small seeds <1.5–2.0mm, large seeds >1.5–2.0mm). At West Meare (Jones 1979) the ratio of large to small weed seeds averaged 1.92:1 for the crop by-product samples and 25.0:1 in the crop product.

Site samples: This ratio was very variable, *c* 36% of the samples contained only large weeds, presumably as a result of fine sieving. Only one sample, however, had small weed seeds and a ratio which matched that of the West Meare product sample. The majority of the remaining samples fell within the 1–10:1 (large to small weeds) range and thus could not be assigned confidently to either fine sieving product or by product. Ten of the samples had a low ratio (<2.0) which might indicate that they were crop cleaning residue.

Discussion

The samples are grouped according to the proportion of the various cereal remains they contained and are described in terms of crop processing stages (as defined in the previous section). This is done for two reasons:

in order to establish samples which were representative of cereal residues derived from similar stages in the cleaning processes and which would allow meaningful interpretation of the weeds; and

in order to simplify the discussion of a large number of samples in relation to the archaeological features.

Crop processing stages identified

On the basis of internal composition the samples were divided into five types (Table 26):

Type 1: samples dominated by glume wheat grain which contained little other material (identified as the product of fine sieving). This was the largest group containing 13 samples (38%). These samples typically had glume wheat levels of over 90%, the majority of the material being grain (caryopses: glume bases = >20.0), and were therefore considered to represent a cleaned crop, probably the product of fine sieving. There was relatively little barley material in these samples, and this was dominated by grains, where barley rachis internodes were present the ratio of grain to chaff was close to that expected in an unprocessed crop.

Type 2: samples dominated by glume wheat material but where the frequency of glume wheat chaff (glume bases) was high. These were thought to resemble cleaning residues of glume wheat processing. This group consisted of just four samples, three of which conformed fairly well to a pattern of high proportions of glume wheat and where the ratio of glume wheat caryopses: glume bases was low (<5.00) and with no other taxon making up over 6% of the sample. In other respects, however, these samples do not differ very considerably from those in type 1 in terms of the number of sprouted grain, tail grains, weed seeds, or in the ratio of large to small weed seeds.

Type 3: samples containing a mixture of cereal crops where each crop appeared to have been cleaned. The proportion of glume wheat grain accounted for less than 60% of the total material.

A group of four samples was assigned to type 3 which appeared to represent the cleaned or semi-cleaned products of more than two crops, with a relatively high frequency of large weed seeds and little or no small seeds. These samples were unusual in having relatively high frequencies of crops other than glume wheats.

Table 26 Proportions of major plant categories grouped according to composition type (percentage values)

context	*hulled barley caryopses*	*barley rachis internodes*	*glume wheat caryopses*	*glume bases (equiv)*	*bread wheat caryopses*	*rye caryopses*	*pea*	*cereal culm node*	*hazel nut*	*large weed*	*small weed*
type 1											
D312	4.8	-	86.3	-	-	-	-	0.97	0.13	6.8	0.97
D328	3.6	-	88.9	3.6	-	-	-	-	0.22	3.6	-
D369	1.1	0.5	91.6	2.3	2.3	-	-	-	-	0.8	1.15
D393	1.0	-	92.2	1.6	0.3	0.6	-	0.17	0.11	3.1	0.67
D466	0.8	-	92.2	-	3.2	1.6	-	-	0.03	1.2	0.82
D469*	1.9	-	85.3	2.8	3.1	0.7	0.08	-	0.03	2.4	3.37
D715	-	2.1	95.8	-	-	-	-	-	-	2.1	-
D749	4.5	-	91.3	-	-	-	-	-	0.14	2.8	1.14
D885	-	-	91.2	-	-	-	-	-	1.19	7.6	-
D1147	1.4	1.4	82.5	8.8	4.4	-	-	-	0.09	1.1	-
D1169	2.9	-	86.7	-	-	-	-	-	-	4.4	5.92
D1187	-	-	97.9	2.0	-	-	-	-	-	-	-
D1854	3.2	1.6	82.7	0.8	0.8	-	-	-	0.31	7.4	3.21
type 2											
D626	0.3	0.1	17.6	76.9	-	0.1	-	0.05	-	4.7	-
D719*	1.6	-	75.8	18.4	-	-	-	0.27	0.02	1.2	0.76
D1016	1.0	-	73.5	21.8	2.1	-	-	-	0.07	1.3	-
D1372	5.3	0.3	47.7	28.4	0.6	5.9	-	1.74	0.91	5.5	3.47
type 3											
D343	21.8	2.0	30.4	-	37.3	2.0	-	2.07	-	4.1	0.26
D820	7.5	-	57.5	-	-	-	-	0.72	0.23	11.3	22.70
D1201	25.2	-	52.8	-	-	6.2	-	6.29	-	9.4	-
D1378	-	-	52.5	-	22.4	16.8	-	1.40	1.40	5.5	-
type 4											
D474*	5.6	2.3	70.8	2.2	1.7	0.2	0.13	1.93	0.07	11.8	2.95
D791	17.2	4.3	61.2	-	4.3	-	-	-	-	12.9	-
D845*	11.7	1.5	56.3	3.1	-	-	-	3.90	0.24	19.4	3.90
D933	10.8	1.3	69.6	-	-	-	1.35	2.70	0.08	4.7	9.44
D1595	8.1	2.0	71.9	4.0	-	-	-	4.09	-	7.6	2.05
D1664	36.0	6.5	53.7	-	-	1.0	-	-	-	2.7	-
D2009	12.8	10.4	72.6	2.4	0.8	-	-	-	0.20	0.8	-
E74	19.3	6.1	60.5	1.0	-	-	-	-	0.32	12.5	0.24
type 5											
C308	4.0	12.1	62.6	-	-	12.1	-	-	-	9.1	-
D743	14.5	14.5	30.9	-	-	-	-	-	11.20	14.5	14.50
D2016	51.8	20.7	6.2	-	-	-	-	-	0.62	-	20.70
D2017	63.6	21.9	3.9	3.9	-	-	-	-	0.12	2.4	3.98
D2081	-	-	-	-	-	-	-	-	2.78	91.4	5.84

note: *=*more than one sample*

It was considered unlikely that these crops were cultivated together given the different processing requirements of glume wheats and free-threshing cereals (eg bread-wheat, rye and barley). Another suggestion for the means by which they came together would be the cleaning out, for example by burning, of a storage container that had held the various types of grain.

Type 4: samples containing a mixture of cleaned glume wheat grain and unprocessed barley. The eight samples of this type were dominated by glume wheat grain (>60%) with a high ratio of grain: glume bases, similar to that of type 1, ie resembling a cleaned crop product. The frequency of barley tail-grains was high, and barley rachis internodes were present in a higher proportion of samples than in type 1.

It might be concluded that wheat and barley crops grown separately and processed to different stages had become mixed prior to charring. The barley crop was less thoroughly cleaned than the wheat. This is supported by the higher frequency of weed seeds, both large and small, in these samples compared with those in the type 1 group, the most significant increase being in the numbers of large weed seeds which would be expected in an incompletely cleaned crop.

Table 27 Proportions of major categories of plant remains grouped according to spatial distribution of deposits (percentage values)

context	*Phase*	*hulled barley caryopses*	*barley rachis internodes*	*glume wheat caryopses*	*glume bases (equiv)*	*bread wheat caryopses*	*rye caryopses*	*pea*	*cereal culm node*	*hazel nut*	*large weed*	*small weed*
Western Portico (a)												
D474*	Z1	5.6	2.3	70.8	2.2	1.7	0.2	0.13	1.93	0.07	11.8	2.95
D845*	Y	11.7	1.5	56.3	3.1	-	-	-	3.90	0.24	19.4	3.90
D885	Y	-	-	91.2	-	-	-	-	-	1.19	7.6	-
D1169	X	2.9	-	86.7	-	-	-	-	-	-	4.4	5.92
D1201	Y?	25.2	-	52.8	-	-	6.2	-	6.29	-	9.4	-
Western Portico (b)												
D369	Z2	1.1	0.5	91.6	2.3	2.3	-	-	-	-	0.8	1.15
D393	Z2	1.0	-	92.2	1.6	0.3	0.6	-	0.17	0.11	3.1	0.67
D466	Z1	0.8	-	92.2	-	3.2	1.6	-	-	0.03	1.2	0.82
D469*	Z1	1.9	-	85.3	2.8	3.1	0.7	0.08	-	0.03	2.4	3.37
D719*	Z2	1.6	-	75.8	18.4	-	-	-	0.27	0.02	1.2	0.76
D1016	X	1.0	-	73.5	21.8	2.1	-	-	-	0.07	1.3	-
D1187	X2	-	-	97.9	2.0	-	-	-	-	-	-	-
Nave												
D312	Y	4.8	-	86.3	-	-	-	-	0.97	0.13	6.8	0.97
D2016	Y	51.8	20.7	6.2	-	-	-	-	-	0.62	-	20.70
D2017	Y	63.6	21.9	3.9	3.9	-	-	-	-	0.12	2.4	3.98
D1378	X	-	-	52.5	-	22.4	16.8	-	1.40	1.40	5.5	-
D1595	W	8.1	2.0	71.9	4.0	-	-	-	4.09	-	7.6	2.05
D1664	W	36.0	6.5	53.7	-	-	1.0	-	-	-	2.7	-
D1854	W	3.2	1.6	82.7	0.8	0.8	-	-	-	0.31	7.4	3.21
D2009	W	12.8	10.4	72.6	2.4	0.8	-	-	-	0.20	0.8	-
D2081	Y	-	-	-	-	-	-	-	-	2.78	91.4	5.84
North Aisle												
D626	Y	0.3	0.1	17.6	76.9	-	0.1	-	0.05	-	4.7	-
D715	Y	-	2.1	95.8	-	-	-	-	-	-	2.1	-
D749	X	4.5	-	91.3	-	-	-	-	-	0.14	2.8	1.14
D820	W	7.5	-	57.5	-	-	-	-	0.72	0.23	11.3	22.70
D933	W	10.8	1.3	69.6	-	-	-	1.35	2.70	0.08	4.7	9.44
D1147	W	1.4	1.4	82.5	8.8	4.4	-	-	-	0.09	1.1	-
D791	V	17.2	4.3	61.2	-	4.3	-	-	-	-	12.9	-
South Aisle												
D328	Z	3.6	-	88.9	3.6	-	-	-	-	0.22	3.6	-
D1372	X	5.3	0.3	47.7	28.4	0.6	5.9	-	1.74	0.91	5.5	3.47
D743	X?	14.5	14.5	30.9	-	-	-	-	-	11.20	14.5	14.50
North Portico												
C308	Y	4.0	12.1	62.6	-	-	12.1	-	-	-	9.1	-
D343	W2	21.8	2.0	30.4	-	37.3	2.0	-	2.07	-	4.1	0.26
Street/Drain												
E74	Z	19.3	6.1	60.5	1.0	-	-	-	-	0.32	12.5	0.25

notes: *Western Portico (a) oven D371, associated samples; Western Portico (b) hearth D369, associated samples* *=*more than one sample*

Type 5: Miscellaneous group, generally of mixed composition subdivided as follows:

a) Samples with a high frequency of barley (D743, D2016, D2017) where the barley material comprised an unprocessed or only partly-cleaned crop.

Two of the samples, D2016 and D2017, had a very similar composition with barley making up over 70% of the sample, and a grain:rachis internodes ratio of *c* 3:1. The level of glume wheat material was low (<10%). There was little other material, except in D2016 where there was a relatively high frequency of small weed seeds. This composition corresponds to that proposed for an unprocessed or only partly-cleaned barley crop, and where the glume wheat material is present as a contaminant. The barley component of D743 also falls within this range, whereas the glume wheat component is notable for the absence of any chaff or tail grain. The presence of quite high numbers of hazelnut fragments adds to the impression of a mixed sample.

b) C308 contains a mix of wheat, barley, and rye where the wheat and rye material comprises only grain, suggesting a cleaned crop, whereas the barley component is dominated by rachis internodes. This was more likely to be representative of a cleaning residue.

c) D2081 is an unusual sample comprising almost entirely of large weed seeds (91.4%) with a few hazelnut fragments and small weed seeds, and which resembles a residue from hand picking.

Spatial distribution of plant remains 1981–5

This section contains a summary of the overall composition of the charred plant remains from the contexts sampled (Table 27) and attempts to relate them to the archaeological features spatially and chronologically. A more detailed discussion of the plant remains (phase by phase) from all these areas is given in the notes section at the end.

West portico

Oven D371 and associated contexts: D371 was a large oven built of large sandstone blocks bonded together with clay, with a hearth, D958, at the west end. The flue and the walls of the oven survived to a height of 0.5m (*see chapter 4, Phase X, and Figs 136–7*). Twenty contexts thought by the archaeologist to have been associated with this oven were sampled for plant remains, eg the oven debris (D474, several samples), the flue fill and the construction materials of the oven. Of these, five were found to have enough material to feature in the overall discussion of samples (see above), D474, D845, D1169, D885, and D1201.

Two samples thought to have derived directly from the oven, D474 (oven debris) and D845 (flue fill) had a similar composition; a mixture of glume wheat grain, barley grain and chaff, and were identified as the residues of spent fuel. D474 was an extensive charcoal spread which was identified, at the time of excavation, as oven cleanings. The extensive nature of the deposit implied that it had accumulated as a result of repeated cleanings of the oven. The composition of the other three 'rich' samples, D885, D1201, and D1169, differed from that of D474 and D845, and they were not considered to have derived from the same charring episode. The other contexts sampled contained very little plant material and comprised mainly small fragments of wood charcoal.

Grid 14, hearth D369 and associated contexts: D369 was constructed from four terracotta tiles surrounded by vertical sandstone slabs forming a wall. A second hearth of identical construction, D370, lay to the south. To the north of D369 there was a structure, Building 34, and to the south of D370 was another, Building 37 (*see chapter 4, Phase Z, and Fig 217*). The whole area was rich in charred plant material including cereal grain, thus indicating extensive burning. Analyses of the Phase Z identifiable material showed that there was a consistency of composition of the samples from contexts close to D369 (ie high frequencies of cleaned glume wheat grain). It was suggested that the most likely explanation for this charring was the accidental burning of stored crops. A second spread of charred grain, D719, may also have originated from the burning of a stored crop, but in this case the grain had not been thoroughly cleaned. The presence of this semi-cleaned crop may imply that some crop processing, for example fine sieving, was carried out in this area of the west portico.

North portico

Two contexts which produced archaeobotanical material in this area were D343 and C308. D343 was a dump of organic material filling the major subsidence in the portico floor (*see chapter 4*). C308 was a small levelling dump repairing the Phase W2 floor (*see chapter 4*). Twenty contexts were sampled in this area, and of these only two (D343 and C308) contained significant quantities of identifiable plant remains. The contexts in the north portico produced samples with low frequencies of charred crop and weed seeds. The most common composition of the assemblages was a mixture of cleaned cereal grains which, it was suggested, derived from the cleaning of crop storage areas. These samples may have been connected with deposits in the surrounding areas, for example D820 (same phase) and the source of D1201 and D1378 of later phases.

Nave (eastern end)

This heavily used area was patched frequently with a number of different materials but most commonly with beaten earth, pebbles, and mortar. The only significant context, D2081, was a beaten earth patch

dating to Phase W1. Fourteen samples were taken from this area of the nave, and only one proved to have relatively high numbers of plant remains. D2081 contained a high proportion of large weed seeds, which represented over 90% of the total number of items. Wood charcoal was the dominant category of plant remains in the other samples.

Nave (central area)

This was a little used area of the site between the much more frequented west and east ends. The floor repairs here tended to be of a small, localised nature until Phase Y when it was covered with a thick organic 'dark earth' dump. Twenty six contexts were sampled in this area, and of these only two were rich in plant remains. As these contexts were both from Phase Y and contained similar assemblages, it was considered likely that they had a common source. They differed from the majority of samples in that the dominant cereal represented was barley rather than glume wheats in association with an uncleaned barley crop. The other samples, taken from five phases in total, had few identifiable crop or weed remains and were dominated by wood charcoal.

Nave (western end)

This area around the west entrance to the basilica was repaired frequently from Phase T onwards, often with pebble floors or rubble surfaces. Two charcoal platforms (Buildings 65 and 66) lay on the south side of the nave (*see chapter 4, and Gale, below*).

Thirteen contexts were sampled from this area of the nave, and of these, six were found to be rich in identifiable plant remains. The phases represented were Phases V, W, X, and Y, but despite more samples being taken in this area, no clear picture of plant use emerged, the cereal remains recovered were typically of a mixed nature. The majority of the samples were dominated by wood charcoal.

North aisle

Contexts in this area of the aisle consisted of floors and patching layers. The eastern end was cut by archaeological trenches down to the basilica mosaic floor. Thirty-six samples were taken from a large area. They generally contained low concentrations of plant remains (two to twenty-four items per litre) and their compositions varied. Seven samples were rich and fell into three groups on the basis of their compositions: fine-sieved glume wheat crops, mixed remains, and crop processing residue (D626). The high frequencies of relatively clean grain (glume wheat) suggested the possibility of crop storage in the area, but there was no archaeological evidence of this. As discussed previously, sterilisation of storage containers may have resulted in burnt residues of some of the cereals. Context D626 was unique and represented a crop processing residue which may have been used as tinder or fuel.

South aisle

Area 1 was in the south-west corner of the site, near the west portico, and area 2 was at the opposite end of the aisle. Contexts sampled in these areas included pit fills, postholes, dumps of various types, and hearths.

Area 1: thirteen samples were taken in this area and of these two were rich. D328 (a large posthole, Phase Z) was assigned to type 1 and had a concentration of only 0.7 items per litre. It was possibly linked with the hearth D369 (West portico) which may have been the source of the plant material. D743 was classed as a type 5 sample, a miscellaneous category of plant remains. It contained a mixture of barley grain and chaff, hazel nut fragments and weed seeds, and could represent a dump of debris from several activities undertaken on the site. In the eleven samples which had minimal plant material there were high numbers of modern snails perhaps indicating post-depositional contamination/movement (see Monk above).

Area 2: seven samples were taken in this area and only one, D1372, proved to have high numbers of plant remains. D1372 (a micaceous flagstone tile hearth, Phase X) was assigned to type 2 and had a high density of 130.6 identifiable items per litre. The remains were identified as having derived from a fine sieving residue of a glume wheat crop. The presence of this type of material in a hearth could be most easily explained as the remains of spent fuel. None of the other contexts sampled in this area were thought to be associated with the oven/hearth at the time they were excavated, and the composition of the remains, which was dominated by wood charcoal, does not contradict this idea.

The samples from the south aisle contained a mixture of cereal remains. The plant material in D1372 represented perhaps the best example on the site of the type of crop processing residue used as a fuel source.

Spatial distribution of plant remains 1975–80

West portico

From the early seasons of sampling only three contexts produced high levels of charred remains, D372, D393, and D429 grid 14E Sample 50 (Phase Z). It is significant, however, that the remains were not distributed evenly within the contexts; other samples from different areas of the same contexts produced a lower incidence of remains, mostly with a moderate frequency of identifiable items (but in some cases a higher incidence of unidentifiable fragments), that is, between 15 and 60 identifiable items.

Looking at the problems of disturbance and movement of deposits, it is perhaps significant that the other context from Phase Z2 with a high incidence of remains, the dump level D393, lay between the two hearths on the west portico (D369 and D370) and may

represent raked out material from these or earlier baking hearths in this area. It did not show any spatial variation in remains, indicating a homogeneous deposit subject to minimal subsequent alteration or addition, in comparison with other contexts described here.

The complement of remains from all the high incidence samples in the baths basilica was similar to those with a high frequency of wheat grains, and in particular, where a species identification could be offered. This is typical of D372 (Phase Z2), where there is little variation in the complement of remains despite the differing sample sizes. In all cases the fragmentation of the wheat grains was high, with many split longitudinally. A good number were also earth-encrusted and abraded but not as much in some of the samples at the west end of the nave (below). In all samples, several wheat grains were tentatively identified as *Triticum aestivo-compactum* because of their compactness, the largest number of these being in Samples 11 and 12 from grid 28, and Samples 19 from grid 42. Most samples produced a low to moderate incidence of *Hordeum sp.* (that is, 1 or 2 to 300 identified fragments, as for example in Sample 19, grid 42), and the presence of twisted grains would suggest *Hordeum vulgare* var. *hexastichum*. Also present were individual grains of possible *Avena* spp. (oats) and *Bromus* spp. (brome) and possible, *Secale cereale* (rye). All samples had few ancient weed seeds, with individual seeds of *Galium* spp., *Vicia* spp. and *Polygonum convolvulus*. All contained a small number of fragments of hazel nut, modern seed contaminants, and land snails. The presence of other burnt material, charcoal and lime globules as well as abraded lime mortar, would indicate that this deposit was a mixed midden spread.

Sample D429 was similar in content to those from D372, with mainly wheat grains, of which those assignable to a species with any degree of confidence were mostly spelt-like grains, with some possible compact bread wheat forms present in very low numbers. There were a few weed seeds, a few examples of *Vicia* spp. (the vetches), *P. convolvulus* (black bindweed), and *Galium* spp. In terms of burnt material the sample consisted mostly of grain. There were some land snails, small mammal bones, and a very low incidence of modern weed contamination.

Five samples were taken from D393, and all had a very high incidence of remains, mainly wheat grains *Triticum* spp., a large number of which looked like spelt. Also present were a few grains of *Triticum aestivo-compactum* type, a few grains of *Hordeum* sp., (barley) all showing some evidence of being twisted (ie *Hordeum vulgare* var. *hexastichum*), and one or two possible grains of *Secale cereale* (rye). Many of the grains were badly distorted by the charring process, some were also abraded and (again as in D372) broken longitudinally. These samples, in common with many of the others, had very little other than cereal remains present, although a few fragments of hazel nut shells were occasionally present, as in Sample 43. There was very little chaff or weed seed element present in the samples (the exception being one glume base in Sample 42). These samples would seem therefore to have derived from a completely cleaned 'storage product', perhaps destined for use in the baking hearths D369 and D370 close by. Indeed the remains may represent to some extent, rakings from these tile-based hearths. Despite the fact that Samples 41, 42, and 43 came from different locations (Sample 42 close to hearth D369, Sample 43 adjoining hearth D370 on its north side and Sample 41 intermediate between the two), there is little difference in their content, although the overall incidence of remains from each sample did vary (for example, there were 630 items in Sample 42; 430 in Sample 41; and 354 in Sample 43).

Of interest is a comparison between the compositions of the samples from contexts D372 and D393 with those from the one sample from hearth D369. All three contexts produced a very high incidence of grain (with few glume base fragments). These were, once again, grains of the glumed wheats, the majority being most similar to *Triticum spelta* with very small amounts of barley (*Hordeum* sp.) and of weed seeds. The substructure of this hearth, D469, had a similar pattern of remains, but with a greater density. The incidence of remains per litre of deposit being one of the highest for the site as a whole at 225.5.

North portico

The hearths found at the east end of the north portico in earlier seasons of excavation also produced charred plant remains, and despite a more restricted sampling approach the frequency of remains was far less in the contexts in question (C195 and C231, Phase pre-Z), and the composition of remains differed from those deposits associated with the hearths on the west portico. The most common cereal represented by its grains in these hearths was *Secale cereale* (rye). It is also the case that there was a broader mixture of remains from these hearths than the examples on the west portico, including a reasonable representation against overall frequency of remains of weed species such as *Vicia* sp., *Rumex* sp., and *Bromus* sp. C195 contained seven complete *Bromus* sp. seeds plus five fragments, three *Vicia* and one *Rumex* sp. while C231 had two seeds and two fragments of *Vicia* sp. and six complete and two fragments of *Bromus* sp.). It would seem that perhaps part of the explanation for the different proportion of cereal remains at least lay in the fact that the deposits associated with these hearths were chronologically earlier than those on the west portico and hence may relate to a different cereal farming regime in the catchment area of the site. Alternatively, they might represent a different, and perhaps lower status diet.

South aisle

Two of the most prolific contexts to produce remains in the early seasons of sampling were two post-hole fills (D319 and D328) located at the west end of the south aisle, both in grid 13 and assigned to Phase Z. In the case of D319 it was possible to separate a post-

pipe from the pit fills and both produced a relatively high incidence of charred plant remains (identifiable items per unit of volume were 13.3 for D319A and 4.25 for D319B); more remains in the post-pipe fill of D319 produced 226 identifiable items (245 including indeterminate material) of which the majority were cereal grains. Eighty seven of the cereal grains had a close similarity to *Triticum spelta* and several of these showed signs of germination. A small number of grains were more similar in shape to the compact form of bread wheat, *Triticum aestivo-compactum*. Also present were unidentifiable wheat grains and some individual grains of barley *Hordeum* spp. (including some asymmetrical types that may suggest the presence of *Hordeum vulgare* var. *hexastichum*) and oats (*Avena* sp.) but the significance of the latter two species is probably minimal, as is the presence of individual fragments of other plants *Rumex* sp., *Sambucus nigra*, and *Corylus avellana*. It should also be noted that although the remains probably did relate to early activity on the site, both samples from post-pipe and post-pit also contained modern plant material, particularly the seeds of *Fumaria* spp., *Rubus* spp. (bramble), *Silene* spp. (campions), and *Lamium* spp. (deadnettles), but also modern wood that may represent the remains of a wooden fence line across the site at this point. Other remains from these contexts emphasised, however,the antiquity of most of its charred contents (charcoal and burnt wall plaster). Abraded animal bone and land snails were also present in the samples from the post-pipe.

The sample from the post-pit was similar in content to that from the post-pipe, containing 125 identifiable remains (total 189) of which the majority were probably grains of spelt wheat *Triticum spelta* (51) with 5 more compact looking grains and 60 unattributable. In this case, however, although there were a few individual seeds of weedy plants present, *cf Bromus* spp., *Vicia* spp. and Cyperaceae, there were no other cereal species found. The contamination and general appearance of the sample was again much the same as that for the post-pipe area. Clearly this context complex although separated into pipe and pit material, included remains from the same overall population, suggesting that both fills originated in this area before the post was raised and hence do not relate to the activity the post represents. It is also relevant to note the presence of a rabbit skeleton in the pit deposit. Although it is not clear that these remains were associated with burrowing, certainly we must take into consideration the mixing of deposits that may have taken place.

Immediately to the south-west of D319, and cut by it, was another posthole, D328, a context in which it was not possible to identify a separate post-pipe. The sample from this context produced a total of 214 fragments, 168 of which were identifiable. Again, spelt wheat seemed to be the most likely candidate for most of the wheats (a total of 71 grains, of which eight showed signs of germination) but the numbers of more compact-like wheat grains amounted to 27, and there were 58 unidentifiable wheat grains. A significant find in this context was a glume base fragment that had the appearance of *Triticum spelta*. Barley was represented by a few individual grains, two of which showed the lateral twist characteristic of *Hordeum vulgare* var. *hexastichum*. Individual seeds of *Vicia* sp. and *Bromus* sp. were present as well as three hazel nut fragments. The deposit had a large amount of charcoal from the context as well as occluded burnt lime. Modern seed contaminants and recent-looking land snails suggest contamination, although this post, like D319, was probably set into a deposit here in the south aisle that already had a high incidence of charred plant material present.

The samples from the south aisle contained a mixture of cereal remains. The plant material in D1372 represented perhaps the best example on the site of the type of crop processing residue used as a fuel source.

Conclusions

The following summaries reflect, to some extent, the different interpretative methods used by the two sets of authors. The overall conclusions are however similar and have been made with due acknowledgment of the limitations of the data.

Summary of 1981–5 results

M Charles and S M Colledge

The typical composition of the 41 rich samples chosen for further study, ie samples containing relatively high proportions of cereal remains with little or no weed seeds, meant that the stated intention of investigating aspects of crop husbandry was not possible.

Consideration of the plant remains in relation to archaeological contexts, however, yielded useful information about the taphonomic processes which had taken place during and after the deposition of the charred plant material. It was concluded that many of the 41 samples derived from a limited number of sources of burning, and, where it was possible to suggest these sources, it was also possible to describe details of their subsequent depositional histories.

The primary sources of the charred plant remains appeared to be the domestic hearths (the remains of either discarded fuel or accidentally destroyed plant foods) and large scale conflagration of storage deposits.

The evidence from this study (discussed by Monk below) indicates a pattern of local cultivation of cereal crops, off-site processing to produce cleaned or semi-cleaned grain, on-site storage of cereals, and small scale preparation of these by cooking (eg baking bread). Chronological changes in the types of crops cultivated and their processing were not visible because of the restricted number of samples that proved to be suitable for this study.

Summary of the 1975–80 results

M Monk

Chronology

There are several features of the samples from these earlier seasons of excavations that require further discussion. There were some apparently secure late or post Roman contexts which contained bread wheat, *Triticum aestivo-compactum* (with rachis as well as grain present), for example context D338, which also produced a coin of Valentinian I. It has been assumed that the production of free-threshing bread-wheat was more common in Britain in the later Roman period, without often being well-confirmed archaeologically. Bread wheat has, however, frequently been noted from Roman period sites, for example as a significant find in samples from the Romano-British villa at Barton Court Farm, Oxfordshire, and in small quantities from samples extracted from the Romano-British village site at Tiddington, Warwickshire (Jones and Robinson 1986, and Greig 1991, quoting Moffett forthcoming). In some cases, however, it can be argued that there was an increase in the representation of this species through time.

It would have been welcome, therefore, if these deposits could have helped with the thesis, but unfortunately this is not the case, particularly since these deposits have been subjected to considerable post-depositional activity while not accumulating to any great depth, diminishing the possibility of chronological clarity. The danger of the coin being residual from earlier deposits is too great to attach great significance to its presence. In particular it should be assumed that any highly organic deposits would break down and deflate so completely as to allow non-biodegradable materials (such as charcoal) accumulated within them to filter down from later deposits. This may explain why there is so little differentiation between the botanical material found in the make-up dumps and their overlying surfaces on the west portico, as discussed above.

One of the other main points about this collection is the presence of rye in the samples. Although this cereal only occurs to any considerable quantity in those deposits associated with the Phase pre-Z hearths at the east end of the north portico, there is a sporadic occurrence of rye grains in samples from other contexts. It is still possible, despite the occurrence of rye in Britain since the Bronze Age (Chambers and Jones 1984, 219–24) that it is present here as a weed of cultivation rather than being cultivated in its own right but this is unlikely given its association with the tile hearths on the north portico and the likelihood that it was a crop on the north European mainland during and after the Roman Iron Age onwards (recent evidence from Denmark, Robinson and Siemen 1988, 699–703). If its presence in these samples is significant then it may have been more widely cultivated in this area of late and post-Roman Britain than elsewhere; rye finds are certainly fewer in southern Britain (Green 1981). In addition Greig (1991, 310–11) refers to the finding of rye, again in small quantities, from samples studied by Moffett at Tiddington, in the West Midlands. It is perhaps relevant to point out in this regard that Pliny refers to the use of rye as a low-status dietary supplement, only being utilised in Italy when necessary to avert starvation (Pliny, *Naturalis Historia* **IV** 2, referred to in White 1970, 137). Whether this held for the northern provinces is difficult to say. However different societies may have viewed its value differently as is indicated in an Irish Law tract of the eighth century that refers to rye as being the equivalent of the superior kings and second level poets (for further discussion see Monk 1991, 318–9). Rye, even if not prized for its food value was, according to Pliny grown for its soil improvement qualities and has been noted elsewhere to be useful for its long straw in thatching.

Another cereal which is associated more with later Roman cultivation practices is oats, *Avena* sp. Although the difficulty of identification to species in the absence of the lemmas or flower parts may artificially lower representation, its low incidence in the samples is in contrast, in this instance, with the situation for both *Triticum aestivo-compactum* and *Secale cereale*. This may be explicable in terms of the general context and probable use of the different cereals. While oats have been and are used commonly for human food in some parts of northern Europe, they are more often commonly associated with animal fodder. Indeed Applebaum has argued in his discussion of Roman agriculture in Britain (1972, 109) that their presence may be associated, as fodder, with the increased use of cavalry by the military in the later Roman period.

While few of the contexts that produced cereals were primary locations for the remains, there is sufficient evidence to argue that most samples represent residue from either storage or preparation of food (as discussed above). This is indicated by a low incidence of material that might derive from crop processing, ie weed seeds and chaff elements, glume bases, spikelet forks and rachis remains.

Interpretative perspective

At the interpretative level it is important to raise a few questions in respect to the presence of baking hearths and the charred cereal debris in the precincts of what would have been the former centre of the fourth largest town in late Roman Britain. The significance of such a large quantity of charred cereal grains present close to these hearths can only be viewed in relation to independent evidence that they were being used for food production. It is therefore very pertinent in terms of support for such an hypothesis that the fragments of rotary quern stones found, which could have been used for pre-cooking processing, coincided with the concentrations of carbonised grains observed on site, including the northern part of the west portico, with additional finds in the southern part of the area. Despite the longitudinally split, broken, and abraded appearance of many of the

grains and the high incidence of fragments there is a possible argument that the quantity of grain in some samples (for example D393 and D372) is perhaps too high to be explained away as simply baking hearth waste (see above). It is possible as an alternative or perhaps ancillary argument, though there is really very little other evidence to demonstrate it, that the grain derives from a conflagration of a centralised storage facility located in or close to the buildings identified in this area of the site. This may have represented a redistribution facility at a time in the late Roman or early post-Roman occupation of the site, and these baking hearths, with their associated processing equipment were a small part of this general facility. The relatively small amount of chitted grain present might indicate somewhat damp storage conditions, but the incidence is too low to suggest that the bulk of the grain was destroyed deliberately due to spoilage of a stored product. The chitted grain may have come from a different source than the main bulk, being deliberately burnt in the hearths to dispose of it. The fact that some of the grain shows evidence for germination is a positive indication of damp storage and perhaps indeed this material in being spoilt storage waste could have, as argued above, been used as fuel to fire the hearths, which might also offer an alternative explanation for charring. That a storage facility of the kind indicated was located nearby still remains the most likely possibility especially perhaps in the light of the interpretation suggested by Wright for the finding of a large quantity of grain in the *frigidarium* in 1859 (Wright, 1872, 121).

Perhaps in the context of this discussion it would be pertinent to introduce the evidence from studies of remains from other late Roman and earlier post-Roman town sites. Unfortunately there are very few published parallels in this respect. A number of cereal finds have been made of an earlier date from within towns, for example two deposits from Roman London, one from close to the forum which, like that from Wroxeter, contained a dominance of grain over waste product and a similar spectrum of remains to those identified with wheat being dominant but with a certain representation of einkorn suggesting to the analyst that the deposit may have been imported (Straker 1984, 325–6). Similarly, other published Roman grain finds of an earlier date have been made from Colchester and York (Murphy 1984, 40, 105, 108, 110; Kenward and Williams 1979).

Further work is on-going for samples from Alcester (Greig and Colledge 1981, 10). These are of particular relevance, given the results from a similar detailed analysis of a large number of samples from Poundbury in Dorset, with grain producing samples of a similar date, that is, late or post-Roman. The post-Roman activity in Dorchester (*Durnovaria*) was by contrast to that at Wroxeter in the periphery of the Roman town. A complex of structural evidence in the form of post holes, pits, and gullies was found cutting a late Roman cemetery, the mausolea of which were also used in this phase. Amongst the pits were four elongated rectangular ones which produced evidence of burning and charred plant remains in their fills. These charred remains and those obtained in lesser quantities from the fills of surrounding features included mainly remains of cereals but from the elongated pits considerable numbers of charred seed remains of other plants, the majority of these are interpreted, on modern analogy, as seeds of cornfield weeds. On the basis of the presence of the charred remains but also on structural evidence the elongated pits were interpreted as corn-drying kilns (Monk 1987, 133–4). Overall the majority of the charred cereals were wheat but particularly a compact form of bread wheat *Triticum aestivo-compactum*. Also present in high numbers were grains of oats including, where it was possible to identify them, *Avena sativa*, the common cultivated oat. Barley was present in relatively lower numbers, the majority being six-row hulled barley, *Hordeum vulgare* var. *hexastichum*, deduced from the presence of large numbers of asymmetrical grains.

The impression one gets from the context of the remains from Dorchester is of a localised cereal-processing area that developed in the late Roman to early post-Roman period in the immediate vicinity of a town that was still occupied at this time. The possibility that the mausolea were being used for storage might be indicated by proximity of these corn drying kilns. Possibly it could be argued that the grain processed here was centrally stored, redistributed and domestically or commercially utilised elsewhere, perhaps in the centre of what may have remained of the Roman town. This hypothesis has yet to be tested in Dorchester but what perhaps we might expect to find in a similar situation is what has been found here at the west end of the baths basilica site: a high incidence of grain but little evidence of primary processing waste, and the association with small tile-baking hearths, and the presence of furze charcoal (a fuel commonly used for firing kilns, whether for corn-drying or other uses, perhaps in this instance the former would be most likely). Note might be taken in this instance of the corn-drying kiln and processed cereal plant remains recorded by Bushe-Fox (1913, 6) in the area to the south of the forum indicating, as has been noted at other sites, the adaptation of areas of Roman towns in the later period to subsistence related activities. Indeed, the so-called 'dark earth' deposits commonly found superseding Roman deposits have been discussed in terms of a depopulation of those towns in the late Roman and early post-Roman periods and the utilisation of these areas for market gardening or even farming activity, earthy deposits as discussed being brought in for the purpose (Sheldon 1978, 10; Roskams and Schofield 1978). Some micromorphological and biological analysis of such sediments in the case of London would seem to lend some, but not complete, support for such a suggestion (MacPhail 1981, 309–31). In terms of agricultural facilities corn-drying kilns of a fourth to fifth-century date have been identified within the towns of Caerwent, Silchester, and *Verulamium*, in addition to Wroxeter.

There has always been the possibility that farming activities may have operated out of or within Roman towns (see above). This possibility has been discussed not only for Cirencester, Silchester, Caerwent but also here (Wacher 1974, 274, 372). To date, however, only one author, David Neal (1978) has discussed the possible dynamics responsible for the presence of such agricultural facilities as corn dryers within towns, arguing that this evidence may indicate landowners abandoning their villas and transferring their centre of agricultural operations, particularly processing and storage of crops, to towns. Perhaps there is some truth in these speculations or perhaps it is simply that there is, for reasons of redistributional efficiency, increased centralisation in the main towns of processing as well as the marketing of agricultural production. There is relatively little other evidence to support this interpretation pending further work, but it can be said that the results of the detailed study of the plant remains have helped focus attention on a key issue: the functional changes in processing and distribution as well as marketing in late Roman and early post-Roman towns.

Notes

Key Identifications

Cereals

***Hordeum sativum*, cultivated barley**

The grains of cultivated barley, *Hordeum sativum* were easily recognisable by their 'spindle' shape, and it was possible to isolate small fragments of the grains because of many distinctive features. The majority of the specimens were hulled barley, distinguished by the angularity of the grains and the 'lines of compression' on the surface, caused by the constriction of the lemma/palaea which adheres to the grain during its development. In two samples (D469 and D369) there were grains (three in total) which were of the typical barley outline but were much 'plumper' and did not possess the longitudinal striations of the hulled specimens. It was considered that these were naked barley grains.

All the whole barley grains were sorted according to whether they were 'straight' (ie symmetric about the ventral furrow), 'twisted' (ie asymmetric) or indeterminate (ie usually badly distorted/preserved grains for which only the overall shape could be distinguished). The straight grains were from the median floret of the spikelet of either two-row or six-row barley and the twisted grains were from the lateral florets of the six-row variety. By calculating the ratios of straight to twisted grains in the samples comprising both, it was possible to suggest the relative proportions of two-row and six-row barley which were being used at the site; it should be noted, however, that few samples contained both straight and twisted grains:

context	*straight:twisted*
D474	1:1
E74	2:1
D2017	3:4
D1372	4:1
D719	1:1
D719	2:1
Average ratio	1.79:1.0

For a 1:1 mixture of two-row and six-row barley the expected ratio of straight:twisted grains would be 1:1, for a 2:1 mixture the expected ratio would be 1:0.67, for a 3:1 mixture the expected ratio would be 1:0.5, and so on. As the proportion of two-row increases the ratio also increases. Here it would seem that there was more two-row than six-row barley. Given that the numbers of indeterminate barley grains were far greater than those which could be assigned with certainty to either straight or twisted, all inferences drawn from these calculations must remain tentative. The fragments of barley (less than one third of a grain) were sorted according to whether they were apical or embryo ends of the grain or whether they were intermediate (ie of indeterminate provenance). For the purposes of calculating the overall total the larger number of either apical or embryo ends was added to the number of whole barley grains for each sample. Five rachis internode fragments were found in the samples, all were poorly preserved and could not be identified beyond that of cultivated barley.

***Triticum dicoccum*: cultivated emmer wheat**

The grains of *Triticum dicoccum*, emmer wheat, were more rounded than those of einkorn wheat. Grains from two-grained spikelets were identified in many of the samples. These grains had flattened (to almost concave) ventral surfaces (caused by the compression of the other grain of the spikelet pair), the dorsal surfaces were convex with a more or less symmetrical ridge (less pronounced than for einkorn), the apical ends were evenly rounded and the embryo ends were gently tapering. Again, as distinct from the grains of einkorn wheat, the highest point on the dorsal surfaces of the emmer grains was just above the embryo. Most of the specimens from the samples had wrinkles (impressions of the glumes) on the lateral surfaces and these are typical of the species.

Triticum* cf *monococcum/dicoccum: cultivated einkorn/emmer wheat

For these samples, as with any assemblage consisting of a mixture of cereals, there were specimens which could not definitely be assigned to one wheat species, but which had features common to at least two. Several specimens could not be identified with any certainty to either einkorn or emmer and so were scored under the category *Triticum* cf *monococcum/dicoccum*. These grains have convex dorsal surfaces with the high point midway, characteristic of the single-grained einkorn grains, but without exception they also have flattened ventral surfaces which are more like the two-grained emmer grains. The attenuation at the apical and embryo ends was neither as strong as in einkorn nor as minimal as in some emmer grains. It would be unusual, unless dealing with extreme forms of einkorn and emmer, for there not to be grains which were classified in an intermediate category.

Triticum spelta: spelt wheat

The grains of *Triticum spelta* in the samples were identified by their noticeable 'flatness' in comparison with the grains of the other wheat species represented. The grains had almost parallel sides when viewed laterally or ventrally, the dorsal surfaces were evenly rounded with no dorsal ridge and the ventral surfaces were more or less flat. The apical ends of the grains were rounded/blunt and the embryo ends were rounded to gently tapering.

Triticum* cf *dicoccum/spelta: intermediate category
Both emmer and spelt are hulled wheat varieties and when spelt grains are charred in the spikelets they can be very similar in appearance to grains of emmer. This category refers to those grains which have features common to both emmer and spelt. In general the grains were 'plumper' than spelt but in lateral view they appeared more or less parallel sided, with a lower, less steeply rounded dorsal surface than the emmer grains. Unfortunately the majority of the better preserved wheat grains in the samples were relegated to this intermediate category, with features which were not clear enough to permit further species distinction. In some cases, although preservation was good, there was considerable distortion and this prevented more definite identifications being made.

Triticum aestivo-compactum:free-threshing/compact hexaploid wheats
The grains of free threshing wheats are much more rounded than those of hulled wheats. In these samples there were many grains which were identified as the compact variety of free threshing hexaploid wheat. These grains tended to be almost spherical in shape; short, squat, and rounded, easily distinguished from the other wheat species. Both dorsal and ventral surfaces were convex.

***Triticum* spp. indet**: Wheat grains and fragments of indeterminate species
Many of the grains in the samples could not be identified to species because of poor preservation. The specimens grouped in this category could be distinguished to the generic level, their overall shape was distinct from that of the other cereals represented, but other specific features were no longer extant. In many cases it was difficult to determine whether grains should be relegated to the lower 'level' of Cereal indeterminate. The fragments which were put in this category were half grains which had broken along the ventral furrow, so that the outline of the grain shape could be seen on the broken half, this still allowed for distinction from the other cereals. Other fragments included were the apical ends of grains which could be clearly distinguished from rye. The fragments were converted, on the basis of weight, to whole grain equivalents and were scored together with the number of whole grains for each sample.

Secale cereale: cultivated rye
Cultivated rye grains were identified in eleven samples. The grains had blunted apical ends typical of the species. The rye grains were recognisable from the wheat grains in the samples by the greater embryo length (embryo length : grain length is greater for rye than for wheat).

***Avena* spp.**: oats
Oat grains are narrow both laterally and dorso-ventrally. The grains are also long in relation to their width. In several of the specimens from the samples it was possible to see fine hairs adhering to the surface of the grains. In sample D719 there was a well preserved flower base which showed the 'sucker mouth' attachment scar typical of the wild oat species.

Cereal indeterminate

i) whole grains and fragments: poorly preserved grains and fragments, for which it was impossible to identify to the species or even genus level, were grouped under the category Cereal indeterminate. The remains in this category were not quantified.

ii) detached/sprouted embryos: detached cereal embryos were identified in many of the samples. The sprouted embryos were scored separately.

iii) culm fragments: nodal culm fragments were noted in the lists; the identification being based on the estimated node diameter which approximated that of cereal species (*c* 5mm.)

Weed Seeds

Gramineae: The most common grass represented was a species of brome. The seeds and fragments of *Bromus* spp. were easily recognisable, they were dorso-ventrally compressed, the surfaces of the seeds were shiny and there were the characteristic radiating cells on the ventral surfaces at the apex of the seeds. The species represented in the samples closely resembled *Bromus secalinus* (rye brome).

Caryophyllaceae: *Agrostemma githago*: corncockle
Remains of the charred seeds of *Agrostemma githago* were found in two samples. The seed is wedge shaped and highly sculptured, with raised papillae covering its surface. The species was a common weed of crop fields but it is also poisonous and had, therefore, to be sorted carefully from the cereal grains during cleaning.

Corylaceae: *Corylus avellana*: hazel nut shell fragments
Fragments of nut shell of uniform thickness and with longitudinal grooves (cracks) on the external, rounded surfaces were sorted and assigned to this category. The edible nuts were probably consumed.

Leguminosae

***Vicial Lathyrus* spp.**: vetches
Small spherical seeds with clear linear hilums were assigned to the genera *Vicia* or *Lathyrus*. No distinction could be made between the two genera.

***Pisum* sp.**: pea
Remains of a larger legume were found in five samples. In most cases the testas of the seeds were not intact and the two cotyledons had become detached.

small legumes indeterminate

Several members of the tribe *Trifoliae* constituted this category. The majority were small 'comma' shaped seeds with fine sculpturing on the surface of the testa.

Polygonaceae

***Polygonum convolvulus*:** black bindweed
The seeds of this species are trigonous, with rounded angles and slightly concave sides. They are *c* 3.5mm long. The testas are minutely punctate.

***Polygonum aviculare*:** knotgrass
The seeds of this species are similar to those of *P. convolvulus* but smaller, *c* 1.5mm long.

Rumex obtusifolius*:** broad leaved dock; and ***Rumex crispus lacetosa: curled dock/common sorrel
These seeds are also trigonous but with sharply defined keels. The testas are smooth and shiny.

***Rumex acetosella*:** sheep's sorrel
The seeds of this species are similar to the other *Rumex* spp. discussed but they are much smaller, *c* 1mm long.

Ranunculaceae: *Ranunculus sardous*: hairy buttercup; and ***Ranunculus flammula*:** lesser spearwort
The seeds of these two species are obovate, those of the former are longer and wider than the latter. The testas of both bear a raised reticulate pattern but the interspaces of the reticulum are larger in *R. flammula*.

Rosaceae: *Prunus* sp.: plums (including cherries, sloes and plums)
The fruit stones of *Prunus* sp. occur in two samples. These are evidence of an edible plant which may have been exploited.

Other material

Glassy/vesicular charred fragments

These fragments of plant material had been exposed to high temperatures and bore no vestiges of their original form due to extreme distortion and/or chemical alteration. They were noted and provide an indication of intensity of heat which the plant remains may have been exposed to during charring.

Modern material

Snails: most of the snails recovered from the samples were examples of burrowing species and as such they represent contamination from more recent deposits.

Seeds: modern, uncharred seeds were extracted from the samples, they also provide an indication of the degree of contamination from overlying deposits at the site.

Spatial distribution and plant remains 1981–5

West portico

Oven D371 and associated contexts

The twenty contexts sampled covered three phases (Phases X,Y,Z) as did the five 'rich' samples already discussed. One question to be addressed in the investigation was whether material from the oven D371 (Phase X) appeared in later phases in the same area, perhaps as the result of either movement through the soil caused by insects or animals etc, or movement or reuse of these deposits.

Phase X

D1179, D1213, D1214, D227, D1250, D1260, D1269, D1283, D1315, D1319 plus D1320
These samples were all part of the oven's construction (eg foundation, bedding layers etc) and contained little charred plant material, most of which was small fragments of wood charcoal.

D1221 and D1229
Of the other Phase X contexts D1221, a cut in a pebble floor, and D1229 contained a high proportion of cereal grains, although the overall density of charred material was very low.

D1169
A bedding layer of oven D371 had a low frequency of charred items (1.5 per litre) and, on the basis of its composition, was included in type 1, ie it contained relatively clean glume wheat grain products which was in contrast to the other 'rich' samples from this area.

D1201
A mixed crop product sample (type 3), unlike the two samples D474 and D845 most strongly associated with the oven.

Phase Y

D898, D1168
Both contexts contained only small quantities of wood charcoal, and there was no particular evidence to support the idea that D1168 represented ash from oven D371.

D845 and D885 (oven flue fill and silt dump)
These contexts had relatively low frequencies of charred material (5.8 and 2.6 items per litre respectively). D845 comprised a mixed sample of glume wheat grain and unprocessed barley and may have been a waste product or contaminated residue used as fuel for the oven. D885 was made up almost entirely of glume wheat grain.

Phase Z

D474
The two contexts sampled from this phase were described as 'oven debris'. The samples from D474 had moderately high numbers of charred remains (*c* 10.0 items per litre) and had a similar composition, eg high ratios of *Triticum dicoccum/spelta* caryopses:glume bases (*c* 28.0) and a low ratio of *Hordeum sativum* caryopses:rachis internodes (2.33). The derivation of a large spread of plant remains, all apparently of the same origin, could be explained in a number of ways, eg that the material represented; the remains of spent fuel cleaned from the oven, the result of accidental conflagration in a storage area, or the accidental over-heating/cooking of a crop.

In this case the composition of the remains, an apparent mixture of glume wheat grain, barley grain and chaff, the density of the material, and its association with the oven D371, would seem to suggest that the plant material had been used as a source of fuel.

D372 (rubble levelling layer)
This context contained little apart from charcoal, identified as ash, oak, poplar/willow, and hazel; and the size of the charcoal indicated the possibility of the wood having been used in hurdle making (*see appendix 7*).

Grid 14: Hearth D369 and associated contexts

Phase X

D1016 and D1187 (post hole and a cut in a floor layer)
The composition of the plant remains in the sample from D1016 was typical of type 2, the density of items was high, 31.3 per litre. The remains in D1187 were assigned to type 1 and the density of items was low 1.7 per litre. Of these two 'rich' samples, from the earliest phase, the composition of D1016 resembles the overlying layer D719, but the concentration of remains is considerably lower and this may indicate that material had moved down through the deposits. D1187 was grouped with the D369 samples (type 1) and may have also resulted from post-depositional movement.

Phase Y

There were no rich samples.

D762
A levelling dump, it had a predominance of wood charcoal.

D856
A post hole fill, contained roughly equal quantities of grain and charcoal.

Phase Z

During the excavation of the Grid 14 Phase Z contexts it was noted that the deposits had high concentrations of charred material and an extensive sampling programme was carried out. Thirteen samples associated with the hearth D369 were sampled and seven contained significant quantities of charred plant remains. Of the seven contexts sampled five were 'rich'; D369 D469 D393 D719 and D466, and have been included in the detailed archaeobotanical descriptions.

D369–D469, D466–D393, contexts from the immediate vicinity of hearth

All three contexts had relatively high frequencies of identifiable plant remains (>17.5 items per litre), the samples from D469 (sub structure of hearth D369) had concentrations averaging over 25 items per litre, and shared a similar composition, typified by the type 1 category. The material comprised almost exclusively glume wheat grains, with little or no chaff, and was identified as fine sieved crop product.

It was initially suggested (Monk 1980 archive report) that these deposits represented charred waste from the hearth area where there was some form of 'street side bakery'. It would seem unlikely that whole glume wheat grains would be chosen as a fuel source and two possible alternative reasons for the presence of such large quantities of charred crop in the deposits were proposed: they were the result of deliberate burning of damaged or contaminated crop, or they were the result of accidental burning of a storage area. There were relatively few sprouted grains in the samples which would have been one reason for destroying a stored crop (which had become damp during storage) making the latter explanation seem more likely.

The analysis of the wood charcoal from this area (samples D429 and D463) gave some additional support to the theory of destruction of a storage area. Most of the wood from the tree species represented in associated contexts were all commonly used for wattle/hurdle making, and Gale (below) suggested that the presence of gorse may have indicated thatching of small buildings, ie there were small buildings for storing the crop.

D719, D466 (external occupation layer), other 'rich' samples

These had a high density of identifiable remains (>40 per litre) and its composition resembled the three samples described above.

Four samples were taken from D719, a spread of dumped material rich in identifiable charred remains (*c* 40 items per litre). The samples had a lower ratio of glume wheat grain: chaff and were assigned to the type 2 category. There was no obvious connection between these samples and those around the hearth D369 although they may have derived from the same event.

North portico

Area 1

Grid 40 and 41

The 'richest' context in the north portico was D343, a large deposit covering six of the 2.5 m. grid squares. A total of four samples were taken and all produced assemblages of plant material of a similar composition. The density of identifiable items was relatively low (*c* 9.7 items per litre) and the remains consisted of a range of cereal grains, including barley, glume and bread wheats, and rye, the frequency of chaff in these samples was low. This composition would be expected in cleaned crops and the fact that there was mixing of several different cereals, including glume and free threshing wheats, suggested that the material represented either: accidental charring of a storage area, containing several cleaned crops, or deliberate burning to sterilise storage areas, which might result in the charring of any residual material. This type of sample composition was unusual here and there were only three other examples from the site, all from the western end (grid squares 41, 27, 26, Phases X and W), which may indicate a common origin for the material.

The other contexts sampled in this area contained little plant material apart from wood charcoal.

Area 2

C308, compact dump filling a hollow (Phase Y)

The sample from this context had a relatively low frequency of identifiable charred remains (0.7 items per litre) and comprised a mixture of crop residues (type 5), pure glume wheat grains (<65%), a barley residue dominated by rachis internodes and a relatively high proportion of rye grains (12.1%). The context was not geographically close to the other samples (D743, D2016, D2017 and D2081) characterised by this type of remains.

Area 3

Oven D501 and associated samples

The samples from in and around oven D501 contained few crop grains, the most abundant category of plant material was wood charcoal.

Nave

Eastern end

Fourteen samples were taken from this area of the Nave and only one proved to have significant quantities of plant remains. D2081 (a beaten earth patch) contained a high proportion of large weed seeds, over 90% of the total number of items. Wood charcoal was the dominant category of plant remains in the other samples.

Western end

Phases V and W

Of the eleven contexts examined in these phases, seven contained few crop remains and the dominant category of plant remains was wood charcoal. The wood fragments in D1780 were looked at by Gale (below), who concluded that the presence of maple and holly probably indicated the use of these species as fuel for fires. The deposit, containing high concentrations of charcoal lumps and clay, was used to patch the floors in this area. The composition of the plant remains in three of the 'rich' samples, D1595, D1664 and D2009, was similar and all were assigned to the type 4 category, as described above. These samples contained a mixture of glume wheat grain, barley grain and chaff (more or less uncleaned) and it was suggested that they may represent a spent fuel. The communality of composition and location indicate that the source for the floor constructions or repairs may have been the same.

D1378, D312, Phases X and Y

Context D312 had a high density of plant remains (104.6 items per litre), and these were similar in composition to the type 1, and may have been associated with the other type 1 samples (D715 and D885) in the same area, all were contemporary and close geographically on the site.

North aisle

Thirty six samples were taken from this area and seven were 'rich'. The samples fall in to three groups on the basis of their compositions.

D1147 (Phase W), D749 (Phase X), D715 (Phase Y)
All three were included in the type 1 category, ie fine sieved glume wheat crops. The samples contained almost entirely glume wheat grain. As previously explained the charring of clean, unspoilt grain would not have been a frequent event but would occur when storage areas were being cleansed. It was difficult to determine from these samples (all chronologically and spatially disparate) whether such storage was carried out in this area/location or whether the plant remains were derived from elsewhere.

D791 (Phase V), D933 (Phase W)
These samples were assigned to type 4, ie remains of mixed origin, containing more or less clean glume wheat grain and unprocessed barley. In this case the samples may have been connected with the Nave contexts (D1595, D1664, D2009, all type 4, from Phases V and W).

Others

D820 (a silt dump filling a hollow)
This was categorised as type 3 and was one of four samples containing grains of mixture of cereal species. All four samples were recovered from the western end of the excavation. There is no evidence to suggest that these represented burned storage.

D626 (a buried soil under a collapsed wall, Phase X)
A high concentration of plant remains, 534.2 items per litre, and was the only sample to be classed as type 2. It contained an abundance of wheat chaff (77%) and very little wheat grain. It was unique amongst the samples which were most commonly dominated by glume wheat grains. The presence of a crop processing residue in the area of the baths could be as a result of its use as tinder or fuel.

Appendix 7: Charcoal identification

by Rowena Gale

Charcoal was present in contexts from Phases S, T to U, U, W, Y, Z2 and Z3. Selected samples were identified to provide environmental information and to indicate the use of woodland resources.

Preparation and examination

Charcoal samples were hand-sorted into groups based on the anatomical features visible using a ×20 hand lens. Representative fragments were selected from each group for further examination. These were pressure-fractured to expose transverse, tangential and radial surfaces and supported in sand. The anatomical features were examined using an incident light microscope at magnifications of up to ×400 and matched to reference material.

General observations

The condition of the charcoal was generally good although some fragments were slightly compressed. Several contexts contained a black shiny substance with no cellular structure. Charcoal which has undergone pyrolysis at temperatures above 800°C. loses recognisable cell structure (Prior and Alvin 1983; Prior personal comment). The cell walls become fused and, macroscopically, the surface of the charcoal takes on a glassy or vitrified appearance. The material referred to above (and in the text as ?vitrified charcoal) may have resulted from this process, or from wood extracts such a tar or pitch.

Charcoal identification

A full list is included in the archive report. The results are summarised in Table 28. The taxa identified include *Acer* sp., maple; *Alnus* sp., alder; *Betula* sp., birch; *Corylus* sp., hazel; *Fraxinus* sp., ash; *Ilex* sp., holly; Pomoideae which includes *Malus* sp., apple, *Pyrus* sp., pear, *Crateagus* sp., hawthorn, *Sorbus* sp., whitebeam, wild service and rowan (these taxa are anatomically similar); *Prunus* sp. cherry and/or blackthorn (sloe); *Ulex* sp., gorse; *Quercus* sp., oak; Salicaceae which includes *Populus* sp., poplar, and *Salix* sp., willow (these taxa are anatomically similar).

Discussion

Genera identified within each phase

Phase S

Site D, robber trenches; no charcoal present. Material with a clinker-like appearance from the robber trench in the disturbed bedding (D1252) of the south colonnade suggested a modern origin.

Phase T to U

Nave; a sample from the herringbone tile floor D2354 included oak.

Phase U

Site D, north aisle; the floor surface D1324 produced fragments of oak and hazel.

Phase W

Contexts in this phase were comparatively charcoal-rich.

Site B, annexe; slivers of oak stem were found in the mixed dump B448 and a charred oak plank B601 on the cross wall. The latter was submitted for dendrochronology and was examined and identified by Jennifer Hillam. The plank included 12 fairly wide growth rings (each averaging 5mm) but since this method of dating requires a minimum of 50 rings it was not possible in this instance.

Site C, *insula* 2; a considerable quantity of charred material was found in a large soakaway pit C440. This was mainly oak stem and sapwood but also included bits of alder, hazel, and *Prunus* stems, and ?vitrified charcoal.

North portico; the pebble floor C468 yielded oak and fragments of hazel and willow/poplar stem. Contexts C476, C477 and C486 within the make-up dump contained oak stem; also ?vitrified charcoal in C486. Contexts C481 and C501 included maple and bark respectively.

Site D, north aisle; the dump incorporating the metal-working debris D1122 included mainly alder but also oak, willow/poplar and ?vitrified charcoal. ?Vitrified charcoal was also associated with the pebble floor D1203.

Nave; the large quantity of charcoal in the levelling dump D407 included young stem material, this was mainly oak but also included alder, hazel, birch and *Prunus*. A single piece of poorly preserved, uncarbonised ?oak wood was associated with the pebble surface D2378. Contexts D1595, D1570 and D1571 from the clay and charcoal platforms at the west end included similar taxa and, in addition, ash, maple, holly and Pomoideae.

These contexts included the widest range of taxa associated with Phase W. With the exception of birch and holly, they are amongst those commonly used for hurdle-making since prehistoric times (Coles and Orme 1980; Edlin 1949). Hurdles are constructed from narrow stems usually from coppiced or pollarded rods. Although the charcoal was fragmented it was evident that a large proportion derived from stem wood

Table 28 Charcoal summary

Site	*Acer* (maple)	*Alnus* (alder)	*Betula* (birch)	*Corylus* (hazel)	*Fraxinus* (ash)	*Ilex* (holly)	*Quercus* (oak)	Pomoideae	*Prunus* (blackthorn)	Salicaceae	*Ulex* (gorse)	*Unstructured*
B (annexe)												
B448 mixed dump: W	-	-	-	-	-	-	+	-	-	-	-	-
B601 charred plank: W	-	-	-	-	-	-	+	-	-	-	-	-
C (insula 2)												
C440, large pit/soakaway: W	-	+	+	-	-	-	+	-	+	-	-	+
C (north portico)												
C468, pebble floor: W	-	-	-	+	-	-	+	-	-	+	-	-
C476, C477, C481, C486, make-up dumps: W	+	-	-	-	-	-	+	-	-	-	-	+
D (south aisle)												
D108, rubble platform: Z	-	-	-	+	-	-	-	-	+	-	-	+
D1143, loam dump: Y	-	-	-	-	-	-	+	-	-	-	-	+
D1158, rubble dump: Y	-	-	-	-	-	-	-	-	-	-	-	+
D1282, rubble layer: Y	-	-	-	-	-	-	+	-	-	-	-	-
D1332, tip layer: Y	-	-	-	-	-	-	+	-	-	-	-	-
D1333, loam dump: Y	-	-	-	-	-	-	-	-	-	-	-	+
D (north aisle)												
D1122, dump including metal: W	-	+	-	-	-	-	+	-	-	+	-	+
D1203, pebble floor: W	-	-	-	-	-	-	-	-	-	-	-	+
D1324, floor surface: U	-	-	-	+	-	-	+	-	-	-	-	-
D (nave)												
D100, large rubble platform: Z	-	-	-	+	+	-	-	-	-	-	-	-
D100F-2, layer of roofing slates: Y	-	-	-	-	-	-	+	-	-	-	-	-
D283, rubble spread: Z	-	-	-	+	-	-	+	-	-	-	-	+
D407, levelling dump: W	-	+	+	+	-	-	+	-	+	+	-	-
D1595, clay platform: W	-	-	-	+	+	+	-	-	-	-	-	-
D1750, clay platform: W	+	+	+	+	+	+	+	+	+	-	-	-
D2354, broken tile floor: T-U	-	-	-	-	-	-	+	-	-	-	-	-
D2378, pebble surface: W	-	-	-	-	-	-	+	-	-	-	-	-
D (west portico)												
D331, rubble spread: Z3	-	-	-	+	+	-	+	-	-	+	-	-
D332, rubble spread: Z3	-	-	-	+	-	-	-	-	-	-	-	-
D372, rubble layer: Z2	-	-	-	+	+	-	+	-	-	+	-	-
D401, charred wood: Z2	-	-	-	+	-	-	-	-	-	+	-	-
D429, silt layer: Z2	-	-	-	+	+	-	+	-	-	+	+	+
D449, rubble spread: Z3	-	-	-	+	+	-	+	+	-	-	-	+
D463, silt spread: Z1	-	-	-	+	+	-	-	+	-	+	-	-
D (robber trenches)												
D111, north colonnade: post-Z	-	-	-	-	+	-	+	-	-	-	-	-
D116, north wall: pre-Z	-	-	-	-	-	-	+	+	-	-	+	-
D233, pit: pre-Z	-	-	-	-	-	-	+	-	-	-	-	-
E (street and drains)												
E74, gravel street: Z	-	-	-	-	-	-	-	-	-	-	-	+
E268, street make-up: ?W	-	-	-	-	-	-	+	-	-	-	-	-
E294, robbing hole for block: W	-	-	-	-	-	+	-	-	-	-	-	-
E298, make-up for street: ?W	-	-	-	-	-	-	+	-	-	-	-	+
E299, make-up for street: ?W	-	-	-	-	-	-	+	-	-	-	-	-
E306: burnt patch: ?W	-	-	-	-	-	-	+	-	-	-	-	-
E311, E312, E313, pipe trench fills: W	-	-	-	-	-	-	+	-	-	-	-	-

note: Pomoideae, subfamily of the Rosaceae, which includes apple, pear, hawthorn, whitebeam, and rowan; Salicaceae includes poplar and willow

and it is tempting to conjecture that this material may have been the burnt remains of hurdles or wood from repair work to the fabric of the building.

Site E, street and drains; contexts E268, E298 and E299 from the make-up for the street included relatively large amounts of oak stem and mature wood. E298 also contained ?vitrified charcoal. Charcoal from the robbing hole E294 for one of the stone gutter blocks consisted of oak, and the burnt patch E306 (possibly associated with this phase) also included small slivers of oak. Oak was also found in the pipe trench fills E311, E312 and E313. Those from E311 and E312 had undergone mineral replacement and, by implication, these may have been part of the wooden waterpipe in contact with the securing iron pipe collars.

Phase Y

It is interesting that oak was the only taxon identified from Phase Y. During this phase the basilica building was a derelict shell, although a small building at the west end of the south aisle has also been assigned to this phase. Heaps of building rubble may have been shifted around and although the associated charcoal could represent burnt structural timbers and laths (the worm-eaten timber perhaps emphasising the decay), the origin of the charcoal remains uncertain.

Site D, south aisle; charcoal from this area consisted of oak stem, sap- and heartwood. The contexts included a loam dump D1143, the rubble layers D1158 and D1182, the loam dump D1333, and the tip layer D1132 (heartwood from D1132 included insect boreholes and channels). ?Vitrified charcoal was present in D1143 and D1158.

Site D, nave; charcoal from the micaceous flagstone layer D100F-2 consisted of oak stem material measuring up to 30mm in diameter.

Phase pre-Z

The basilica north wall; oak was identified from the robber trench fill D116 and the pit cut into trench D233; the former also included Pomoideae and ?vitrified charcoal.

Phase Z

Several large timber-framed buildings were constructed over the basilican area. In common with earlier phases, the offcuts or discarded pieces from building materials from this period of intensive building must have contributed to the woodpile.

Site D, nave; contexts with charcoal included the large rubble platform D100: oak and ash; the sandstone rubble spread D283: hazel, oak and ?vitrified charcoal; and the silt spread D463: hazel and willow/poplar. The charcoal consisted of stem fragments.

Site D, south aisle; the rubble platform D108 included hazel and *Prunus* stem and ?vitrified charcoal.

Site E, street and drains; ?vitrified charcoal was included in context E74 from the gravel street.

Phase Z2

Site D, west portico; the rubble levelling layer D372 included ash and oak stem. Hazel and poplar/willow stem were identified from the charred wood context D401. A large fragment of hazel measured approximately 50mm in diameter and included 18 growth rings. The diameter of the living stem would have up to 50% wider (probably too large to have been used for hurdle-making). The silt layer D429 included oak, hazel and gorse stem, and ?vitrified charcoal.

Gorse has traditionally been of economic importance, for example, as roofing thatch, fodder and fuel (Lucas 1960). It burns fast giving an intense heat and has been used to fire kilns and ovens. Possible origins of the charcoal may, therefore, include fuel debris from the many hearths and ovens that operated in the west portico area in this and earlier phases, and materials from dismantled thatched timber buildings which occupied the site.

Phase Z3

Site D, west portico; rubble spreads D331, D332 and D449 within the portico included abundant charcoal: oak, ash, hazel, willow/poplar and Pomoideae stem. D449 included ?vitrified charcoal.

The environment

Since much of the charcoal was excavated from features or levels within the precincts of the basilica, it is reasonable to suggest that its origins were associated with activities related to either a) construction work/subsequent restoration, b) to fuel residues from furnaces or braziers for heating the baths or c) the builders' hearths from the later phases. Wood for such purposes would have been selected from the local woodlands and, although a wide range was used, it is unlikely that the charcoal examined represents the entire range of woody species growing in the vicinity.

The results of the charcoal analysis suggest that local woodlands were predominantly oak, perhaps mixed with ash or birch. Hazel and holly may have grown as understorey within the wooded areas, with blackthorn, maple and hawthorn in marginal woodland. Secondary woodlands including hawthorn and blackthorn may have developed in abandoned areas, and both species may have been used as barriers (hedges) against livestock. Hazel may also have grown in open areas or glades. Gorse tolerates most soils but prefers heathland and open aspects. Birch also prefers heathland or poor acid soils and may have grown in open oak woodlands. Poplars, willows and alders are

usually associated with moist lowlands, meadows or riverine habitats. Ash also frequents river banks or sites close to running water.

The phases represented at the site span an occupation of several centuries. Charcoal from associated contexts indicate that woodlands existed throughout this time with oak as the dominant species. The exploitation of local woodlands may have changed the balance of species but with careful management (see below) the impact on the environment may have been minimised.

Woodland management

In its heyday the building housed a range of heated baths and rooms which were serviced by furnaces. The sitings of the furnaces changed as the buildings were modified. The furnaces must have consumed large volumes of wood and/or charcoal fuel, and without some form of woodland management, local supplies would have been rapidly depleted. Most of the taxa identified can be coppiced or pollarded to supply fast growing stems. These can be grown on short or long rotations depending on their ultimate use. For hurdle-making and fuel this is usually 5–9 years, whereas for other construction work poles of up to 30 years growth are common. Coppiced woodlands would have supplied a quickly renewable source of fuel.

The use of charcoal would have provided a higher calory fuel than wood fuel but it is more costly to produce and uses up to 7 times more wood to produce the equivalent weight of fuel. Traditionally charcoal was produced from coppiced or cord wood (Edlin 1949).

Conclusion

The continual wear and tear on this building combined with on-going modifications and changes of use appears to have involved the perpetual movement of building materials. In-filling due to subsidence or alteration also occurred. Charcoal associated with building rubble and other materials was retrieved from several phases. It was, therefore, difficult to establish the origins of the charcoal. The burnt remains of building waste and fuel debris from furnaces and hearths have been considered.

The widespread occurrence of comparatively large fragments of ?vitrified charcoal in Phases W, Y, pre-Z, Z2 and Z3 is puzzling; chemical analysis may indicate pitch, tar residues or other constituents.

The greater proportion of the charcoal consisted of fragments of stem material. Although, in most instances, it was impossible to assess ages and diameters, it was evident that a stems of various sizes were used, probably from 2–3 years up to 30+ years. The common use of stems/poles suggests that managed woodlands supplied the bulk of the fuel.

Appendix 8: Faunal remains

by Miranda Armour-Chelu

Introduction

This report summarises the results of the analyses of over 108,000 animal bones excavated from the site. Although this was not the full total of animal bones recovered, it is a very large sample from it, providing a clear picture of the fauna of Viroconium. Constraints of time and money on the post-excavation project meant that in practice it was possible only to examine completely the bone from the peripheral areas of the site (Sites A, B, C, and E), and selected contexts within the largest site (Site D). A list of contexts analysed is provided at the end of this report (Table 49). In addition, to provide sufficient statistical data, only the five major phases were examined (Phases W, X, Y, pre-Z, and Z). This represented occupation dating from the late fourth to the mid-seventh century, but many of the bones examined from the peripheral areas of the site, and even from the main site, are likely to have been earlier than this. As discussed elsewhere (*see chapter 6*), there is considerable evidence that the dumps in which the bones were found were earlier, often substantially earlier, than their stratigraphic horizon might suggest. In the peripheral areas, extensive pit digging in the latest phases of occupation will have brought up large numbers of bones from earlier levels. Consequently, despite the late archaeological date of the site, the animal bones can be used as a guide to the relative proportions of species occurring during its earlier period as well (late second to fourth century). A more detailed corrective to any model established here can be achieved once the animal bone from Dr Graham Webster's excavations has been analysed and published (Meddens, in Ellis forthcoming). The problem with the material, therefore, has been in establishing which animal bones actually relate to butchery contemporary with the occupation and activity in each phase. In practice, it has been impossible to do so except in a very few instances, such as occasional articulated fragments and the deposits of butchery waste.

During excavation the site was sub-divided into five areas and all bones from these areas were recorded and analysed separately

Recording

The mammalian, bird and amphibian remains were identified and recorded by Beverley Meddens at the Ancient Monuments Laboratory between 1984–7. All the data was entered onto a Comart Communicator using the programmes developed by Jones *et al*. The fish remains are reported upon by Alison Locker (*see appendix 9*).

Archive

The data is stored on double-density floppy discs and magnetic tape. Copies of this, a hard copy of the archive, and the bones are lodged within the Historic Properties stores at Atcham, Shropshire. This report is a shortened version of the original manuscript which is also stored with the archive and is available for consultation.

Recovery

The techniques of recovery employed at a site are of great importance with respect to the degree of confidence that can be placed in the interpretation of the faunal sample made available for study.

Sieving

The majority of the contexts were dry sieved which will have resulted in the loss of some material, particularly the bones of smaller bodied animals such as the small mammals, birds, fish, and amphibians (Payne 1972).

Preservation

The preservation of faunal remains is dependent upon a wide range of factors that begin to operate from the time of an animal's death. These include the processing of animals by humans for food and other products, pre-burial modifications, such as scavenging, weathering and trampling, and the nature of the post- depositional environment (Stein 1983). There were several indications that the faunal sample available for study had been modified by taphonomic factors and these are described below.

Condition of the material

A rapid scan of approximately half of the faunal remains from the site indicated that the bone was well preserved and few obviously abraded or eroded specimens were observed. Nevertheless, loose teeth were the most commonly represented element from all phases at the site (Table 29) and this can indicate poor levels of preservation (Maltby 1985).

Table 29 Percentage of loose teeth present

site	*A*	*B*	*C*	*D*	*E*
Phase W	8	17	26	25	25
Phase X	-	21	19	-	-
Phase Y	11	22	14	16	26
Phase pre-Z	-	21	18	-	24
Phase Z	-	20	22	10	25

The highest frequencies of loose teeth were recorded from Site E (all phases), and from Sites C and D (Phase W). These findings may be correlated with the east – west street within site E which has resulted in the destruction of weaker bones. The high frequency of loose teeth from Site D, Phase W, may be linked with the compaction of material incorporated into floor levels, and those from Site C with trampling damage sustained during the use of the north portico and the east end of the street as a thoroughfare.

Erosion

A significant number of bones were described as 'eroded' (see Table 30) and these were found to be concentrated in discrete areas of the site. This indicates that either these bones were left lying exposed on the surface of the site for some considerable time (Behrensmeyer 1978) or that they were transported material. Most of the areas or contexts which contained relatively high frequencies of eroded material were backyards or thoroughfares where one would anticipate that the constant trampling of people and animals would have constituted an abrasive environment for any faunal remains. A high percentage (17%) of bones from the east end of the north portico (Site C) in Phase W were eroded which is consistent with the use of part of this site as a thoroughfare during this period. Site E is largely composed of the east-west street that ran along the northern edge of the baths basilica and the bones from these levels contained a noticeably higher proportion of material that could not be identified to species level which is consistent with the degree of damage sustained in this type of environment.

Table 30 Percentage of eroded bones present

Site	*A*	*B*	*C*	*D*	*E*
Phase W	7	4	17	1	9
Phase X	-	2	10	-	-
Phase Y	7	4	5	1	17
Phase pre-Z	-	14	-	-	-
Phase Z	-	3	-	1	17

Burnt material

Burnt bone was identified from hearth and oven contexts at the site which suggests that domestic refuse was sometimes disposed of by incineration. Higher frequencies of burnt bones in certain features such as pits, indicate the organised disposal of refuse probably from the cleaning out of hearths and ovens. A relatively high percentage of burnt bone fragments were recorded from the annexe in Phase W (7%). The finding of burnt material in the annexe is consistent with the use of this area as a builder's yard where it is reasonable to suggest that, in addition to the lime slaking, mortar mixing, etc., some food preparation and consumption might also have been carried out. The contexts containing the highest frequencies of burnt bone were the 'mixed dump' make-up levels of Phase W2 (B448 and B449) and the backfill of beam-slots (B432, B434, and B457).

A few contexts contained the charred remains of small mammals which is suggestive of *in situ* burning (Phase W, B448, C468, C476 and C485; Phase Y, C307, E81; Phase Z, B277).

Gnawing

Canid gnawed bones were recorded from all levels and this will have resulted in the loss of some material and introduced a bias to the sample recovered from the site (Table 31).

A small number of bones from the assemblage had been gnawed by rodents and although these are of interest in that they indicate that rodents were living at the site rather than introduced by predators, these animals would not have been responsible for any serious taphonomic loss of material.

Table 31 Percentage of canid-gnawed bones present

Site	*A*	*B*	*C*	*D*	*E*
Phase W	4	5	3	2	1
Phase X	-	4	5	-	-
Phase Y	7	3	6	3	3
Phase pre-Z	-	4	4	-	5
Phase Z	-	4	4	7	2

Fragmentation

Table 32 shows the percentage of bones fragmented to less than 25% of their whole. High frequencies of fragmentary material were recovered from Phase pre-Z and from Site E, Phase Z. The degree to which the remains were fragmented does reflect, to some extent, the local environment, high values being recorded from the western half of *insula* 2 (Site E) and low quantities from the east side of *insula* 5 (Site A), which appears to have been a relatively undisturbed area of the site, with a higher than average number of pits.

Table 32 Percentage of bones fragmented to less than 25% of their whole

Site	*A*	*B*	*C*	*D*	*E*
Phase W	44	46	49	41	34
Phase X	-	42	51	-	-
Phase Y	44	50	54	59	50
Phase pre-Z	-	59	58	-	60
Phase Z	-	57	10	4	60

Burrowing

Rabbit bones are frequently represented in small numbers from Roman occupation levels within the British Isles and some bones were recorded from the site. It appears fairly certain that this species was introduced during the Norman Conquest and therefore any bones recovered from sites predating this period are intrusive (Corbet 1986). Thus, it is probably significant that most of the bones from this species were recovered from the penultimate phase of the occupation of the site (Phase Z).

Species present on the site

A total of 108,291 bones were examined from the five sites, comprising 27,947 fragments from Phase X, 3326 from Phase X, 10,482 from Phase Y, 8578 from Phase pre-Z, and 57,958 from Phase Z (Table 33).

Table 33 Number of bones recorded from each site by phase

Site	*A*	*B*	*C*	*D*	*E*
Phase W	528	1712	5844	222	19,641
Phase X	-	1108	2218	-	-
Phase Y	3286	2950	2815	952	479
Phase pre-Z	-	699	7560	-	319
Phase Z	-	12069	9491	1307	35091

A total of 16 mammalian species (excluding rodents) were present: dog, cat, horse, pig, cattle, goat, sheep, mole, fox, weasel, badger, red deer, roe deer, rabbit, hare, and barbary ape. Rodents, birds, amphibians, and fish bones were also recovered from the site, and these remains are summarised in the archival report. An additional five species may be added to the list of taxa present, as O'Connor (1987) has identified common shrew, black rat, pine marten, stoat, and wild cat from the area immediately adjacent to the site under study.

Table 34 shows the relative frequency of cattle, sheep/goat and pig present, expressed as a percentage of the bones identified to these taxa.

Table 34 Relative frequency of pig, cattle and sheep/goat by phase

	pig	*cattle*	*sheep/goat*
Phase W	19	63	19
Phase X	29	45	25
Phase Y	32	45	23
Phase pre-Z	26	63	11
Phase Z	26	60	15

Cattle was by far the most important species represented from all levels and in no phase did the frequency of this taxon fall below 45% (Phases X and Y). In Phases W and Pre-Z cattle accounted for 63% of the remains. Chronologically, the number of cattle bones remain fairly constant throughout Phases W to Z, except for a rather sharp decline in Phases X and Y. The numbers of pig bones from Phase W was rather low but increased by at least 10% in the succeeding two phases. Sheep were present in roughly the same proportions as pig during Phase W and increased in numbers during the succeeding two phases, before declining in importance.

These general trends in the relative abundance of the common livestock animals roughly respect the findings of King (1984), who suggested that the Romanised elements of society, such as one might expect to find in the town, would adopt the 'military' (ie Romanised) diet. This contained a higher proportion of beef and pork compared to the 'native' diet which inclined towards a preference for mutton. The assemblage shows that there was a heavy dependence upon beef, although the relative frequency of cattle is rather low from Phases X and Y. King (1984) reported that in the majority (90%) of assemblages recovered from Roman urban centres, sheep accounted for less than 30% of the remains, and this is also the case here, with the exception of the assemblage recovered from the annexe in Phase W. King (1984) also observed that the diet became progressively more Romanised through time, so that by the late third or fourth century most sites, including rural, civilian dwellings, contain higher frequencies of cattle and pork compared to the preceding centuries of Roman occupation. This pattern of exploitation is certainly borne out by the results of the analyses from Phases Pre-Z and Z (sixth to seventh centuries), which show that pig and cattle were the mainstay of the meat diet.

Table 35 Wroxeter compared with Welsh Border sites

Site	*date*	*pig*	*cattle*	*sheep*
Caerleon Baths	2 AD	7.5	88.0	4.5
Caerleon Baths	3 AD	4.9	93.2	1.9
Caerleon Baths	3 AD	12.2	81.8	6.2
Caerleon Baths	4 AD	8.6	84.9	6.5
Chester	2 AD	28.9	50.9	20.1
Chester	2–3 AD	33.6	49.3	17.1
Wroxeter	2–3 AD	18.5	63.3	18.2
Wroxeter	4–6 AD	25.6	59.8	14.6

note: All comparative data taken from summary in King (1984) and O'Connor 1986

Table 35 summarises the relative proportions of the three common domestic livestock animals from two Welsh border sites which were occupied by the army. The assemblage seems to bear closer affinity to the assemblage excavated from Chester (Northgate Brewery), than to that from Caerleon, in that pig and sheep are comparatively well represented whereas cattle are correspondingly reduced (West, unpubl, 1979). The high frequency of pig from Chester and at Wroxeter places these two sites into the second pattern of diets reported by King (1984), where cattle generally account for less than 70% of the assemblage and there is a greater emphasis upon the consumption of pork.

Table 36 shows the relative frequency of pig, cattle and sheep/goat. Some spatial variation is apparent for pig, cattle and sheep across the five sites. The relatively high frequency of sheep remains from Phase W of the annexe (41.9%) is of particular interest as this far exceeds the usual representation of this taxon from Roman urban centres. This area contained a builder's yard in this phase and may have been used by less romanised sectors of society who might be expected to have retained a greater 'native' element within their diet, which included a greater emphasis upon the consumption of mutton. There is a possibility that the greater reliance on mutton represented a lower-status diet than the usual dominance of beef and pork. If so, this would echo the suggested lower status diet of the workers on the north portico in Phase Pre-Z who used a larger proportion of rye than usual (see above).

Table 36 Relative proportions of pig, cattle, and sheep/goat (percentage)

Phase W	*pig*	*cattle*	*sheep/goat*	*total no*
Site A	35.0	43.5	21.5	223
Site B	26.9	31.1	41.9	427
Site C	16.1	65.3	18.5	2241
Site D	49.3	42.8	7.8	77
Site E	17.1	66.5	16.3	3809
Phase X	*pig*	*cattle*	*sheep/goat*	*total no*
Site B	36.6	40.6	22.7	273
Site C	26.5	47.1	26.4	735
Phase Y	*pig*	*cattle*	*sheep/goat*	*total no*
Site A	31.0	42.1	26.9	1331
Site B	31.7	47.2	21.2	757
Site C	36.2	40.4	23.5	783
Site D	33.6	56.1	10.3	378
Site E	26.4	56.8	16.8	155
Phase pre-Z	*pig*	*cattle*	*sheep/goat*	*total no*
Site C	22.6	56.8	20.5	234
Site D	26.5	63.9	9.6	2585
Site E	25.3	56.6	18.1	83
Phase Z	*pig*	*cattle*	*sheep/goat*	*total no*
Site B	31.8	54.0	14.0	3730
Site C	30.5	58.6	10.9	2831
Site D	34.6	56.6	8.7	583
Site E	21.0	62.8	16.2	9422

Large mammals

Pig

The primary economic value of pigs is meat and lard, since they provide few other useful products, and therefore the majority of these animals would be slaughtered once they had attained the desired size. The evidence from the fusion data (in archive) shows that most pigs were slaughtered in their first or second year and very few animals survived beyond three years of age. The slaughter of pigs at this age would ensure maximum yield for minimum cost and suggests that most of the pig remains recovered from the site represent animals specifically raised for the meat market.

Although pig was the second most abundant species represented at the site the majority of the bones could not be measured, largely because they were immature.

A comparison of pig measurements from Iron Age and Roman sites indicates that there was little change in the size of this animal over a period of several hundred years (Table 37).

The mean obtained from the measurements of the distal width of the tibiae from Phase Z is slightly higher than that recorded from the sites used for comparison.

Table 37 Comparative sizes of Iron Age and Roman pig bones (in metres)

Site	*date*	*bone*	*no*	*mean*	*range*
Danebury	IA	Tibia	38	0.28	0.25–0.32
Maiden Castle	IA	Tibia	2	0.27	0.27
York	2–3 AD	Tibia	11	0.29	0.26–0.35
Exeter	RB	Tibia	12	0.28	0.25–0.30
Wroxeter	4–7 AD	Tibia	20	0.30	0.26–0.37

However, this mean is inflated by the presence of two wild boar tibiae within the sample and if these values are excluded from the calculations a mean of 29.1 is obtained (SD = 17.4).

This suggests that pigs were not subjected to the same degree of selection or supplied with better nutrition during the Roman period as were cattle and sheep, in which there is an appreciable increase in stature during the first century AD. It seems likely that pigs continued to be reared in a traditional fashion and fed upon household scraps, pannage, and left to forage in fields once the crops had been harvested. The rearing of pigs on a small scale basis probably remained the domain of most households who could thereby convert domestic and agricultural waste into a useful supply of protein and fat. Bewick describes the value of the domestic pig (unimproved),

> in no instance has Nature more conspicuously shewn her economy than in this race of animals, whose stomachs are fitted to receive nutrient from a variety of things that would be otherwise wasted: the refuse of the field, the garden, the barn, or the kitchen, affords them a luxuriant repast.
>
> Bewick, T, 1790

Cattle

The fusion data from Phase W indicates that the majority (91%) of cattle survived late into the second year of life. Approximately 25% of the bones from the late fusing group of bones were immature suggesting that a significant number of animals were culled at around three years of age. The epiphyses of the majority of bones from this group were fused and these would have derived from animals which were at least three and a half years old at the time of death. The fusion data from Phase X shows a similar pattern to that described above although a marginally higher proportion of the animals died during the first year of life. The evidence from Phase Y shows that most of the cattle (97%) survived their first year and that a small proportion (21%) of the population was culled at around 30 months. A slightly higher frequency (29%) of animals died at around three years with some 67% of the sample from this age bracket surviving to maturity. The results from Phase Pre-Z are broadly similar to those found from Phase Y although this group contained a slightly larger sample of cattle that died during the third year of life. A very small proportion (1%) of the cattle from Phase Z died during the first year of life. A small proportion of the sample (12%) were slaughtered at approximately two years but most (88%) of the bones represented in this age category were derived from animals that survived to beyond 30 months of age. The results of the analysis of the late fusing bones indicates that approximately 30% of the animals were culled at around three years but a further 60% were fully mature at death.

The results of the analyses of the fusion data roughly concur with the age groups represented by the tooth wear data. The analysis of the mean wear stage recorded from the mandibular molars indicates that the majority of the animals died at approximately four years old or more (Grant 1982). This could suggest demand for good quality beef.

Analysis of the ages of cattle horncores, using the system suggested by Armitage (1982a) indicated that a high proportion were derived from immature animals (Table 38). Most of the horncores from Phases W, X, pre-Z, and Z were either juvenile or sub adult, whereas in Phase Y the proportion of immature to mature specimens was equal. This finding is at variance with the analyses of the toothwear and fusion data and suggests a local anomaly.

Table 38 Age classification of cattle horncores (after Armitage 1982a)

	very porous	*porous*	*compact*	*total*
Phase W	2 (17%)	5 (42%)	5 (42%)	12
Phase X	2 (67%)	-	1 (33%)	3
Phase Y	1 (10%)	4 (40%)	5 (50%)	10
Phase pre-Z	2 (20%)	5 (50%)	3 (30%)	10
Phase Z	11 (23%)	23 (48%)	14 (29%)	48

It seems possible that the explanation for this anomaly lies with the disposal practices of the inhabitants at the site. Large numbers of mature cattle were slaughtered within the town, yet the numbers of horncores represented within the assemblage are comparatively low. Horncores could have been disposed of at two stages during the processing of a carcass. Some horncores could be dumped along with primary slaughter waste or alternatively they could be sold to horners, who would remove the horn sheath from the horncore, which would then be dumped. Juvenile horns are of less value than adult specimens and are therefore more likely to be disposed of with general slaughterhouse waste, if no market could be found for them. Table 39 lists the contexts which contained the sample of horncores which could be aged. This shows that these specimens were recovered from fairly discrete areas of the site and the majority were derived from dump or make-up deposits with the exception of the material from Phase Y.

Almost all of the sample of horncores that could be aged from Phase Y were recovered from Site A, mainly from pit contexts. This is an interesting result as one of the interpretations of the activities carried out in this area included a tanning industry.

A total of 51 innominates of cattle could be sexed according to the morphological criteria proposed by Lemppenau (1964) and Armitage (1977). Significant numbers of sexed innominates were only recovered from Phases W and Z and the results suggest that the sex ratio of female to male cattle represented at the site was in the order of 2:1 for both phases. It is likely that this result is biased in favour of male animals as the pubic bone of castrates/bulls is far more robust than that of cows and this will have affected the level of preservation and identification of this bone.

Table 39 Contexts containing aged cattle horncores

context	*description*	*age class*		
		1	*2*	*3*
Phase Z				
B277	Rubble dump	1	1	-
C80	Dump level	-	-	1
C88	Levelling layer	-	1	1
C188	Drain fill	3	2	-
C191	Levelling dump	-	1	1
C269	Tip layer	-	-	1
C418	Pit	-	1	1
D100	Rubble raft	1	5	1
E74	Gravel street	-	3	1
E85	Platform of Building 7	1	-	1
E91	Tip layer	-	1	-
E172	Rubble platform	4	3	3
E185	Building platform	-	2	3
E200	Levelling dump	-	2	-
Phase pre-Z				
C75	Trodden surface	1	-	-
C187	Trodden surface	-	-	1
C231	Large dump layer	-	1	-
C240	Large area of burning	-	2	1
C268	Hearth	-	2	1
C404	Layer	1	-	-
Phase Y				
A187	Pit	-	-	1
A201	Pit	-	1	-
A240	Pit	-	1	-
A253	Gully	-	-	1
A318	Pit	-	1	1
A345	Pit	-	1	-
C421	Pit	-	-	1
C440	Pit/Sump	1	-	1
Phase X				
C417	Levelling layer	1	-	-
C426	Levelling layer	1	-	-
C433	Layer	-	-	1
Phase W				
A184	Clay layer	1	-	-
B448	Mixed dump	-	1	-
C527	Dump level	1	-	2
E96	Road wash	-	-	2
E138	Street	-	2	-
E271	Drain fill	-	-	1
E291	Road surface	-	1	-
E312	Pipe trench fill	-	1	-

Table 40 Withers height of cattle (in metres) calculated from the sexed metacarpals

	no	*mean*	*range*	*cow*	*castrate*	*bull*
Phase W	3	1.18	1.16–1.22	3	-	-
Phase X	2	1.14	1.12–1.15	2	-	-
Phase Y	17	1.19	1.13–1.34	13	3	1
Phase pre-Z	2	1.12	1.05–1.19	2	-	-
Phase Z	23	1.22	1.09–1.53	13	9	1

Table 40 shows the withers height of cattle calculated from the sexed sample of metacarpals.

The apparent increase in the size of cattle in Phase Z is due to the greater proportion of bulls/castrates in this sample. Phase Z also contained an exceptionally large metacarpal which gave a withers height of 1.53m.

These two factors have slightly biased the analyses for comparative purposes which was reflected in the rather large standard deviation (10.75) obtained from this sample. Table 41 shows the mean, and the range of the withers height calculated from the cows and castrates/bulls.

Table 41 Withers height of the sexed metacarpals (in metres)

	cows		*castrates/bulls*	
range	*mean*	*range*	*mean*	*range*
Phase W	1.18	1.16–1.22	-	-
Phase X	1.14	1.12–1.15	-	-
Phase Y	1.18	1.13–1.21	1.24	1.16–1.36
Phase pre-Z	1.12	1.05–1.19	-	-
Phase Z	1.17	1.09–1.31	1.29	1.15–1.53

The withers height of cows remained fairly constant throughout all phases, with the exception of one individual from Phase Z (withers height 1.31 m) which is possibly derived from a very gracile castrate.

During the Roman period there is evidence to suggest that cattle increased in size, although smaller bodied animals similar in stature to Iron Age cattle persisted in some areas. Improvement in size can be shown to have occurred during the first century AD but largely within the settled area of the lowland. Some authors have suggested that larger bodied cattle were imported from the continent during this period (Grant 1975) whilst others consider that the size change indicates an improvement in husbandry techniques (Harcourt 1974a, Armitage 1982b). The zoo-archaeological evidence is insufficient to determine whether improved cattle were introduced to the British Isles, although Armitage (1982b) has pointed out that morphological evidence, such as variability of horncore type, is absent from early Romano-British faunal assemblages. Several studies undertaken to investigate the effects of different levels of nutrition upon the growth of domestic livestock have demonstrated that different feeding regimes may influence the size of animals (Dickerson and McCance 1961). Applebaum (1972) has reviewed the evidence for the use of fodder crops in Western Europe during the Roman period. Turnips and rape have been identified from Gaul and the charred remains of a turnip was recovered from Pevensey. This scanty evidence does suggest that the Romans improved the standards of husbandry by the use of supplementary feeding, and as a consequence there was a general increase in the size of livestock.

The biometrical analyses of the cattle bones show that these animals were well grown and comparable in size to the measurements recorded from Castleford, near Tadcaster (Stallibrass, 1985), and Angel Court, London (Clutton-Brock and Armitage 1977). The sex ratio from both of these sites was biased towards cows, as is the case here. Comparison of the means of the distal width of the metacarpals from these three sites show that these specimens are marginally more gracile (Phase Z, 52.8; Castleford, 54.7; Angel Court, 53.8) although a mean of 53.9 was recorded for this measurement from Phase Y.

Sheep/Goat

A small proportion of the bones were identified as sheep or goat and these are listed in the archival report.

Goat

Only 16 bones from goat were recognised and although likely to be a slight underestimate given the difficulties of identifying fragmentary material, this suggests that the species was of minor importance in the economy.

Sheep

The bones described below were generally only assigned to the sheep/goat category during analyses, however, as so few bones were positively identified as goat it seems likely that most of these were derived from sheep and therefore the term 'sheep' has been applied to these remains.

The fusion data recorded from the sheep remains are summarised in the archive. The evidence from the fusion data from all phases suggests that most of the sheep survived the first year of life, but the majority were slaughtered between two and a half and three years of age with approximately only a quarter of the animals surviving to beyond three and a half years. The majority of these animals would have only produced two fleeces, which suggests that they were being reared specifically for the meat market. This pattern of exploitation suggests that quite a well developed market economy was in operation throughout the period under examination.

The evidence of the complete mandibles confirms the impression of age at death gained from the fusion date. Thirteen complete mandibles were recorded from Phase W ranging from an individual which died within the first three months of life to one that was slaughtered between four and five years. Although the sample size is rather small, the data suggests that some very juvenile lambs were slaughtered and two further cullings occurred at approximately two and three years. The number of complete mandibles from Phase X was very low (3 specimens) and these were derived from animals that died during their second and third year of life. The sample of complete mandibles from Phase Y was largely composed of animals that died during their second (41%) or third and fourth (35%) year of life. Seven complete mandibles were recovered from Phase pre-Z representing two individuals who died during the latter half of their first year, two which were approximately two years, and three which died between three and four years. Three mandibles from Phase Z were from perinatal animals which could suggest that a few sheep were lambing within close proximity of the town during this period. Three other age groups are also represented from this period. The mandibles with a mean wear stage of between 18 and 26 (15 specimens) represent animals that died at around two years old. Some 38% of the sample were

culled at approximately three years old and three mandibles were found to have derived from elderly sheep. These were probably old breeding ewes which had ceased to be economically useful.

A few sheep innominates (27 specimens) could be sexed according to the criteria proposed by Armitage (1977). The results suggest that the sex ratio of female to male animals was in the order of 3 to 1.

The withers height of the sheep remains was reconstructed from the complete metapodials, according to the factors proposed by Teichert in von den Driesch and Boessneck (1974). Comparison of the withers height recorded from all phases of the site shows that this species remained remarkably consistent in size throughout this period (Table 42).

Table 42 Withers height of sheep (in metres)

	no	*mean*	*range*	*SD*
Phase W	4	0.56	0.53–0.60	2.8
Phase X	5	0.58	0.53–0.64	3.9
Phase Y	8	0.58	0.52–0.67	5.4
Phase pre-Z	2	0.58	0.57–0.59	1.4
Phase Z	6	0.59	0.55–0.62	3.2

Table 43 shows a comparison of sheep metacarpal lengths with those from London (GPO), York (GAS), Exeter, and Chelmsford. The sheep from Wroxeter appear to have been of a similar stature to those of York and Exeter, but somewhat smaller than the examples from London and Chelmsford.

Table 43 Comparison of sheep metacarpal lengths (in metres)

Site	*date*	*no*	*mean*	*range*
General Post Office Site, London (West 1983)	1 AD	2	1.33	1.11–1.55
General Accident Site, York (O'Connor 1988)	2/3 AD	6	1.19	1.16–1.26
General Post Office Site, London (West 1983)	Late R	6	1.26	1.22–1.29
Wroxeter	4 AD	2	1.20	1.18–1.22
Wroxeter	4/5 AD	4	1.21	1.21–1.28
Exeter (Maltby 1979)	RB	3	1.19	1.12–1.27
Chelmsford (Luff 1982)	2 AD	4	1.29	1.27–1.31

Dog

Most bones identified as dog were scattered across the site although some contexts contained slightly higher frequencies of this species, suggesting that these might represent disturbed burials (Site B, Phase Z). The gravel street, E74 (Phase Z), contained the highest number of dog bones recorded from any one single context (34 bones). These bones represented a minimum number of three individuals and the disparate nature of the remains suggests that dogs were sometimes disposed of rather casually by discarding corpses into the street.

Harcourt (1974b) comments that the notable feature of domestic dogs during this period is the extreme variability in size and suggests that the first house dogs in Britain appeared at this time. The withers height of the dogs was calculated according to the factors proposed by Harcourt (1974b), see Table 44. Although the number of bones that could be measured was rather small, the results seem to support Harcourt's findings, in that the range of sizes recorded extends over 0.3 m.

Table 44 Withers heights of dogs (in metres)

	bone	*height*
Phase W	Femur	0.46
Phase Y	Tibia	0.54
Phase pre-Z	Radius	0.60
Phase Z	Femur	0.34
Phase Z	Tibia	0.64
Phase Z	Radius	0.34

Cat

Remains of domestic cat have been recovered at low frequencies from a number of Roman sites in the south and the midlands. Small numbers of cat bones were recovered from Phases W, Y, and Z. At least two individuals of this species were recovered from Site B, Phase Z (baths precinct) and seven bones from an adult animal were retrieved from the gravel street E74 (Phase Z). These bones probably represent a single individual.

Horse

Horse bones were very poorly represented on the site (127 bones) yet this does not indicate that they were of little significance to the inhabitants of the town. Horse bones are generally only present in low frequencies from Romano-British sites and are probably very under represented in terms of the numbers present in the province. This bias in the recovery of horse bones compared to those of cattle, sheep/goat and pigs is probably a reflection of the methods of disposal (Grant 1975, Luff 1982). Horses may well have died naturally on farms surrounding the town or have been dispatched to specialised slaughter houses so that their bones were not generally disposed of within the town.

Horse flesh was only rarely eaten during the Roman period and this is in part reflected by the butchery patterns recorded from the bones. A few transverse cutmarks were recorded from the midshaft area of the metapodials, suggesting that the animals had been skinned. Historical accounts attest to the varied uses made of horse leather and hair. Chop marks across the articular ends of long bones suggest that some individuals were disjointed, possibly to supply meat for dogs. It was not possible to assess the withers height of this species as there were no complete long bones recovered from the site. The few measurements that were taken upon fragmentary material suggest that these animals were possibly marginally smaller than those recorded from other Romano-British sites, probably standing at around 12 or 13 hands.

Butchery evidence

The assemblage contained a few contexts which yielded high frequencies of slaughter house and butcher's waste but the numbers of animals being processed at any one time was relatively small compared to the earlier levels on the adjoining baths site (Meddens, in Ellis forthcoming).

The proportions of the skeletal elements represented show that livestock were slaughtered and processed within the town and the low frequency of cattle horncores from this part of the site suggests that these were redistributed to provide raw material for horners. Maltby (1984) has also inferred that horncores were redistributed within the Roman towns of Exeter and Silchester because horncores are poorly represented relative to other bones.

The butchery evidence from the site indicates that animals were largely processed using chopping implements and that the use of knives and blades was mainly confined to the early stages of carcass preparation. Cutmarks were most frequently observed from metapodials and phalanges, suggesting that knives were used for skinning and to detach the distal extremities of the limb bones. Cutmarks were occasionally recorded from the blades of scapulae and innominates; these would have occurred as a consequence of filleting meat from the bone. Very few humeri or femora were recorded as having cutmarks consistent with filleting activity. This may be correlated with the individual skills of the butcher but also to the fact that the shafts of these bones were highly fragmented, which has undoubtedly resulted in some loss of evidence for this technique of processing. The occasional use of saws during carcass processing is indicated by a single horncore from Phase Z which was observed to have been sawn through the base.

There was some evidence for structured disposal of the butchery waste in that groups of complete ox-skulls and other large bones were commonly found at the base of thick dump layers. This would suggest that, when dumping was to occur, some disposal of butchery (and perhaps other more noisome refuse) was carried out immediately prior to the dumping. An alternative suggestion is that this material was being disposed of in a ritual context, particularly in the instance where a collection of cattle skulls appeared in the base of a large quarry pit in the south aisle in Phase X (Fig 148; Scott 1991). There was no evidence for the filling of large pits with bone waste such as were observed on the baths site (Meddens, in Ellis forthcoming).

Pathology

There were a considerable number of pathological specimens recorded from the site although only a restricted range of ailments were identified (see archival report). Also included in this section are the descriptions of the non-metrical traits recorded from the site which are considered to be non-pathological in origin.

Oral pathology

Calculus deposits were recorded at low frequencies from the mandibular and maxillary dentition of cattle and sheep.

Osteoarthritis and degenerative changes

A small proportion of the bones displaying symptoms of osteoarthritis could be sexed and these were all identified as female animals (Table 45).

Table 45 Cow innominates showing symptoms of osteoarthritis

context	*symptoms*
E74	Eburnation
D100	Eburnation, Pitting, Lipping
B151	Eburnation (2)
E172	Eburnation (2)
E190	Eburnation
E191	Lipping
C501	Eburnation, Pitting

It is probable that cows were used for traction during this period, which may explain the high frequency of osteoarthritis within the sample, but equally many of the symptoms may be due to degenerative changes.

Eleven examples of healed fractures were recorded from Phases W, Y, pre-Z, and Z. Most of these fractures were recorded from ribs (seven specimens), which is a common area for this type of injury to occur, especially if animals are driven or constricted in pens.

Non-metrical traits

Several developmental anomalies of teeth and bone have been recorded from faunal assemblages and these are assumed to be of hereditary origin. Most of these anomalies would confer no obvious reproductive disadvantage to the animals concerned and therefore would not have been selected against naturally. Differences in the frequencies of these traits, both geographically and chronologically, are of interest because they may indicate the influence of founder effect, isolated breeding populations, or boosted frequencies of relevant genes in some local stocks (Baker and Brothwell 1980). Such traits have not been generally systematically recorded for the British Isles, although interesting variations in the frequencies of non-metrical traits have been found from the Roman and medieval levels at York (O'Connor 1988).

Three categories of non-metrical traits were recorded. These were the congenital absence of the second permanent premolar, the reduction or absence of the posterior cusp of the third molar and depressions or clefts within the articular surface of the limb bone extremities which accord with types 1 and 2 depressions as described by Baker and Brothwell (1980).

The congenital absence of the lower second permanent premolar has been commonly reported from domestic cattle and to a lesser extent from a range of other artiodactyls (Andrews and Noddle 1975). The earliest record of this anomaly has been recorded from the Neolithic levels at Skara Brae (ibid) and since the historic period its occurrence is ubiquitous. The frequency of this trait is probably generally underestimated because it can only be determined from relatively complete mandibles. Many cattle mandibles had been chopped through the anterior part of the bone, which reduced the number of specimens which could be examined for this anomalous condition.

Table 46 Congential absence of PM2 and posterior cusp of M3 in cattle mandibles

	PM2	*M3*	*% of total (M3)*
Phase W	12	12	16
Phase X	-	-	-
Phase Y	2	-	-
Phase pre-Z	8	6	17
Phase Z	14	26	16

Table 46 shows that the frequency of third molars with a reduced posterior cusp remained consistent between the earliest and the latest phases at the site. This anomaly has been commonly observed from a number of Roman sites and similar high frequencies of this trait have been reported from Exeter (13%) (Maltby 1979), Coppergate, York (14%) (O'Connor 1989), and Park Street, Towcester, Northants (21%) (Payne 1980).

Large wild mammals

This section describes the remains of the larger wild mammals recovered from the site. Most of the bones were derived from animals hunted for food, red deer being the most popularly exploited species (Table 47). A few fur-bearing taxa were recovered, but none of these remains bore cutmarks, which leaves unresolved the question of whether these were hunted for their pelts or were accidental introductions.

Table 47 Frequency of edible wild mammals

	*red deer**	*roe deer*	*wild boar*	*hare*	*total*	*%*
Phase W	11	3	-	7	21	0.1
Phase X	3	-	-	4	7	0.2
Phase Y	12	2	-	6	20	0.2
Phase pre-Z	13	1	2	3	19	0.2
Phase Z	77	16	7	19	119	0.2

* *All records of antler omitted from the calculations*

Barbary Ape

A phalange from the gravel street (E74) was identified as Barbary ape. The Barbary ape is the only ape resident in Europe and is thought to have been originally introduced from North Africa. It was a popular pet in Italy during the Roman period although it has only been rarely recorded from archaeological deposits in the British Isles, largely of medieval and post-medieval date (Noddle 1975, Armitage 1983). A fragment of skull from Barbary ape was recovered from the Roman levels at Catterick (site 433) (Hodgson 1990), and a further example of this species was identified from the Roman levels at Dunstable (Napier, quoted in Hodgson 1990). The presence of Barbary ape possibly reflects the wealth and status of one of the inhabitants of the town.

Red deer

Red deer was the most abundant wild species recovered from the site, although it only accounted for less than 1% of the assemblage overall. Red deer was identified from all phases but was most commonly represented from Phase Z (207 specimens).

All of the post-cranial bones recovered from the site were fused indicating that only relatively mature animals were hunted. Butchered red deer bones were present in all phases indicating that venison was occasionally consumed by the inhabitants of the town. The butchery evidence suggests that the red deer was butchered in a similar fashion as that recorded from the domestic animals. The long bones were usually chopped through the midshaft area to produce joints of a suitable size for consumption. Although the bones of red deer were poorly represented, the distribution of the post cranial bones suggests that whole carcasses were brought to the site, as non-meat bearing bones such as metapodials and phalanges were recovered.

The exploitation of antler

The value of antler as a raw material is that, although it is of approximately the same strength as bone, it is more resilient and flexible (MacGregor and Currey 1983). These qualities rendered antler a valuable raw material and since the prehistoric period shed antlers were collected on a systematic basis (Clutton-Brock 1984). MacGregor (1989) has pointed out that the disproportionate number of antler fragments compared to post-cranial bones of red deer recovered from urban excavations dating to the eighth century AD and beyond indicates the organised collection and trade in this commodity. The evidence for the manufacture and trade of antler artefacts during the Roman period is not well documented, although the range and variety of finished artefacts recovered from some excavations suggests that some workshops may have existed. Scott (1985) found that most of the red deer remains from the late Roman levels at Lincoln were worked antler waste (six specimens). The quantity of antler recovered from Phase Z is therefore of interest in that it indicates the existence of a fairly extensive antler working industry. Most of the antler fragments were recovered from two spatially discrete areas of the site: dump B277 in the annexe, and from the road and

drain contexts of the east - west street (E74, E91, E92, E95). The majority of these remains were recorded from two contexts (E74, B277) suggesting that these were dumped workshop waste.

There was little data to suggest how much of the antler was shed when collected or derived from hunted animals, except that shed antler was recovered from dump B277 and the gravel street (E74; 2 specimens).

Roe deer

Roe deer were sparsely represented from Phases W, Y, and pre-Z. A total of seventeen bones of roe deer were recovered from Phase Z, and almost half of these (8 specimens) were from the gravel street (E74). Most of the bones from this phase were derived from non-meat-bearing parts of the skeleton, such as metapodials and phalanges, which suggests that whole carcasses were brought into the town.

Wild boar

None of the bones from the assemblage were positively identified as wild boar, but the metrical analyses indicate that this species was present in small numbers at the site (*see archive report*).

Any attempt to estimate the proportion of wild boar in the faunal assemblage has to be very circumspect. It is highly likely that only a very small fraction of the animals originally killed are present at the site. Wild boar remains are rarely reported from Romano-British assemblages, which in part may be linked with the difficulties of distinguishing between the fragmentary remains of this taxon and its domestic form. Maltby (1979) positively identified an astragalus belonging to this species from the Roman levels at Exeter and Cram (1978) records the presence of this species from site K, at Shakenoak (levels dating to post 200 AD).

Hare

A small number of bones were identified as hare (*Lepus* sp.). Although, strictly speaking, hare cannot be described as a large mammal, its remains are described here as part of the discussion of the wild taxa which were exploited by the occupants of the site. Although hare was present in all phases of the site, more than half of the bones were recovered from Site E, Phase Z. The hare occupies an open habitat and the specimens recovered were probably hunted in the fields surrounding the town.

Badger

A few bones of badger were recovered from Phase Z. Two fragments of innominate, possibly from the same individual, were recovered from the dump B277, and a calcaneum was recovered from the gravel street (E74). It is possible that these bones represent the remains of animals killed for their pelts although no butchery evidence was recovered to support this conjecture. However, since badgers excavate deep tunnels and holes in order to construct their setts, and as this species is only represented in the latest occupation phase of the site, it is possible that these remains are intrusive, although there was no clear archaeological evidence of such activity on site.

Fox

The fox occupies a wide diversity of habitats and has also adapted to living in urban areas and suburbs. One mandible from this taxon was recovered from the rubble raft of Building 10 (D100; Phase Z). It is possible that this animal was a scavenger at the site, or alternatively, it may have been hunted as a pest or for its pelt.

Birds

Iconographic and classical sources show that the Romans ate a wide variety of birds, both domestic and wild (Toynbee 1973), but they were also widely kept as pets by the Romans, especially those with singing or talking ability. Several species of bird were associated with deities and their remains have been recovered from votive deposits, Levitan (personal comment).

Table 48 List of bird species identified

Grey Heron	*Ardea cinerea*	Rivers, lakes, and estuaries
Mute Swan	*Cygnus olor*	Rivers, lakes, and estuaries
Barnacle Goose	*Branta leucopsis*	Marshes, bogs, and estuaries
Domestic goose	*Anser* sp	
Mallard	*Anas platyrhynchos*	Fresh water habitats, estuaries and muddy coasts
Teal	*Anas crecca*	Mainly inland waters
Garganey	*Anas querquedula*	Inland and coastal freshwater
Goldeneye	*Bucephala clangula*	coastal and esturine waters
Domestic duck	*Anas* sp	
Domestic fowl	*Gallus gallus*	
Hawk/Buzzard	*Accipitridae*	
Common Crane	*Grus grus*	Marshy places and arable fields
Water Rail	*Rallus aquaticus*	Swamps, fens, ditches, lakes
Plovers	*Charadriidae*	
Lapwing	*Vanellus vanellus*	Farmland, marshes, and woodland
Curlew	*Numenius arquata*	Damp, open country, moors, and estuaries
Woodcock	*Scolopax rusticola*	Woodland, marshy and rough ground
Pigeon	*Columba* sp	
Barn Owl	*Tyto alba*	Farmland and open country
Long-eared Owl	*Asio otus*	Woods, heaths, marshes
Blackbird	*Turdus merula*	Gardens, hedgerows
Fieldfare	*Turdus pilaris*	Farmland
Song Trush	*Turdus philomelos*	Hedgerows, commons, woods
Thrushes	*Turdidae*	
Finches	*Fringillidae*	
Sparrows	*Ploceidae*	
Starlings	*Sturnidae*	
Raven	*Corvus corax*	Mainly mountainous or hilly country
Carrion Crow	*Corvus corone corone*	Ubiquitous
Jackdaw	*Corvus monedula*	Towns, coastal cliffs and farmland

A total of 1249 bird bones were recorded from the site (Phase Z, 457 bones, Phase Pre-Z, 145 bones, Phase Y, 294 bones, Phase X, 92 bones, and 260 bones from Phase W), and 23 species were identified (Table 48). The bird remains accounted for less than 1% of the total assemblage from Phases W and Z, and between 1 to 3% from Phases X, Y, and Pre-Z.

Domesticated species

Chicken

Domestic chicken was the most commonly represented bird at the site and accounted for more than 50% of the avian remains identified to taxon throughout all phases.

The sex of these bones was determined by the presence of medullary bone, and the presence or absence of a spur on the tarsometarsus (Table 49; West 1982, 1985). Although only a small sample of them could be sexed, the evidence suggests that hens were preferentially reared to maturity, compared to capons or cocks.

Table 49 The sex of the chicken bones

	medullary bone	*spur*	*spur absent*	*not specified*	*M*	*F*
Phase W	1	2	1	M (1)	3	2
Phase X	1	-	-	-	-	1
Phase Y	1	3	5	-	3	6
Phase pre-Z	1	1	1	F (1)	1	3
Phase Z	1	3	5	F (1)	3	7

The long bones of chicken are thought to fuse at approximately six months and 3% of the sample were derived from immature birds. The high numbers of mature birds recorded from the site suggests that egg production was more important than the provision of pullets for the luxury market.

Only fourteen chicken bones showed evidence of butchery. Cut and chop marks were most commonly recorded from the distal portion of the tibiotarsus (5 examples) and this may be correlated with the removal of the lower portion of the legs. Chopmarks (2 examples) through the midshaft of the coracoid might suggest that the head of the bird was detached by chopping through this element or the halving of carcasses.

Domestic goose

Domestic goose was represented by a small number of bones (19 specimens) from all phases of the site. There were no juvenile individuals present in the sample. This indicates that geese were consumed at their maximum size, and once mature they would have supplied a copious quantity of good quality fat, as well as feathers.

Domestic duck

Remains of the domestic duck were only positively identified from Phases Y and Z. Aside from their meat, these would have supplied eggs and feathers.

Wild species

A sizeable proportion of the bird bones identified to generic level was derived from wild species (177 bones, 28%). This group contained a significant number of birds from wetland habitats (59%). The river Severn and the adjacent floodplain would have provided suitable marshy and wetland habitats for numerous waterfowl. There is little direct evidence of the methods employed for fowling during this period, although Strabo refers to the practice of the Gauls of throwing arrow-like missiles at passing flocks. It is likely that most wildfowl were captured by a variety of netting techniques and snares. Overall the waterfowl contribute a small but regular component of the bird remains recovered from the site.

Grey heron

A carpometacarpus of this species was recorded from C267, Phase Pre-Z. Remains of grey heron have been reported from three other Roman sites (Parker 1988) and it seems likely that this species was consumed, albeit sporadically.

Mute swan

Mute swan was recorded from Phase W (1 bone) and Phase Z (4 bones). This species is currently afforded a semi-domesticated status and is commonly found in town parks, although in the past it would have flourished along river banks and on flood plains.

Barnacle goose

A tibiotarsus from a barnacle goose, chopped through the distal end of the shaft, was identified from dump C231, Phase Pre-Z. The barnacle goose is a winter visitor to the British Isles and is generally found on coastal flats or marshes. Wroxeter lies rather further south of the present day wintering grounds of this species which may indicate that there has been a slight shift in climate or loss of habitat since Roman times. However, birds are occasionally found outside of their usual range, usually because they have been blown off course by storms.

Wild ducks (Mallard, Teal, Garganey, Goldeneye)

Remains of wild duck were only positively identified from Phases Y and Z, and although it is likely that these taxa were consumed during all phases of occupation, the problems of distinguishing between the wild mallard and domestic duck has meant that not all of the remains could be ascribed to species level with certainty. Although Columella describes how to rear wild ducks in captivity for the table, it is highly likely that these remains were caught from the flood-

plain of the river Severn. The mallard and the teal are permanent residents in the British Isles, whereas the garganey is a summer visitor. The presence of garganey at the site indicates that fowling was undertaken during the summer or migration period on at least one occasion. The goldeneye inhabits both marine and freshwater habitats and its current status is that of a winter visitor.

Crane

Crane was present in low numbers from Phases W, X, and Z. The current status of the Common Crane in the British Isles is that of a rare vagrant. It is known to have bred in East Anglia up to the seventeenth century but by the 1930's it had become very rare (Cowles personal comment). The Crane was quite commonly consumed throughout the Roman world and Apicius gives several recipes for its preparation (*In Grue in anate vel in pullo*)

> When cooking crane, its head should not touch the boiling water, but should remain without. After the bird is cooked, wrap it in a hot linen cloth and pull out the head. Then the tendons shall follow after, leaving only the meat and bones behind... for the tendons of the crane are difficult to chew.

It is also a relatively large-bodied species which would have made it attractive for exploitation. Remains of Crane have been recorded from twelve Roman sites in the British Isles (Taylor personal comment) and with the exception of a rural site at Claydon Pike, Gloucestershire, these bones have all been recovered from military installations or towns. This distribution suggests that fowling activity may have responded to the demands of specialist markets created by the growth of a Romanised urban populace.

Waders (Water Rail, Lapwing, Curlew)

Water Rail, Lapwing and Curlew were present in small numbers from Phases W, X, and Y. These three species are resident in the British Isles, generally occupying marshy habitats and freshwater margins.

Woodcock

The woodcock was the most commonly represented wild bird, and accounted for roughly 10% of the bird bones identified to taxon. Maltby (1979) records a similar frequency of woodcock from the Roman levels at Exeter.

The woodcock is commonly found in woodland and has a preference for marshy and boggy ground (Fitter and Richardson 1977). This bird is traditionally caught by netting and taking advantage of the fact that the male of the species is strongly territorial.

Raptors (Hawk/Buzzard, Barn Owl, Long-Eared Owl)

Three bones of barn owl were recovered from B150, a sump and B168, a pit from Phase Z1 of the service area (Site B, precinct). It is possible that these bones were all derived from the same individual (coracoid, ulna and carpometacarpus). These bones may have derived from a hunted bird but equally could suggest that barn owls were living at the site. It is thought that one of the buildings from this phase was a barn or a granary and this would have provided a suitable roosting place for this species. The ulna from a long-eared owl was recovered the large sump/pit C440 (Phase X).

Passerines (Fieldfare, Blackbird, Song Thrush, Thrushes, Sparrows, Starlings, Finches)

Although it is possible that some of these birds were eaten or kept as pets the evidence is insufficient to allow further interpretation. Small passerines form a regular component of the diet of both barn and long-eared owls (Glue and Hammond 1974, Glue 1974) and both of these species were represented at the site. It is possible that some of these bones are derived from pellets or represent the remains of birds that died naturally at the site.

Corvids (Raven, Carrion Crow, Jackdaw)

The bones of raven were recovered from all phases, except from Phase X. Although this bird was important for rituals concerning prophecy it seems more probable that it found a niche at the site in the capacity of a scavenger rather than as an oracle.

Three bones of carrion crow were present from Phases Y and Z, and the jackdaw was represented in Phases W and Z. These taxa are notable scavengers and would have been attracted to the site by open deposits of refuse, in which they occasionally became incorporated.

Small mammals

The numbers of small mammals recovered may have been adversely affected by the recovery techniques as dry sieving is not an effective means of recovering small mammal remains.

Before any palaeoenvironmental interpretation can be undertaken from these remains it has to be demonstrated that the small mammals were living at the site and were not introduced as the victims of predation. Microscopic examination of the surface modification of small mammal bones will usually reveal whether the remains had been ingested. Unfortunately it was not possible to undertake any analyses of this kind although the presence of rodent gnawed bones in the assemblage indicates that some small mammals were resident at the site during the period of occupation.

Slightly higher numbers of rodent gnawed material were recovered from the annexe in Phase W and from *insula* 2 and east - west street, Phase Z. All of these parts of the site were open (yards and streets) and therefore it seems likely that some small mammals were active in these areas.

Order *Carnivora*

Weasel

This species was represented by a humerus from dump B277 in the annexe (Phase Z). The weasel is found in almost all habitats and preys upon mice, voles, birds and eggs. This species will readily adapt to urban habitats and it is quite probable that it was living in semi-derelict buildings or backyards.

Order *Insectivora* Mole

Mole was represented from Phases W, Y, and Z. A premaxilla from this species was recorded from B150, a pit in the service area (Phase Z), and a mandible, scapula, ulna, left and right femur, and tibia were recovered from dump B277 in the annexe (Phase Z). It is possible that the specimens from B277 were derived from a single individual.

Order *Rodentia*

Four species of rodent were positively identified from the site and a further 30 bones could be assigned to the Order *Rodentia*.

Bank vole

The bank vole is primarily found in deciduous woodland habitats, although it is also commonly found in scrubland or areas where there is plenty of cover (Lawrence and Brown 1974).

Water vole

The high proportion of water vole remains recovered relative to the other small mammal species is unusual. In part this may reflect recovery techniques at the site, in that the bones of the water vole are somewhat larger than those of *Mus* sp. or *Sorex* sp. The water vole is largely herbivorous, feeding upon water plants and grasses and is rarely found far from a source of flowing water.

House mouse

The house mouse is commensal with humans and appears to have been widely established throughout Britain by the second century AD. This species was represented from Phases W, Y, and Z suggesting that it was present throughout the whole period of occupation.

Wood mouse

The wood mouse found in a variety of habitats such as copses, hedgerows and overgrown areas of scrub. A single mandible from this species was identified from Phase Z.

Palaeoenvironmental interpretation

Yalden (1980) has shown that modern suburbs support a wide variety of wildlife and it seems likely that ancient towns also contained areas of rough, uncultivated, land which would have provided a refuge for many species of small mammals, amphibians and birds. Armitage and West (1987) identified a 'wild, wet overgrown' garden from an assemblage collected from a medieval well in London Greyfriars. It is of interest that a wider range of small mammals and passerines were recovered from the annexe, and from the north portico, Phase Z. During this period of the site's history, both areas had fallen into disuse and there was access between them through the north wall. The annexe was represented by a single context (B277), described as a loam and rubble dump. Excavation revealed that this layer was some 0.5m deep and largely comprised a dark, soil layer, similar in consistency to the dark earth levels described by MacPhail (1981) from the late post-Roman levels in London. Four species of rodent were identified; bank vole, water vole, wood mouse and house mouse. The bank vole and the water vole are both of a rather retiring disposition and tend to avoid areas disturbed by man. Water voles may be attracted to grain stores during the winter months, when food supplies are short, which could explain its presence here if the buildings of the precinct in Phase Z (6, 23, 24, 68) functioned as granaries. The bank vole is largely diurnal and is inhibited by the absence of cover. The deposit also contained several burrowing species including badger, weasel, mole and two rabbit bones which were almost certainly intrusive. The bird remains are also informative, in that although most of these bones could not be identified to species level, this assemblage contained representatives of four genera that are usually associated with some kind of vegetational cover (*Turdidae, Fringillidae, Ploceidae*, and *Sturnidae*). Two bones of common frog were identified and a further twelve bones were assigned to the frog/toad category. Although frogs do not require access to water all the year round, they need plenty of cover, such as that afforded by gardens, meadows or woods.

It is possible that some of the mammal bones are intrusive and that the bird bones may represent cultural refuse or pellet material, although one would anticipate that if this were the case these remains would not be spatially confined to one area of the site. The faunal evidence strongly suggests that this area of the site was rather undisturbed and contained some vegetation, although the presence of house mouse indicates human occupation nearby.

Amphibians

The amphibian remains recovered from the site, which were largely recovered from floor levels or dump deposits. Most of the bones were found in dump B277 (Phase Z) and the significance of these has been discussed in the Palaeoenvironmental interpretation section above.

Conclusions

The standard of preservation of the assemblage was found to vary across the site. Material excavated from *insula* 2 and from the early levels of the north portico was generally in poorer condition than that recovered from the site as a whole. This may be largely correlated to trampling damage caused by the volume of traffic in these areas. The best preserved material was recovered from Site A, which lies away from the centre of activity in *insula* 5 and seems to have been less disturbed compared to the more central areas.

Cattle comprised by far the most significant proportion of the diet, followed by pig and sheep. The relative proportions of these three taxa indicate that the inhabitants of Wroxeter relied on a 'Romanised' diet with a heavy dependence upon beef and pork.

However, the interpretation of the relative frequency of the common livestock animals from urban sites is usually complicated by a number of factors. These include the differential destruction of bones from individual features and between Phases, as well as various cultural modifications such as the butchering and redistribution of carcasses across a site. Detailed study of the assemblage indicated that there was considerable local variation between the representation of pig, cattle and sheep across the site and between Phases, presumably reflecting the unequal distribution between dumps and *in situ* deposits.

The evidence from the cattle remains that could be aged suggested that there were at least two peaks of slaughter. A proportion were killed as prime adults (approximately 30%), to supply good quality beef and these animals may have been culled from surplus bulls, steers and barren cows. A significant proportion (approximately 25%) of the cattle bones were derived from mature or elderly animals which suggests that beef production was not a primary consideration. It would seem likely that these animals were valued for their progeny, milk, and traction power. Cattle would have been highly valued as draught animals as horses were only used for personal transport and for carrying light loads. This was because the harness necessary to enable horses to haul heavy loads was not developed until the post-Roman period.

The sheep and pigs were slaughtered at the point of sub-adulthood or at maturity. These were animals specifically reared for the market although a small proportion of elderly sheep were also sold in the town, probably because they had ceased to be economically useful. This pattern of exploitation indicates that Wroxeter functioned as a consumer site.

Given the extensive reconstruction of *insula* 5, and neighbouring *insulae*, in Phase Z, and the tentative identification of some of these buildings as barns or granaries, one might have expected to find some evidence to suggest that there was a proportion of stock raised nearby (cf Exeter, Maltby 1979). However, there was no indication that local farmsteads were operating in the immediate vicinity of the baths basilica in this phase. This may purely reflect the nature of the deposits (ie butcher's waste) and further investigation of other areas excavated from Wroxeter may yield more illuminating categories of evidence.

Biometrical analyses of the common livestock animals indicates that cattle and sheep were of similar proportions to those reported from other Roman sites from lowland Britain, indicating that there was a regional improvement in the size of these animals during the Roman period. There was little improvement in the size of pigs which were scarcely larger than the stature attained by Iron Age populations. This could suggest that the rearing of pigs largely remained the domain of individual households or small holdings and that these animals were essentially left to forage for themselves.

The butchery techniques employed at the site are broadly similar to those described from comparable Roman towns (Luff 1982, Maltby 1979, O'Connor forthcoming). Certain features were found to contain higher than average proportions of bones that are associated with the initial slaughtering of animals and butchers' waste. Although these deposits were not as structured as those described from the Roman military levels at Exeter (Maltby, 1979), York (O'Connor, forthcoming) and Wroxeter (Meddens, in Ellis forthcoming) some degree of organisation is indicated regarding the disposal of slaughter house and butcher's waste. In particular two of the building platforms from Phase Z showed relatively high concentrations of cattle bones produced during the 'boning-out' process suggesting that these were largely constructed from dumped butchers' waste. O'Connor (forthcoming) has observed similar deposits of butchers' refuse from house platforms in York (Blake Street) which may suggest that the use of bone waste was commonplace for constructional purposes during this period.

Hunting appears to have only played a minor role in the economy, although the proportions of edible wild species marginally increase in Phases X to Z, possibly reflecting difficulties of supply after 400 AD. Given that the land along the Welsh borders was extensively wooded during this period, it is surprising that the sport of hunting was not more actively pursued. The presence of red deer, roe deer and wild boar in the assemblage suggests the exploitation of local woodland and the proportion of antlers recovered relative to the quantity of post-cranial bones suggests that antler was collected and imported to the town to supply craftsmen.

The evidence from the bird remains indicates small scale but consistent exploitation of wild resources from the floodplain of the Severn. Fish (principally salmon and trout) were also caught locally (Locker, *see appendix 9*).

The rich species diversity of the wild fauna from Phase Z (Sites B and C) is suggestive of a more rural environment during this period of the town's history. This may be linked with the neglect or disuse of certain buildings or their associated outbuildings and yards.

Table 50 List of contexts analysed for bone

Site A

Phase X 142, 156, 168, 169, 170, 180, 184, 189, 190, 191, 193, 194, 199, 233, 235

Phase Y 77, 140, 145, 146, 148, 149, 151, 152, 153, 155, 158, 160, 162, 163, 166, 171, 172, 173, 174, 175, 176, 179, 181, 182, 183, 185, 186, 187, 188, 192, 195, 196, 197, 198, 201, 209, 210, 211, 214, 215, 218, 219, 220, 230,232, 234, 237, 238, 240, 241, 242, 243, 244, 247, 248, 249, 252, 253, 280, 285, 286, 292, 303, 305, 318, 322, 324, 326, 328, 330, 332, 333, 336, 345, 346, 347

Site B
annexe

Phase W 313, 314, 315, 316, 319, 320, 323, 324, 326, 327, 329, 332, 336, 337, 338, 339, 346, 349, 351, 352, 360, 361, 364, 366, 367, 377, 379, 380, 381, 383, 391, 396, 397, 399, 400, 402, 410, 413, 415, 416, 420, 421, 422, 423, 424, 425, 426, 428, 430, 432, 433, 434, 435, 436, 437, 442, 444, 445, 447, 448, 449, 450, 451, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 470, 471, 472, 474, 476, 479, 480, 482, 485, 489, 494, 500, 504, 506

Phase X 282, 292, 295, 297, 304, 305, 330, 331, 344, 347, 348, 356, 365, 368

Phase Y 290, 299, 317, 321

Phase Z 277

baths precinct

Phase X 74, 84, 85, 218, 223

Phase Y 79, 83, 102, 120, 136, 137, 203, 228, 240

Phase Z 80, 81, 94, 95, 97, 98, 101, 104, 105, 112, 119, 147, 150, 152, 153, 154, 155, 159, 160, 168, 170, 172, 187, 193, 194, 195, 196, 197, 198, 199, 206, 216, 217, 219, 220, 225, 226, 227, 229, 230, 231, 232, 241, 242, 244, 250, 254

Site C
north portico

Phase W 384, 468, 469, 470, 472, 473, 474, 476, 477, 479, 481, 483, 484, 485, 486, 488, 489, 490, 491, 492, 493, 495, 499, 500, 501, 515, 518, 521, 522, 524, 525, 526, 527, 528, 529, 531, 532, 533, 535, 536, 537, 539, 540, 541, 542, 543, 545, 546, 547, 549, 553

Phase X 277, 308, 309, 311, 312, 315, 342

Phase Y 306, 307

Phase pre-Z 75, 186, 187, 190, 195, 231, 232, 233, 235, 240, 258, 264, 267, 268, 275

Phase Z 76, 78, 89, 93, 109, 112, 184, 220

insula 2

Phase V 425, 433, 439

Phase W 278, 320, 328, 380, 394, 396, 397, 407, 417, 421, 423, 426, 428, 431, 432, 435, 436, 437, 440, 441, 442, 444, 445, 446

Phase X 236, 304, 305, 398, 400, 404, 408, 412, 419, 420, 432, 434

Phase Y 203, 207, 270, 272, 273, 323, 329, 393, 406, 409, 418

Phase Z 90, 100, 104, 106, 193, 198, 210, 217, 227, 260, 263, 265, 269, 416

cobble street, east

Phase Z 80, 88, 94, 99, 101, 188, 191, 192, 200, 201, 205, 211, 212, 225, 238

Site D

Phase W 102, 163, 210, 218, 244, 254, 262

Phase X 153, 187

Phase Y 78, 122, 125, 150, 151, 157, 166, 168, 185, 214, 216, 217, 224, 228

Phase Z 100, 103, 107, 108, 148, 208, 231, 232, 273, 283

Site E
gravel street and drains

Phase pre-S 313, 318

Phase S 97, 183, 193, 201, 205, 206, 216, 217, 218, 233, 234, 247, 291, 307, 312, 317

Phase W 96, 188, 208, 229, 232, 268, 269, 270, 271, 272, 273, 275, 277, 278, 279, 280, 284, 289, 290, 292, 294, 295, 297, 298, 299, 300, 301, 302, 305, 309, 311

Phase X 186, 286

Phase Y 81

Phase Z 74, 86, 91, 92, 95, 98, 131, 133, 170

insula 2

Phase Y/Z1 249, 250

Phase Z 85, 90, 93, 99, 100, 101, 108, 112, 130, 137, 162, 195, 200, 212, 213, 221, 222, 237, 254

cobble street, west

Phase X 178

Phase Y 151

Phase Z 172, 174, 177, 179, 181, 185, 189, 190, 191, 207, 260

Appendix 9: Fish bones

by Alison Locker

Introduction

Fish bones were identified from Sites A, B, C, D, and E. The following species were identified; salmonidae (salmon/trout *Salmo salar*/*Salmo trutta*), pike (*Esox lucius*), dace (*Leuciscus leuciscus*), chub (*Leuciscus cephalus*), roach (*Rutilus rutilus*), cyprinindae, bass (*Dicentrarchus labrax*), perch (*Perka fluviatilis*), ruffe (*Gymnocephalus cernuus*), thin-lipped grey mullet (*Liza ramada*), mackerel (*Scomber scombrus*), and plaice (*Pleuronectes platessa*).

The fish from the 1976 and 1978 excavations were identified by Mr A Wheeler (formerly of the British Museum, Natural History), and the fish from the 1979–85 seasons by the author. These have subsequently been amalgamated and divided only by site and phase.

The summary table (Table 51) shows that most of the assemblage is from Sites B and D, the area of the precinct and the annexe of the basilica, and the baths basilica and its porticos. The most frequently occurring species are salmon/trout, pike, and perch.

Table 51 Number of species by site

Site	*A*	*B*	*C*	*D*	*E*	*total*
Species						
Salmon/trout	-	6	5	74	9	*94*
Pike	2	12	5	45	-	*64*
Chub	-	3	-	1	-	*4*
Dace/Chub	-	5	4	-	-	*9*
Roach	-	1	-	-	-	*1*
Cyprinid	-	-	-	4	-	*4*
Bass	-	-	1	-	-	*1*
Perch	-	38	6	26	-	*70*
cf Ruffe	-	-	-	1	-	*1*
Thin lipped grey mullet	-	1	-	2	-	*3*
Mackerel	-	-	1	1	-	*2*
Plaice	1	3	-	4	1	*9*
Unidentified	1	35	38	20	4	*98*
total	*4*	*104*	*60*	*178*	*14*	*360*

Site listing

Table 52 lists finds by site and phase giving species totals. The detailed context listings by species are stored with the site archive.

The salmonidae are the most frequently occurring group in those phases which produced larger samples, ie Site D. A salmonid vertebral centrum from D429 showed evidence of rodent gnawing and one vertebral centrum from D252 was slightly burnt. Pike is the second most frequently occurring species with perch probably over represented by scale fragments.

In Phase Z the rubble raft D100A–G produced the largest sample of fish from a single context, dominated by 20 salmonid vertebral centra. This small sample very much reflects the distribution of the other sites.

Discussion

In all sites and phases it is noticeable that all the samples with the exception of D100 are composed of only a few bones and scales. Also all the fish bones are relatively large and typical of a hand-picked assemblage, although some dry sieving (using a 5–10mm mesh) and a lesser amount of wet sieving was carried out. It can therefore be surmised that the smaller bones, usually only recovered by sieving, are in some cases genuinely absent rather than overlooked.

Another aspect of this whole assemblage is its similarity throughout. Salmonidae (salmon and trout cannot be easily separated but it is thought that the

Table 52 Frequency of fish bones by phase and species

Phases	*V*	*W*	*X*	*Y*	*pre-Z*	*Z*	*post-Z*	*total*
Site A								
Pike	-	-	-	2	-	-	-	*2*
Plaice	-	-	-	1	-	-	-	*1*
Unidentified	-	-	1	-	-	-	-	*1*
total	-	-	*1*	*3*	-	-	-	*4*
Site B								
Salmon/trout	-	-	-	2	-	4	-	*6*
Pike	-	2	-	1	-	9	-	*12*
Chub	-	-	-	-	-	3	-	*3*
dace/chub	-	-	-	-	-	5	-	*5*
Roach	-	-	-	-	-	-	1	*1*
Perch	-	-	1	-	-	35	2	*38*
Thin lipped grey mullet	-	-	-	-	-	1	-	*1*
Plaice	-	-	-	-	-	3	-	*3*
Unidentified	-	-	-	-	-	35	-	*35*
total	-	*2*	*1*	*3*	-	*95*	*3*	*104*
Site C								
Salmon/trout	-	1	1	-	-	3	-	*5*
Pike	-	-	-	-	-	5	-	*5*
dace/chub	-	1	1	-	-	2	-	*4*
bass	-	-	-	-	-	1	-	*1*
Perch	1	2	1	-	1	1	-	*6*
Mackerel	-	1	-	-	-	-	-	*1*
Unidentified	-	16	16	-	6	-	-	*38*
total	*1*	*21*	*19*	-	*7*	*12*	-	*60*
Site D								
Salmon/trout	1	7	1	27	2	29	7	*74*
Pike	-	3	1	23	5	11	2	*45*
Chub	-	-	-	-	-	1	-	*1*
Cyprinid	-	-	-	-	-	3	1	*4*
Perch	4	1	3	4	1	12	1	*26*
cf Ruffe	-	-	-	1	-	-	-	*1*
Thin lipped grey mullet	-	1	-	-	-	1	-	*2*
Mackerel	-	1	-	-	-	-	-	*1*
Plaice	-	-	-	1	-	3	-	*4*
Unidentified	-	-	-	13	1	5	1	*20*
total	*5*	*13*	*5*	*69*	*9*	*65*	*12*	*178*
Site E								
Salmon/trout	1	2	-	-	2	4	-	*9*
Plaice	-	-	-	-	-	1	-	*1*
Unidentified	-	2	-	-	1	1	-	*4*
total	*1*	*4*	-	-	*3*	*6*	-	*14*

specimens here are largely salmon), pike, and perch are the most frequently occurring species, although perch is largely represented by scales. Salmon were solely identified from vertebral centra. Although the skull bones of this species do not always seem to preserve well, given the large number of vertebral centra, some skull fragments might be expected. Their absence may, therefore, suggest some selective disposal (ie the finds might represent table-waste).

The cyprinids, namely dace and chub, also occur frequently. Dace is worth eating but not chub. These are closely related and difficult to separate when the pharyngeals are fragmentary. The other cyprinid present was roach, which is also quite edible.

Ruffe is closely related to perch and was only tentatively identified from a single vertebral centrum in Phase Y, Site D. Fishing in later periods was obviously plentiful along the Severn river, the earliest reference to fish weirs along the Severn is in AD 706 (Pannett 1988, 375), and Domesday mentions eight weirs on the Severn in Shropshire (*ibid*). The values are given in eels and it is interesting that none were recovered from the Roman deposits. The small size of eel bones means that they would probably be missed in areas where wet sieving was not carried out.

In the seventeenth century salmon fishing was being prosecuted commercially on the Severn (*ibid*, 376). These later references to fishing on the river suggest that stocks would have been plentiful during the Roman period.

However, the presence of exclusively freshwater species, ie pike, dace, chub, roach, perch, and ruffe(?) from a site occupied in the Roman period adjacent to the Severn does pose some problems as to their origin. Wheeler (1977) has suggested that rivers (including the Severn) in the west, covered by ice in the last glaciation, could not have supported an indigenous freshwater fish population, the temperatures being too low. Although the south and east of the country could have had freshwater species subsequently introduced by land bridges from the continent, rivers in the west must have had these species introduced by humans. As the main development of freshwater fisheries took place in the medieval period, it has been assumed that many restockings occurred then.

There are three possible explanations for the presence of these species here. First, these species were brought to the site dried or salted from distant rivers where they could have been caught. Given the natural abundance of salmon (and eels) in the Severn this seems an unlikely explanation, particularly as none of the cyprinids or perch would make better eating than salmon.

Second, it is possible that the Severn was restocked at an earlier date, that is, in the early Roman or prehistoric periods, though the exploitation of freshwater species in rivers is only really of importance in Britain in the Saxon period and culminates in the development of stocked ponds in the medieval period.

Table 53 Fish lengths by species

	context	*approximate length (mm)*
Pike	A241	580
	B277	580
	B457	500
	C76	350
	C76	300
	D219	580
	D331	970
	D331	970
	D1158	580
	D1158	580
	E74	580
	E74	490
Chub	D111	<410
	E74	>410
Roach	B290	280
	C76	250
Perch	B277	270
	B277	200–270
	B290	300
	B290	350
	B299	320
	C76	250
	C76	300–350
	D111	250

Third, and seemingly most likely, an indigenous freshwater population was established through post-glacial contact with eastern and southern Britain. The lower reaches of the Severn were on the edge of glaciation, and during the post-glacial optimum (Simmons and Tooley 1981, 93), extra precipitation would have resulted in greater run-off, thus creating more streams which might have led to a greater distribution of species in this particular area. However, more data from Roman and prehistoric sites with fish remains from the west of England are needed before any further assessment can be made.

Comparison of skull fragments with reference material of known size has permitted some total length reconstructions (Table 53). The method of Desse *et al* 1987 was used for perch. The maximum size of pike is 1.30m, the females are larger than the males (Wheeler 1978, 94). The pike are not particularly large and range from quite small specimens to two which have achieved 75% of maximum possible size. Chub average 300–500mm total length (*ibid*, 129) so these examples are intermediate in size. Roach average 350mm (*ibid*, 133). Perch average 350mm and attain a maximum of 510mm (*ibid*, 237). The perch represented are rather small specimens generally of less than average size.

All these species are typical of lowland rivers with a fairly slow current. Salmon would have been caught en route upstream. The marine species, bass, thin-lipped grey mullet, mackerel, and plaice, are relatively rare throughout and do not show any groupings either by phase or site. All four species could have been caught along the north Wales coast and Liverpool Bay.

As it is over 50 miles to the coast, it is likely that these have been salted, dried, or pickled before transport. Both thin-lipped grey mullet (rather rare on this coastline) and bass could have been caught in estuarine freshwater. Plaice can be trapped along the tidal reaches. Mackerel is caught seasonally inshore in nets or on lines.

The assemblage is dominated by freshwater fish, particularly salmon, pike, and perch; dace, chub and roach were also present. The presence of exclusively freshwater species in the Roman period has raised some questions regarding the species then indigenous to the Severn.

Appendix 10: Human skull fragments

by Dr J L Wilkinson and P A Barker

Introduction

Among the many thousands of animal bones recovered from the site there were more than a hundred fragments of human bone, of which some sixty were parts of human skulls. The remainder consisted mostly of very small fragments, indistinguishable at the time of excavation from the mass of animal bone, but subsequently recognised as human in post-excavation analysis (*see chapter 6, Table 15*). Of the sixty skull fragments, nearly half were from the nave area of the basilica within the Phase X and Y dumps and levelling spreads which derived from elsewhere in the town. The Phase Z skull fragments were in the platform for Building 10 and mixed into the dumps in the annexe and these must also have been deposited in the fourth century to be brought on to the site in the sixth (*see chapter 7, dating discussion*). Only four skull fragments predate Phase X so that the skulls were redeposited later than the plaster eyes (*see chapter 6*) and must have originated from a different source.

Nine separate individual skulls have been identified from this group of fragments and it is possible that the total number slightly exceeds this. They are mostly from young adult males in the 17–26 year age range. One skull is from a male aged about 40 years, and one (with Paget's disease) is from an individual aged at least 50 years. Two fragments, possibly from the same skull, may be those of a young adult female, though their features are somewhat indefinite.

There are not enough teeth to provide a detailed report. Attrition is generally as anticipated but one individual over the age of 18 years has minimal attrition of the first molar, suggestive of a high quality diet. It was also apparent that there were no mandibles or post-cranial remains to match the skulls, so that it seems unlikely that the skull fragments could be from disturbed burials, such as those found by Atkinson in his excavation of the forum (1942, 112–3). Several infant burials were found but these presented no abnormalities and are reported on in archive only.

It was apparent on examination of the skull fragments that the group exhibited a number of unusual features. Many had a noticeably greasy surface and a dull orange-brown colour quite unlike the animal bones found in the same contexts (though see no 8, below). Others showed evidence of damage from sharp-edged weapons or of decapitation *post-mortem* and another had external green staining.

Analysis

When the skulls were excavated, many had an orange colouration, and to some extent this is still present; it is superficial and can be scraped off. To determine the origin of this colouration, surface washing with chloroform-methanol was carried out. This did not remove the stain but the resulting solvent was subjected to a number of tests.

Infra-red spectroscopy of the chloroform-methanol extraction

This was carried out using the attenuated total reflectance technique on the external surface of a frontal bone and on a petrous temporal bone from the interior of the skull base. This method is particularly useful in the detection and analysis of small amounts of chemicals. Both samples gave a strong lipid spectrum indicative of vegetable oils such as linoleic acid, found in linseed, safflower, and sunflower oils. There was an absence of common animal lipids such as cholesterol and lecithin.

Three animal bones from the same source were examined and there was virtually no oil present. This comparison rules out the possibility of local soil contamination and indicates that the human skulls were treated in some particular way.

Gas chromatography of the chloroform-methanol extract

This identified the main fatty acids as palmatic, stearic, myristic, and petroselenic. In addition, there were minor traces of nervonic, behenic, arachidic, heptadecanoic, linoleic, linolenic, and physeteric fatty acids. The major oils identified can be derived from a number of sources:

Palmitic acid: widely distributed in nature and found in almost all fats

Stearic acid: abundant in both vegetable and animal fats

Myristic acid: a component of many vegetable and animal fats such as nutmeg and palm oils, milk, and fish oils

Petroselenic acid: present in the seeds of aromatic plants such as parsley and celery, but not present in animal fat.

The limitation of gas chromatography is that it does not inform us as to the grouping of the lipids, for example whether they were present as tri-glycerides or di-glycerides. These problems are exacerbated by the tendency of fats to degenerate over time.

Nonetheless, taking into account the orange-brown discolouration and the identification of vegetable oils through infra-red spectroscopy, the probable sources of both the oils and fats identified are safflower, sunflower, linseed, or palm oils, possibly more than one of these being present.

Discussion

The results of the tests carried out on the skull fragments appear to confirm that they have been treated with some form of vegetable oil. If this was the case, in what circumstances could this have happened? As already noted, local soil contamination may be ruled out since animal bones from the same context do not show similar contamination with oils. It may also be possible largely to exclude the suggestion that the skulls or skull fragments were disposed of into a pit full of oily refuse since the evidence of scalping and decapitation (see below) indicate that these skulls were being treated in an unusual way. Such process may, however, account for the contaminated animal skull fragment (no 8).

One other suggestion is that the skulls had been deliberately preserved. There was a Celtic custom of preserving the severed heads of enemies in cedar oil, (Brunaux, 1988, 88) but the Romans disapproved of this practice and stopped it. In this particular case, it is unlikely that any such practice was the cause of the contamination for a number of reasons:

Some fragments (eg nos 4, 5, and 6) were stained on the interior and, although not impossible, it is unlikely that oil could have reached the interior of the skull of a severed head. Such treatment would be unnecessary for a skull since cleaned and dried skulls need no further treatment in order to preserve them. Evidence was found on fragment no 7 for scalping, with a knife cut about 40mm above the orbital margin. Another, skull fragment no 9, evidenced damage by sword or knife cuts which had been made across the posterior part of the base, through the mastoid process, detaching the skull from the atlas vertebra. This was almost certainly done *post-mortem* since judicial or warring severance would occur lower down, through the cervical spine. Skull fragment no 2 had been cut transversely through the full thickness of the frontal bone: this could have been inflicted by a sword while another (fragment no 6) may have been trimmed for use as a skull-cap.

A final consideration is the possibility that the skulls had been deliberately anointed with oil. Certainly, there is evidence for the preparation of the skulls for some unknown purpose. One had been scalped, others severed from the body, apparently *post-mortem*. One may have been turned into a skull-cap while others showed signs of damage through sword or other blade instruments. More telling was the lack of the lower mandibles. While there were nine skulls represented, only two mandibles were identified. When the skull is devoid of soft tissue, the mandible is loose: evidently most were either lost or discarded prior to final burial. This supports the view that there was a time span over which the dried, cleaned skulls were unburied and exposed. Further, it has been noted that one petrous temporal bone inside the skull base was oily and in another instance, oil had been put inside and had seeped out through the midline (saggital) suture of the vault. Either the skull-cap had been removed and inverted (like a dish) or if the skull was intact oil was poured in through the foramen magnum, again with the skull kept inverted. The green staining seen on the exterior of one skull fragment (fragment no 1) may have been the result of the placing of such oil-filled skull-caps on bronze or copper dishes, although since the post-depositional histories of these fragments is unknown such a suggestion may be too speculative. The cumulative evidence is of a skull cult, either of the trophies of war, or the veneration of ancestors or important persons. The use of the skull in this way is well known in many cultures (Eckenstein 1932, 91–7), not least among the Celts (Brunaux 1988, 87–8). Indeed, the practice of using a skull cap to drink water from a holy well is attested in many instances in medieval Wales (Jones 1954, 115–6). Bearing in mind such possibilities, three of the skull fragments were subjected to radiocarbon dating (Hedges, Housley, Law, and Bronk 1989, 223). The results are discussed in the dating section in chapter 7, where a Roman period date is indicated in all cases. It should be borne in mind, however, that the skulls might be considerably older than this since the dating will have been affected by the organic oils contaminating the skulls. It is clear, however, that since the skull fragments were imported to the basilica site, they must have been used elsewhere in the town, and perhaps in a temple. If so, they were perhaps dispersed from their shrine on the adoption of Christianity in the years after 313 AD.

One interesting anomaly is the fragment of an oiled equine or bovine skull (no 8). It is not too fanciful to think that this also was venerated, presumably in a temple. In this context, it is perhaps no coincidence that the temple excavated by Bushe-Fox on the west side of Watling Street in 1913 produced a stone horse's head (Bushe-Fox 1914, 6 pl VIII). A pipe-clay horse was also found in a later season (Bushe-Fox 1916, 34 pl XXIII,2) and this might suggest that the cult observed in the temple was associated with horses, the most obvious candidate being Epona. If so the skull, if it was from a horse, may well have been an appropriate object of veneration.

Catalogue

1 Three occipital fragments articulated to form the confluence of sinuses (15mm thick). External green staining perhaps from copper alloy. *WP78 G.40H D116 SF99*

2 Frontal bone and two parietal bones, 13 pieces, all of which articulate. The postero-lateral parietal region is missing. The frontal bone is severed transversely just above the frontal sinuses: very straight smooth edge and no shattering. This was probably caused by a very sharp, thin bladed cutting edge, perhaps a sword. *WP 78 G.41L I/II SF642*

3 Frontal bone including glabella, moderate supraorbital ridges, small frontal sinuses. Parietal bone (two pieces), all sutures obliterated. Unusually thick (11mm) due to extensive cancellous bone between inner and outer table, typical of Paget's disease (osteitis deformans). *WP, G.25 L/I*

Paget's disease of moderately elderly individual, probably 50+. Sex differentiation is difficult: small frontal sinuses suggest female but are probably due to encroachment of cancellous bone; supraorbital ridges probably indicate male. Paget's disease usually affects the whole skeleton, giving rise to considerable deformity such as curved back and bowed legs, the individual probably needing to walk with a stick.

4 Three fragments up to 7.5mm in thickness which articulate and represent two parietal bones completely fused at the sagittal suture, this having been obliterated. There is a very greasy texture to this bone, and internally the colour is dark brown and shiny in appearance. It is of heavy weight. *WP79 G.53R E74-2 SF79*

5 A 42 × 30mm fragment of a parietal bone with an interparietal suture. The internal surface is dense black and shiny; there is less intense darkening on the external surface adjacent to the suture and extending beyond this. The general appearance is very similar to specimen 6, and though the two do not articulate with one another, it is very likely that they come from the same source. This appearance is highly unusual. *G.48 C418-1 SF478*

6 A 47 × 37mm fragment of parietal bone. An interparietal suture had endosteal fusion and the inner surface is dense black in colour, smooth and polished. It is unlikely that this appearance is due to burning because:

the affected surface would be roughened

the amount of heat required would have charred the diploe, if the skull was intact the outer surface would have been more affected than the inner surface. If the skull was already in small pieces both surfaces would have been affected in all probability.

It has been previously noted that skulls had apparently been anointed with oil. It would appear in this case that fluid was placed inside an inverted skull (either into a detached skull-cap, or, if the skull was intact, through the foramen magnum) staining the interior (possibly drying up and coating the interior), but some has seeped through the partially-fused suture and has marked the adjoining external margin. *G.48aM C417-a SF98*

7 A 105mm fragment of frontal bone including orbital plates and glabella. Supraorbital ridges are fairly strongly developed. The frontal air sinuses are of moderate size, extending into the medial supraorbital region. Cortical thickness up to 5.5mm. An interesting feature is the presence of a series of parallel horizontal sharp cut marks, almost certainly produced by a knife, about 40mm above the orbital margin (see Fig 318) and therefore probably just below the original hair line. These are present on convex surfaces of the bone and are absent over the flatter mid-line portion. Much of the right side is missing, but ends of cut marks are visible here. The most probable explanation is that these resulted from the process of scalping. *G.21 D391 SF147*

8 A 50mm fragment of skull bone which has a very greasy internal and external surface. The internal moulding is that of an animal and it is not human. Its size suggests that it is probably equine or bovine. This is the only animal skull bone found to be contaminated by oily substance. *G.41F E96F-b SF488*

9 A 90mm piece of left temporal bone, including the whole of the petrous, and about half of the squamous part. The lower part of the mastoid is missing and the exposed cortical rim is straight, smooth, and flush with the bone mesially. In the context of other observations of skulls from this site it should be noted that this form of damage might well occur if the skull was separated, *post-mortem* from the atlas of the cervical spine, with a long strong knife. It is not an injury to be expected from judicial axe severance. There is another possible, if less likely, explanation. If a skull has a shallow posterior cranial fossa, and the mandible is removed, it will rest on the two mastoid processes if placed on a flat surface. If these were frequently rubbed against a rough hard (stone) surface, a similar appearance would result bilaterally. In this particular case, the styloid process is broken, but this is a common finding. The parieto-temporal, occipito-temporal, and spheno-temporal sutures are present and unfused. The bone is generally robust and the postero-inferior cortex, behind the mastoid is 6.5mm in thickness. *G.27M D329 SF204*

Appendix 11: List of contexts, by site and phase, division into Categories A, B, and C

by Roger White

As already discussed (*see chapter 6*), a principal concern of the finds analysis was to attempt to determine which objects were in use in the final phases of the site. In order to do this, it was necessary to eliminate material residual in dump and other non-habitational contexts. However it was difficult to decide with confidence to which category contexts belonged. Ultimately the decision rested upon a subjective assessment of each context. As the interpretation of the finds evidence is however based on this division it was considered essential to reproduce the following list.

Contexts are not in numerical order but follow context listings in the site archive. The categories were established using the following criteria:

Category A: floors or habitation surfaces, including some building platforms

Category B: pits, hearths and other features which have been rapidly backfilled

Category C: dumps which have worn surfaces or have been rapidly accumulated

Site A

Phase W
A: 435, 452
B: none
C: none

Phase X
A: none
B: 403
C: none

Phase Y1
A: 92, 94, 118, 129, 133, 134, 151, 152, 154, 331
B: 18, 44, 50, 62, 74, 78, 83, 99, 102, 106, 109, 110, 113, 114, 115, 119, 122, 130, 131, 181, 182, 183, 186, 187, 188, 196, 201, 202, 203, 230, 231, 238, 240, 241, 247, 249, 253, 257, 318, 322, 323, 326, 330, 332, 333, 336, 345, 347, 426, 442, 443, 444
C: none

Phase Y2
A: 5, 6, 36, 45, 54, 57, 64, 352
B: 14, 21, 103
C: none

Phase Z
A: 49
B: 1, 4, 16, 17
C: none

Site B, Precinct

Phase X
A: 31, 32, 38, 74, 78, 204, 223, 237, 218
B: 86
C: none

Phase Y
A: none
B: 68
C: 120

Phase Z
A: 4, 97, 99, 148, 149, 53, 132, 141, 182, 184, 564, 574, 582
B: 41, 46, 80, 98, 118, 147, 150, 152, 153, 154, 155, 159, 168, 170, 172, 187, 193, 194, 195, 196, 197, 198, 199, 205, 207, 210, 214, 234, 554, 175, 176, 179, 183, 186, 187, 188
C: 8, 136, 137

Site B, Annexe

Phase S
A: 607, 671, 672, 675, 676, 670, 669
B: none
C: none

Phase T
A: 667, 678, 666, 626, 668
B: none
C: none

Phase U
A: 630, 632, 665, 673, 646
B: 621, 637, 639, 645, 654
C: 674

Phase V
A: 602, 620, 603, 618, 631, 611
B: 643
C: none

Phase W
A: 433, 434, 491, 597, 302, 303, 306, 311, 312, 372, 503, 504, 369
B: 443, 444, 447, 451, 452, 455, 458, 469, 470, 500, 507, 514, 605, 608, 615, 616, 625, 648, 663
C: 405, 448, 465, 520, 521, 315, 400, 502, 319, 336, 402, 508

Phase X
A: none
B: 213, 292
C: 304, 344, 356

Phase Y
A: 299, 317
B: none
C: 321

Phase Z
A: 133, 144, 145, 294
B: none
C: 277

Site C, *Insula* 2, Cobble Street, E

Phase V
A: 443
B: none
C: 433

Phase W
A: 391, 394, 395, 396, 397, 401, 402
B: 278, 320, 407, 421, 424, 436, 437, 439, 440, 441, 444, 446, 464
C: 380, 404, 414, 417, 423, 426, 428, 429, 431, 438, 442, 445

Phase X
A: none
B: 412, 419, 448
C: none

Phase Y
A: 203, 270, 393
B: 406, 409, 418
C: 207

Phase Z
A: 90, 100, 106, 30, 94, 99, 406
B: 98, 217, 7, 84, 188, 192, 223, 224, 225, 104, 210
C: 80, 86, 88, 91, 101, 191, 207, 212, 216, 226

Site E, *Insula* 2, Gravel street, drains and cobble street W

Phase S
A: 138, 291
B: 193, 205, 206, 216, 310, 312, 311, 313, 318
C: none

Phase W
A: none
B: 96, 165, 219, 208, 271, 272, 273, 275, 292, 270, 277, 278
C: none

Phase X
A: 176, 265
B: 186
C: 287, 286

Phase Y
A: 347 (=85 WP79 and 80), 210, 259, 348
B: 215
C: none

Phase Z
A: 112, 141, 158, 222, 221, 242, 16, 45, 46, 50, 276, 204
B: 6, 184
C: 85, 100, 116, 121, 137, 12, 13, 249, 250, 74, 133, 170, 172, 177, 179, 185, 260, 262

Site D, South Aisle

Phase S
A: none
B: none
C: 1208

Phase T
A: 1000
B: none
C: none

Phase U
A: 2394, 2395, 2410
B: none
C: 2364, 2380, 2396, 2397

Phase V
A: 1959, 2006, 2175, 2267, 2290, 2298, 2327, 2333, 2338, 2348, 2369, 2119, 2120, 2122, 2128, 2131, 2132, 2142, 2165, 2306, 964, 1005, 1012, 1013, 1014
B: 1929, 2192, 2194, 2195, 2201, 2221, 2299, 2332, 2346, 824, 918
C: 1977, 2271, 2355, 2371, 2133, 710

Phase W
A: 8, 30, 95, 227, 783, 800, 801, 815, 818, 839, 875, 906, 931, 1006, 1216, 1222, 1224, 1225, 1256, 1257, 1313, 1314, 1327, 1328, 1329, 1330, 1338, 1339, 1353, 1356, 1357, 1359, 1361, 1362, 1394, 1452, 1453, 1492, 1500, 1549, 1578, 1579, 1580, 1680, 1723, 1728, 1820, 1864, 1895, 1900, 1916, 1965, 1970, 2019, 2021, 2024, 2034, 2035, 2036, 2038, 2052, 2078, 2080, 2109, 2110, 2136, 2154, 905, 078, 921, 978, 1116, 976
B: 1769, 1812, 1813, 1814, 1815, 1861, 1868, 1873, 1874, 1896, 1917, 1918, 1925, 1926, 1927, 1928, 1972, 934, 935 ,936
C: 907, 916, 917 ,950, 1679, 1722, 2077, 756, 814, 816, 822, 859, 881, 747, 757, 774, 804, 809, 758, 767, 773, 810, 755, 841, 843, 880, 743, 792, 840, 925, 940, 943, 947, 957

Phase X
A: 1365, 1388, 1390, 1642, 1748
B: none
C: 1372, 1385

Phase Y
A: 1209, 146, 213, 214, 219, 224, 340, 398, 326, 327, 325, 350, 353, 419
B: 355, 352, 354
C: 1143, 1158, 1193, 1231, 1282, 1326, 1332, 1333, 1335, 706, 705, 704, 732, 346, 349, 703

Phase Z
A: 5, 100, 103, 104, 105, 106, 29, 107, 108, 305, 306, 307
B: 357, 358
C: 229

Site D, North Aisle

Phase T
A: 1181
B: none
C: none

Phase U
A: 679, 678, 695, 677, 693, 2439, 673, 675, 694, 543, 674, 676, 661, 655, 879, 1317, 1323, 1324, 1325, 1366
B: 791
C: 941, 1075, 1077, 1113 [incorrectly numbered D700]

Phase V
A: 1196, 1234, 1263, 1215, 1274, 1164, 1205
B: none
C: none

Phase W
A: 579, 613, 640, 612, 652, 656, 611, 565, 568, 610, 632, 633, 634, 654, 2375, 588, 597, 562, 589, 592, 600, 608, 623, 627, 631, 635, 638, 651, 563, 567, 590, 609, 615, 657, 628, 650, 564, 653, 614, 560, 700, 701, 777, 806, 790, 802, 803, 1129, 740, 789, 960, 1178, 1203, 1204, 788, 799, 787, 913, 1183, 1220, 778, 1133, 784, 798
B: 1142
C: 1122, 1127, 1147, 914, 1232, 1132, 983, 933, 808

Phase X
A: 544, 542, 44
B: 529, 570, 530, 552, 553
C: 541, 572, 554

Phase Y
A: 158, 225, 716, 112, 38, 39, 238, 313, 712, 746, 713, 714, 715
B: none
C: 216

Phase Z
A: 100C, 251, 865, 900, 866, 870, 899, 259
B: none
C: none

Site D, Nave

Phase S
A: 2421, 1998, 2011
B: none
C: none

Phase T
A: 2000, 2450, 1617, 1999, 2012, 1553
B: none
C: none

Phase U
A: 2439, 2428, 1419, 2148, 2305
B: 2427, 2459, 2460, 2284
C: none

Phase V
A: 2222, 2266, 2379, 2412, 1935, 2093, 2098, 2135, 2153, 2188, 2228, 1885, 2127, 2084, 2354
B: none
C: 2236

Phase W
A: 2013, 2032, 2081, 186, 376, 415, 420, 423, 444, 445, 1498, 1499, 1544, 1574, 1583, 1598, 1921, 1922, 1933, 1934, 1938, 1939, 1941, 2033, 2043, 2044, 2047, 2062, 2063, 2067, 2068, 2074, 2086, 2089, 2116, 2123, 2140, 2144, 2162, 2169, 2174, 2190, 2191, 87, 404, 442, 443, 451, 452, 454, 459, 1650, 2039, 2046, 2082, 378, 1825, 102, 1784, 1835, 1836, 1837, 1857, 1886, 1905, 2104, 2125, 2126, 2170, 2172, 2207, 2230, 2232, 2233, 2251, 2262, 2275, 2316, 2331, 2334, 2335, 2340, 2358, 2359, 2391, 433, 436, 440, 441, 470, 1422, 1584, 1588, 1622, 1684, 1729, 1778, 1779, 1824, 1856, 1962, 1979, 1988, 1989, 1991, 2013, 2097, 2103, 2115, 2124, 2137, 2200, 2205, 2206, 2213, 2223, 2234,2238, 2257, 2263, 2264, 2367, 1374, 1667, 1903, 2193, 2212, 2282, 2300, 2312, 2313, 2314, 2357, 1599, 1665, 1666, 1753, 1783, 2042, 2059, 2258, 2265, 2268, 2287, 2301, 2303, 2356, 1384, 1414, 1415, 1416, 1417, 1526, 1624, 1628, 1629, 1630, 1645, 1780, 1932, 1957, 1980, 1995, 2001, 2002, 2004, 2014, 2015, 2138, 2159, 2187, 2215, 2220, 2225, 2227, 2252, 2253, 2317, 2363, 2378, 1383, 1496, 1582, 1586, 1627, 1634, 1637, 1638, 1639, 1646, 1647, 1648, 2025, 2027, 2362, 1682, 1754, 1958, 1389, 1772, 1802, 1849, 1862, 1866, 1879, 1883, 1888, 1942, 1963, 2030, 2045, 1611, 1869, 1872, 1612, 1876, 1964, 1377, 1379, 1382, 1392, 1399, 1714, 1715, 1745, 1810, 1380, 1557, 1670, 1744, 1816, 1909, 1955, 2061, 334, 1555, 1594, 1606, 1649, 1746, 1858, 1884, 342, 1369, 1663, 1954, 2288, 1591, 1592, 1595, 1597, 1607, 1662, 1664, 1713, 1730, 1731, 1750, 1770, 1771, 1774, 1823, 1831, 1850, 1871, 1904, 1911, 1912, 1946, 1947, 1953, 1975, 1981, 1982, 1983, 2009, 2155, 2173, 2296, 335, 1575, 1635, 1732, 1751, 1773, 1817, 1834, 1851, 1852, 1853, 1854, 1892, 1893, 1894, 1897, 1984, 1996, 1997, 2008, 2095, 2107, 2111, 2114, 2134, 2160, 2161, 2164, 2209, 2237, 2277, 2279, 2294
B: 431, 2149, 1747, 1985, 1420, 1391
C: 416, 406, 2177, 2208, 456, 1395, 1726, 1785, 2041, 198, 1545, 1643, 1950, 1993, 1396, 1569, 1559, 1587, 1671, 1672, 1951, 1777, 2168, 1418

Phase X
A: 426, 402, 446, 210
B: 84, 375, 380, 381, 395, 182, 389, 411, 2510, 136
C: 184, 86, 400, 403, 482, 1601, 153

Phase Y
A: 125, 458, 77, 152, 165, 168, 2016, 2018, 100F–2, 303, 290, 312, 318
B: none
C: 191, 329

Phase Z
A: 120, 85, 132, 100, 100B, 100G, 49, 50, 100E, 13, 208, 100F–1, 283, 308, 239
B: 164, 199
C: none

Site D, West Portico

Phase W
A: 1121, 1124, 1126, 1130, 1134, 1136, 1137, 1138, 1139, 1146, 1151, 1165, 1166, 1172, 1331, 1336, 1337, 1011, 1131
B: none
C: none

Phase X
A: 969, 1171
B: 958, 1259
C: 1260, 1273

Phase Y
A: 763, 968
B: 464, 727, 702, 845, 1145
C: 762, 908, 928, 885, 891, 898

Phase Z
A: 54, 68, 323, 344, 368, 461, 480, 366, 367, 473, 733, 742
B: 369, 370
C: 330, 331, 393, 463, 466, 711, 817, 332, 372, 467, 474, 760, 761, 819, 1168, 1185

Site C, North Portico

Phase W
A: 149, 381, 146, 384, 385, 463, 468, 515, 543, 544, 552, 553, 530, 163, 167, 549, 550
B: 487
C: 469, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 516, 521, 522, 523, 525, 526, 527, 528, 529, 531, 532, 533, 634, 535, 536, 537, 538, 539, 540, 541, 542, 545, 546, 548

Phase X
A: 135
B: 274, 277
C: 308, 309

Phase Y
A: 184
B: none
C: 306, 307, 326

Phase YZ
A: 124, 143, 144, 152, 154, 176, 128, 181, 187
B: 142, 150, 156, 157, 158, 185, 230, 245, 247, 268, 159, 162, 174, 175, 241, 242, 243
C: 75, 124, 131, 153, 190, 195, 258, 132, 138, 160, 180, 231, 233, 239, 240, 267, 271

Phase Z
A: 77, 92, 465
B: 82
C: 74, 76, 78, 89, 112, 113

Site D, North Portico

Phase S
A: 181, 1334
B: none
C: none

Phase W
A: 1348, 163, 636, 637, 252, 500, 641, 642, 483, 571, 484, 485, 752, 753, 754, 769, 1154, 1182, 1186, 1188, 1235
B: none
C: 244, 254, 264, 343

Phase X
A: 1343
B: 501, 502, 886
C: 1318, 1346, 1349.738, 1288

Phase Y
A: 178, 188, 150, 2479, 315
B: none
C: 151, 320, 338, 455, 837, 838, 858

Phase Z
A: 100A, 100D, 2481, 251, 317
B: none
C: 148, 310, 2049

Robber trenches

Site C
A: 449, 457
B: 81
C: none

Site D: Phase YZ
A: none
B: 98, 116, 233, 518, 519, 81, 728, 735
C: none

Site E
A: none
B: 81
C: none

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Index

by Barbara Hird

Note: Illustration references are in italic; phase letters are in parentheses.

abacus, fragments of 261, 262, 263
abandonment of site 168, 241
actus (measurement) 49
administration, late and post-Roman 203, 230, 246–7
  Imperial 221–2, 225, 226–7, 231
  municipal 195, 222, 226–7, 237
  see also taxation
Africa, North 144, 174, 221, 223, 237
agate intaglios 250
agriculture 166, 218, 252, 339–41
  see also ploughing
aisle, north 20, *20*
  (S) 20, *20*, 21, 37, *37*, 43–8, *44*, *45*, *47*, *48*
  (T) 21, *56*, 56–7
  (U) 21, 60–63, *62*, *63*
  (V) 22, 66, *67*
  (W) 22, 79–81, *80*, *81*
  (X) 22, 95–6, *95*, *96*, 239, 240
  (Y) 23, 30, 104, 105–6, *106*
  (Z) *see* Buildings **10**, **11**
  charcoal 346, 347
  contexts 372–3
  doorways *see under* wall, basilica north
  floors
    original 21, 43–8, *44*, *45*, *47*, *48*
    herringbone tile (T) 21, 55, *56*, 56–7, 224–5
    repairs (U–V) 17, 21, 22, 23, 56–7, 60, 61, *62*, 66, 224
    reflooring (W) 22, 72, 79–81, *80*, 89
    micaceous flagstone slates (Y) 105–6, *106*
    wear 55, *56*, 57, 60, 61–2, *62*, 66, 74, 79, 81, 106, *106*
    see also under mosaics
  hearth 96, 239, 240
  Kenyon's interpretation 17
  masonry fragment 30, 106, *106*, 232
  partitions *48*
    see also Building **61**
  paths 80, 81, *81*, 96
  phase linkages with other areas 13
  pit for fixture 62, *63*, 225
  plant remains 331–2, 334, 336, 344–5
  postholes 57, 66
  radiocarbon dates 239, 240
  reconstruction 50, *50*, 51
  subsidence *45*, 60, 61, 66, 224
  see also Buildings **4**, **5**, **10**, **11**, **56**, **61**; colonnade, north aisle; mosaics (north aisle); wall, basilica north
aisle, south 20, *20*
  (S) 20, *20*, 21, 39–41, *40–42*
  (T) 21, 52–4, *53*, *54*, 224–5
  (U) 21, 58
  (V) 21–2, 64–6, *65*
  (W) 22, 68–72, *69–72*
  (X) 22, 89–91, *90*, *91*
  (Y) 23, 103–4, *104–5*, 195, 229, 230
  (Z) 25, 130, 138–9, *139*, 171, 207, 220, 233, 236, (*see also* Buildings **16–21**, **27**, **28**)
  brooch 221, 225, 239, 240, 245
  charcoal 347, 348
  coin hoard 74, 103, 267–8
  contexts 372
  doorways see under *frigidarium*; wall, basilica south
  earlier misinterpretations 15, 17
  finds 195, 202, 207, 220, 322
  floors
    original (S) 21, *38*, 39–41, *40*, *41*, *42*
    herringbone tile (T) 6, 16, 17, 21, 22, *38*, *42*, 51, 52–4, *53*, *54*, 65, 65–6, 224–5
    repairs (U–V) 21, 58, 64–6, 65, 68
    reflooorings (W) 22, 68–72, *69–72*
    quarrying (X) 22, 96, 228, 357
    dumps, micaceous flagstones (Y) 103–4, *104–5*
    wear 21, *41*, 42, 54, 64, 65, 65, 68, 70, 224
  holes, amorphous (V) 65–6, *65*
  hollow-ways *41*, 54, 58, 65, 65, 68, 70, 226
  levels *38*, 53, 54
  paths *41*, 54, 104, *105*
  phase linkages with other areas 13
  pit, unexplained shallow 71
  plant remains 335, 336, 337–8
  post- and stakeholes *53*, 64, 65, 65–6, 68, 138, 225
  pottery 315, *315*
  quarry pit 22, 89, 96, 103, 228, 357
  reconstruction 49, *50*
  see also Buildings **16–21**, **27**, **28**, **52–4**, **72**, **73**; colonnade, south aisle; wall, basilica south; *and under* mosaics; pipe trenches
Alcester, Warwicks 340
alder 346, 347, 348–9
altar, small stone 256
amber beads 250
Ambrosius Aurelianus 237
America, North; frontier towns 235, *235*
amphibians 362, 363
Anglo-Saxon Chronicle 237
Anglo-Saxon era 237, 241, 242, *243*, *244*
  robbing 166, 168, 195, 244, 259
  see also strap-ends
animal husbandry 162, 353, 354–5, 363
Annales Cambriae 241
annexe *7*, 8, 13–14, 20, *20*, 191
  (S) 16, 19, 20, *20*, 21, 37–8, *39*, *48*, 48–9, 50, 223
  (T) 21, 57, 63, *63*, 225
  (U) 19, 21, *63*, 63–4, 225
  (V) 22, 67, 67, 225
  (W) 13, 22, 81–6, *81–6*, 89, 228
  (X) 22, 96, 96
  (Y) 106, 211
  (pre-Z) 130
  (Z) 26, 146–7, *147*, 165, 233
  addition to original plan 35, 50, 223
  animal bone 106, 147, 351, 352, 353, 358, 362, 364, 365
  as *apodyterium* 49, 52, 223, 225
  baby burials 18, 80, 82, *82*, 198
  charcoal 228, 346, 347
  coins 266–7
  contexts 371
  cross wall
    original (S) 19, 20, *20*, 38, 52, 223
    changes (T–V) 19, 21, 57, 63, *63*, 225
    doorway (W) 82, *82*, 228
    demolition (W) 22, 38, 81, 83, 85
    wear 86
  dating 18, 89
  doorways 15, 35, 42, 52, 55, *55*, 102, 103, 223,
  dumps 48, *48*, 146, *147*, 228
  east wall partially demolished 130, 165
  finds 201, 202
  floors 19, 21, 22, *48*, 48–9, 57, 67, 81, 225, 228
  hearths 22, 64, 82, 83, *83*, 84, *84*, 96, 189, 228
  human bone 216, 217, 368
    see also baby burials *above*
  industrial activity 13, 21, 22, *63*, 63–4, 81, 82–3, 84, 85, 189, 228, 352, 353
  lime, spread of 22, 95, 96, *96*, 228
  mill-stone 67, *67*
  mortar mixing hollow 189, 228
  north wall 31, 102, 103, *188*, 223
  paths 26, 106, 146–7, *147*
  phase linkages with other areas 13
  pin 108, 211, *211*, 237, 239, 240, 245
  pits 21, 67, 82, *82*, 83, *83*, 228
    and gully systems 21, 63–4, *63*, 225
  pottery 314, 315, *315*
  roof removed 81, 228
  south-west corner 37, 38, *39*, 69
  windows 38, 52, 85
  Wright on 16
  see also Buildings **59**, **60**, **67**, **69**, **74**
annona (tax) 230, 236, 247
antiquarian interest 15–16
Antium (Anzio), Italy 227
antler 358–9, 363
  handles 220, *255*
ape, Barbary 198, 358
Apicius 360, 361
apodyterium 49, 52, 223, 225
aqueduct *4*, 23, 121
Arbogastes 265
Arcadius, Emperor 227
arches in Old Work 18, *19*, 34, 52
architectural stone fragments 223, 259–63
  north aisle colonnade 261–2, *262*, *263*
  north portico colonnade 223, 260–61, *260*, *261*, 262
  stone types 259–60
  see also padstones (Building **10**)
archive 12
armour 252
army, Roman 1–2, 203, 221–2
  see also legionary fortress
arrowheads, iron 219, 251
'Arthur, King' 238
ash 346, 347, 348, 349
Atcham, Shropshire; St Eata's church 168, 195, 244, 259
Atkinson, Donald 16
auxiliaries, Roman 203
Avoncroft Museum of Buildings, Worcs 172
awl, iron 219

B4380 road 121, 166, 234, 246
baby burials 18, 80, *80*, 82, *82*, 198, 217
badgers 359, 362
bakery *see* Building **63**
Bancroft Roman villa, Milton Keynes, Bucks 48
Barbary ape 198, 358
Barker, Philip 2, 5–8
Barkerville, British Columbia 235, *235*
barley 325–7, 337, 341
barns
  frigidarium as 26, 236, 330, 340
  see also Buildings **6**, **23**, **24**
barrel under shelter *see* Building **67**
barter 247
Barton Court Farm, Oxon 339
Baschurch, Shropshire; Berth 242, *243*, 244, *244*, 248
basilica, baths 8, 9, 13, 14, 20–23, 27–108, 221–30
  (S) 13, *20*, 20–21, 27–52, 221–3
  (T) 13, 21, 52–7, 224–5
  (U) 13, 21, 58–64, 224–5
  (V) 13, 21–2, 64–8, 224–5
  (W) 13, 22, 68–9, 225–8
  (X) 13, 22, 89–103, 228–9
  (Y) 13, 23, 103–8, 229–30
  (pre-Z) 14, 129–31
  (Z) *see* rebuilding, great
  see also individual elements and aspects
Bath, Avon 215, 226, 237, 247
baths complex *4*, 20–21, *20*
  basilica and associated buildings *see individual entries*
  building of 1–2, 221, 222
  burials in hypocausts 168, 236, 241
  butchery waste 357
  coins 265–6, mould 267
  date 17, 49, 57
  demolition 232
  excavations 15, 17
  grain 330
  opus spicatum 57
  plan 221
  pottery 49
  wet-laid layers 164
baths complex, earlier, beneath forum 16, 17, 221, 222
baths precinct *see* precinct
beads 203, 206, 250
  bone 206, 250
  glass *196*, 198, *199*, 201, 206, 219, 250
  jet 198, *199*, 201, 206, 219, 220, 250
  shale 206, *207*, 220, 250
  other materials 250
beakers
  ceramic 305–6
  glass 201, 220
Bell Brook, valley of 1, 2, *4*
belt equipment 203, *205*, 251–2
  see also buckles; strap-ends
Berth at Baschurch, Shropshire 242, *243*, 244, *244*, 248
Beuvray, Mont, France (Bibracte) 214
Big Flint Rock 259, 261
bindings, copper alloy 219, 220, *255*
birch 346, 347, 348
birds 150, 359–61, 362, 364
bits, iron snaffle- 220, 251
black layer *see* dark earth deposits
black shiny substance, unstructured (?vitrified charcoal) 346, 347, 348, 349
blackthorn 346, 347, 348
boar, wild 353, 358, 359, 363
boardwalks
  gravel street 25, *151*, 152, 234
  insula 2 frontage 235, *235*
  north portico 22, *100–101*, 101, 107, 229
bone, animal 350–64
  articulated 195
  burnt 351
  comminuted; tanning waste? 124
  condition 350–51, 363
  gnawing marks 324, 351, 361–2
  methods 350
  non-metrical traits 357–8
  oiled skull fragment 369, 370
  palaeoenvironmental interpretation 362
  pathology 357
  pets 198, 358, 359
  quantity 192, 352
  residuality 350
  and ritual activity 357
  species present on site 352–3
  teeth 350–51, 357, 358
  see also individual animals, antler; birds; butchery; fish; *and under individual features*
bone, human
  by phase and area 217
  see also burials; skulls
bone objects 258
  see also under beads; bracelets; combs; counters; handles; mount; needles; pins; rings; shafts, pin or needle; spoons
bone-working waste 254
booths or stalls on gravel street 25, 78, 152, 153, 223, 234, 237, 247
  see also Buildings **12**, **40–44**
bootlace ends, copper alloy *199*, 201, 251
Botfield, Beriah, MP 15
boundary, field 193
bowls
  ceramic 296–8, 298–9, 307
  glass 220, 319
  metal, hanging 212
bow-sided structures *see* Buildings **1–4**
bracelets 203, 206, 249–50
  bone 206, 250
  copper alloy 206, 219, 220, 250, *253*
  glass 250
  ivory 250
  jet 206, 250
  shale 198, 201, 203, 206, 220, 250
brazier stands, possible 71, 174
bread, hearth-cooked 137–8
'brick level, rough' (Kenyon) 17, 49
British culture 212
Bromsgrove, Worcs; Avoncroft Museum of Buildings 172
bronze *see* copper alloy
brooches, copper alloy 206, 207, *209–10*, 211
  Aucissa-Hod Hill 250
  Colchester and derivatives 250
  crossbow *196*, 207, *209*, 211, 220, 250
  from dump C527 *196*, 198, 201
  headstud 250
  knee 250
  late La Tène 250
  penannular 207, *210*, 211, 250
    dating of Phase V 68, 225, 239, 240, 245
  by phase 206
  pins *196*, 250
  plate 250
  springs 201, 219, 250
  trumpet 219, 250, *253*
brooches, iron 129, 198
brothel 201
buckets
  ceramic *277*, 309
  iron 254
buckles 206
  copper alloy 219, 252
    zoomorphic 203
  iron 220, 252
builder's yards *see* building yards
Building **1** 25, 127, *128*, 129, 172, *172*, 231
  demolition 26, 165
  and development of excavation 5, 121, 127
  hearth 126, 127
  metrical analysis 170
  pits and platforms associated with 26, 129
  reconstruction 172, *172*
  wattle walls 169, 172
Building **2** 24–5, 122, 125, 170, 172, 231
Building **3** 24–5, 122, 125, 170, 172, 231
Building **4** 26, 166–7, 169, 171, 172, 238
  reconstruction 172, *173*
Building **5** 26, 166, 167, 172, 238
Building **6** 26, 164–5, 169, 171, 173, 234
  finds 217, 315, *315*
  reconstruction 173, *173*
Building **7** 6, 6–7, 25, *158*, 158–9, 169, 171, 234
  finds under 219
  padstones of porch 6, 142, 158–9, *158*, 173
  reconstruction 173, *174*
Building **8** 25–6, 154, 159–60, *159*, *160*, 234
  finds 219
  internal clay and cobble pad 160, 174
  reconstructions, broad and narrow 160, 173–4, *174*
Building **9** 25, 158, 159, 160, 171, 234
  reconstruction 174, *174*
Building **10** 25, *140–43*, 141–4, *145*, 232–3, *233*
  demolition 26, 238
  design of complex 232, 235, 236, 237
  finds 131, 217, 348, 365
    pottery 217, 315, *315*, 316
  gatehouses *see* Buildings **11**, **29**, **34**, **38**
  identification 7, 141
  metrical analysis 170, 171
  padstones, porch 11, *11*, 25, *140*, 141–2, *142*, *143*, 144, 159, 174, 193, 232
  platform 25, 129, 131, 141, 142, 217, 232
  plough damage 193
  reconstruction 144, 169, 174, *175*, 176
  skull fragments 216, 368
  verandah 143, *143*, 144, 174, *175*, 232
  wings 144, 174, *175*, 232, 237
  see also rebuilding, great
Building **11** 129, *140*, *144*, 144–5, 232, 233
  in Building **10** complex 232, 236
  construction 25, *175*, 176, 233
  demolition 26
  entrance 153, 220, 235, 236
  finds 217, 220, 315, *315*
  metrical analysis 171
  reconstruction *175*, 176
  see also burials (adult male)

Building **12** 25, 152, 153, *153*, 234
metrical analysis 171, 172
pottery 315, *315*
reconstruction 176, *176*
Building **13** 25, 158, 160, 171, 234
reconstruction 176, *176*
Building **14** 25, 150, *150*, 176, 217, 233
Building **15** 25, 158, 160, 176–7, 234
metrical analysis 171, 172
reconstruction 176–7, *177*
Building **16** 25, 138–9, 177
Building **17** 25, 138, 139, 171, 177, *177*, 233
Building **18** 25, 138, 139, 171, 177, *177*, 233
Building **19** 25, 138, 139, 171, *178*, 179, 233
Building **20** 25, 138, 139, 171, 233, 235
reconstruction *178*, 179
Building **21** 25, 138, 139, 171, 233, 235
finds 217
reconstruction *178*, 179
Building **22** 25, 154, *157* 159, *159*, 160, 169
finds 219
plough damage 193
reconstructions, broad and narrow 159, 179, *179*
Building **23** 26, *161*, 161–2, 169, 171, 234
reconstruction 179, *179*
Building **24** 26, 162–4, *162–4*, 169, 171, 234
as barn 162–4, 179–80, 236
porch 164, 179, 236
reconstruction 179–80, *180*
Building **25** 25, 150, 180, 233
Building **26** 25, 150, 153–4, *153*, *154*, 171
controls access to gravel street 153, 235, 236
reconstruction 180, *180*
Building **27** 25, 138, 139, 171, 180, *181*, 233
Building **28** 25, 138, 139, 171, 181, *181*, 233
Building **29** 25, 149–50, 171, 181, *181*, 233
controls access to basilican area 150, 235, 236
Building **30** 6, 75, *75*, 76, 181
Building **31** 19, 25, *145*, 146, *146*, 233
collapse of wall 26, 105, *105*, *145*, 146, *146*, 166, 241
pottery 315, *315*
reconstruction 181, *181*
Building **32** 25, 149, 182, 219, 233
Building **33** 25, *148*, 149, *149*, 153, 171, 182, 233
beam slot *130*, *148*, 149, *149*
reconstruction 182, *182*
Building **34** 25, 148–9, 171, 233
controls access to basilican area 150, 235, 236
hearth 236
reconstruction 182, *182*
Building **35** 25, 154, 157, *157*, 182, 234
Building **36** 24, 118–19, *120*, 169, 231
post-pads, clay and cobble 24, 118, 119, 120, *between pages 120–21*, 182, 231
reconstruction 182, *183*
Building **37** 25, 148, *148*, 182, 233, 236
Building **38** 25, 147, *147*, 148, 171, 183, 233
controls access to basilican area 150, 235, 236
reconstruction 183, *183*
Building **39** 25, 147, 149, 183, *183*, 233
Building **40** 25, 152, 153, 171, 183, 234
Building **41** 25, 152, 153, 171, 184, 234
Building **42** 25, 152, 153, *153*, 171, 184, 234
Building **43** 25, 152, 153, 171, 184, 234
pottery 315, *315*
Building **44** 25, 152, 153, 171, 184, *184*, 234
Building **45** 25, 157, 171, 184, *184*, 234
Building **46** 25, *156*, 157, 171, 172, 234
reconstruction 184, *184*
Building **47** 25, 156–7, *156*, 171, 234
reconstruction 184–5, *185*
Building **48** 25, 155, 156, 171, 185, 234
Building **49** 25, 155, 156, 171, 234
reconstruction 185, *185*
Building **50** 25, 155, 156, 171, 234
reconstruction 185, *185*
Building **51** 25, 155, *155*, 171, 219, 234
reconstruction 185, *186*
Building **52** 23, 104, *104*, 170, 229
reconstruction 186, *186*
Building **53** 22, 91, *91*, 186, *186*
Building **54** 22, 89–91, *90*, *91*, 170, 228, 229
metal working 186, 228
reconstruction 186, *187*
Building **55** 22, 91, *92*, 228, 229
reconstruction 187, *187*
Building **56** 22, 95–6, *95*, 170, 228, 229
reconstruction 187, *188*
Building **57** 22, 102–3, *103*, *135*, 170, 228, 229
reconstruction 188, *188*
Building **58** 22, 102, *102*, 170, 228, 229
reconstruction 188, *189*
Building **59** 22, 228
first phase (59i) 81, *81*, 82, 189
second phase (59ii) 83, *84*, 84–5, 189, *189*
Building **60** 22, 170, 228
first phase (60i) 81, *81*, 189
second phase (60ii) 83–4, *84*, 85, *85*, 189, *189*
Building **61** 189, 225
Phase U wooden structure 21, *48*, 60, 62–3
Phase V masonry structure 22, 66, 79, 106, *106*
Building **62** 23, 118, 189
Building **63** 22, *97–9*, 99, 170, 189, 229
reconstruction 189, *190*
Building **64** 22, *97*, 99, 170, 229, 190, *190*
Building **65** 22, 190
Building **66** 22, 190
Building **67** 22, 85–6, *86*, 190, 228
Building **68** 26, 160, 161, *161*, 190, *191*, 234
Building **69** 22, 67, 82, *83*, 190, 225, 228
Building **70** 26, 164, 169, 190
Building **71** *see* annexe
Building **72** 65–6, *65*, 191, 225
Building **73** 65–6, *65*, 191, 225
Building **74** 21, *63*, 64, 191, *191*, 225
Building **75** *see* basilica *and individual parts of building*
building and furniture fittings 195, 201, 203, 256
building materials, dumps of 84, 85, *85*, 228
building techniques, tradition of timber 169
building tools 252
building yards
annexe 13, 22, 84, 85, *85*, 228, 352, 353
basilica 13, 22, 89–103, 228–9
buildings 169–91
catalogue and reconstructions 169–70, 172–91
metrical analysis 170–72
bungalow, site for custodian's 2, 5, *5*
burials
adult male, 7–8th century 14, 26, 167–8, *167*, 198, 238
radiocarbon dates 26, 168, 238, 239, 240, 241
baby 18, 80, *80*, 82, *82*, 198, 217
in baths hypocausts 168, 236, 241
ritual interpretation 198
burnt material
animal bone 351
clay 83
Kenyon's layer of 19
lines of, Buildings **2** and **3** 125
patch in north aisle 96
see also charcoal; grains, carbonised
burrowing 324, 338, 351
Bushe-Fox, J P 16, 17
business and writing equipment 195, 203, 252
butchery
marks 356, 357, 358, 363
waste 66, 103, 106–7, 166, 195, 363
button and loop fasteners
bone 251
copper alloy *199*, 201, 251

Cadbury Congresbury, Somerset 248
Cadwallon, king of Gwynedd 241
Caerleon, Gwent 51, 212, 221, 352
Caerwent, Gwent 340
Caistor-by-Norwich, Norfolk 321
Caistor-by-Yarmouth, Norfolk 117, 322, 323
Cannington, Somerset 248
Canterbury, Kent 194, 247
Canu Heledd 241, 242
capitals
Corinthian *140*, 141–2, *142*, 263, *263*
north aisle colonnade 262, *262*
north portico colonnade, Tuscan 51, 223, *260*, 261, 263
others 263, *263*
capsarius (cloakroom official) 223, 225
Carausius 57, 225
carpentry tools 252
Carthage; mosaic of towered villa 174
casket fitting *197*
Cassington, Oxon 212
Castleford, W Yorks 355
castor boxes, ceramic 306–7
casts, archaeological plaster 112
catapult bolts, iron 220, 251
Category A contexts 371–4
finds 201–20, *204–5*, *207–16*
cats 356
Catterick, N Yorks 358
cattle 353–5, 363
age at slaughter 353–4, 363
horncores 354, 357
ox skulls 66, 103, *104*, 106–7
complete *100*, 101, 195
oiled 369, 370
size 354–5, 363
use for traction 357, 363
cauldron or bucket, ceramic *277*, 309
Celts; skull cults 369
cemeteries, post-Roman 248
in baths area 168, 236, 241
ceramic objects *see* chimney; colander; counters; lamps; pottery; spindle whorls; tiles

cereals *see* grains, carbonised
chaff 325–7, 328, 329, 330, 331
chains, copper alloy 220, 251, *253*
changes to original plan 17
  annexe apparently added 35, 50, 223
  pause in construction 35, 42, 50, 221, 222
  service door to precinct 17, 18, *19*, 20, 34–5, *36*, 38, *38*, 39, 49, 50, 52, 223
  west portico possible addition 28
changing room, annexe as 49, 52, 223, 225
chape, iron 251
charcoal 346–9
  environmental evidence 348–9
  as fuel 349
  gorse *148*, 340
  methods 346
  in platforms 76, *76*, 78, *78*, 348
  radiocarbon determinations 89, 103, 108, 239, 240
  ?vitrified 346, 347, 348, 349
  worm-eaten timbers 23, 108, 228, 229, 348
  see also under individual parts of site
cheese press, ceramic *277*, 308
Chelmsford, Essex 318, 356
Chester
  animal bone 352
  baths 1, 221
  Battle of (*c* AD 616) 237, 241
  port 237
  post-Roman continuity 247
Chesterholm, Northumbria 320
Chesters, Northumbria 212
Chichester, W Sussex 320
chimney, ceramic 198, 256
Church, late and post-Roman 237, 238, 247
churches
  basilican plans 221
  frigidarium as 236, 244
  minsters 195, 238, 242, *243*
  reuse of Roman masonry 168, 195, 244, 259
  see also under Atcham; Upton Magna; Wroxeter
cingulum militare 203
Cirencester, Glos
  late Roman contacts with Wroxeter 237
  mosaics 47–8, 237
  pins 212, 237
  post-Roman urban continuity? 247
  6th-century king 237
cistern, eastern frontage of *insula* 5 26, 165–6, 234
civil period, early (AD 90–120) 1, *3*, *4*, 221
civitas capital, *Viroconium Cornoviorum* as 1
clay objects and structures
  burnt, associated with hearths 83, 135
  coin moulds of baked 267, *267*
  pipes, tobacco 259
  see also pads, clay; walls (clay)
Claydon Pike, Glos 361
cleats, iron 198, 256
clerestories, nave 22, *50*, 51, 229
Coalbrookdale, Shropshire 206
cob walls 165
cobbles
  on gravel street 193
  in loam, dwarf wall of 184
  in portico floors 49
  surface, *insula* 2 frontage 24, 120
  see also under pads, clay
Codex Theodosianus 227
coin moulds 254, 267, *267*
coins 264–8
  baths basilica 265–8
  baths site 265–6
  breakdown of coin-dated type series 201
  copies 264–5, 267, 268
  and dating 217–18
    basilica 239, 240, 245
    drains 117
    macellum herringbone-tile floor 239, 240, 266
    Phase X 103, 229, 239, 240
  distribution by issue period 264–7
  decline and disuse 168, 203, 216, 229, 231, 247, 266, 267
  gap in supply (AD 341–346) 264
  hoards 264
    nave 74, 201, 265, 268
    south aisle 74, 103, 267–8
  percentage in Category A and Layer 111 203
  residuality 68, 217, 266, 268
  3rd-century collapse 264
  Aurelian 92
  Arcadius 103, 239, 240
  Carausius 219
  Claudio-Neronian copies 264, 265–6
  Claudius II 219, 220, 264, 268
  Constans 120, 220
  Constantine I 117, 121, 201, 219, 220, 267, *267*, 268
  Constantine, House of 23, 129, 220
  Constantius II 201, 220
    FEL TEMP REPARATIO 265, 268
  Crispus 201
  Durotrigan 64
  Gallienus 219, 268
  Geta 146
  Gratian 75, 89, 117, 220, 226, 239, 240
  Honorius 265
  Julian II, *siliqua* 265
  Marcus Aurelius, *as* 117
  Postumus 219, 268
  pre-Claudian 264
  radiate copies 74, 219, 264, 268
  Tetricus I 268
  Tetricus II 57, 220, 239, 240, 266, 268
  Theodora 219
  Theodosius I 265
  (AD 388–402) 168
  Trajan 49, 239, 240, 245
  Valens 99, 117
  Valentinian I 120, 219, 220, 265
  Valentinian II 103, 239, 240
  Valentinian III 264
  Valentinian, House of 24, 121, 146, 219
  Victorinus 219
colander, ceramic *277*, 308
Colchester, Essex 322, 340
  pottery 273, *292*, 309, 317, 318
collapse of buildings 106, *106*, 232, 234
  see also under Building **31**
collyrium stamps 215
colonnade, north aisle 16, 20, *20*, *29*, 37, *37*
  bedding layer 27, 37
  column positions 37, *37*
  earlier interpretations 16, 17
  fragments 261–2, *262*, 263
  pier base 37, *37*
  reconstruction 50, *50*
  robbing 9, 13, 14, 43, 130, 316, 347
  sleeper wall 37
  stylobate *29*, 37, *37*
  width 49
colonnade, north portico *see* portico, north; colonnade
colonnade, south aisle 20, *20*, 35–7, *35*, *36*, *37*
  bedding layer *36*, 36
  column positions 35–6, *35*, *36*, 39, 43
  earlier interpretations 16, 17
  pier bases *29*, 35–6, *35*, *36*
  reconstruction 50, *50*
  robber trench 9, 13, 14, 130, 346
    Anglo-Saxon strap-end 26, 168, *194*, 244, 259
  sleeper wall 27, 35
  stylobate fragment 6, 36–7, *37*, 55
  width 49
colonnade, west portico *see under* portico, west
Columella 360
column bases
  north aisle colonnade 261–2, *262*
  north portico colonnade 29–30, 223, 260, *260*
  others 262, *262*, 263, *263*
columns 262, *262*
  final dressing *in situ* 29, *31*, 51
  fragments 155, *155*, 262, *262*
  reconstruction 50, *50*, 51, 263
  reuse 159, 173, 259
    Building **10** padstones 11, 25, *140*, 141–2, *142*, *143*, 144, 159, 174, 193, 232
  see also under individual colonnades
combs and comb-cases, bone 219, 251, *253*
compression lines from boardwalk *100*, 101
'cones of collapse', Building **10** platform 144
consolidated site *11*
Constantine I, Emperor 227, 267
Constantius I Chlorus, Emperor 57
Constantius II, Emperor 227, 265
contexts by site and phase 371–4
cooking 25, 136, 137–8, 201, 232, 236
copper alloy objects *see under* beads; belt equipment; bindings; bracelets; brooches; buckles; button and loop; chains; *dolabra*; ear-rings; 'eyes'; figurines; handles; hoops; lace tags; mirrors; nails; necklaces; needles; pendants; pins; probes; ring attachments; rings, finger-; rivets; scabbards; seal-boxes; sewing equipment; sheets, metal; sleeve; spike-loops; spoons; staples; strap-ends; strips, metal; studs; *styli*; toilet implements; tools; tweezers; vessels
coppicing 349
coprolite, dog 124
coral beads 250
Corbridge (*Coria*), Northumberland 114, *114*, 212
corn-drying kilns 330, 340, 341
cornelian intaglios *196*, 198, 220, *250*, 250
Cornovii 1
Cound, Shropshire 242, *243*
counters
  bone 198, *198*, *200*, 219, 256, *257*
  ceramic 198, 219, 220, *255*, 256
  glass 256, 322
  stone 256
courtyard south of basilica 223
Covesea Cave, Scotland 212
cross shaft, Saxon 244
crucibles, ceramic 254

Crumlin, Co Dublin 212
Cunorix monument 212, 237–8, *238*
cups, glass drinking 220, 320–21, *321*, 323
curator rei publicae/civitatis 227, 237
curiales 224
curved corners 152, 153, 158, 159, 160, 176–7, 185
custodian's office, annexe as possible 223
Cynddylan, Lament for (*Marwnad Cynddylan*) 241, 242

damp marks, walls appearing as 155, *155*
Danebury, Hants 353
Daniels, Charles 19
dark earth deposits 73, 118, 340
  basilica 73, 78–9, *79*, 103, *104*, 105, *105*, 147, 362
dating 17, 238–41, 245
  see also magnetism, remanent; radiocarbon determinations; *and under individual buildings and phases and* coins
daub, collapsed 106, *106*
decoration of buildings
  exterior 106, *106*, 169
  interior 21, 51, 68, 106, *106*, 222–3
  see also plaster
deer, red 358, 363
deer, roe 358, 359, 363
defences, town 1, 2, 241, 247, 248
demolition 74, 106, 108, 166, 229, 230
  see also robbing *and under individual parts of site*
dendrochronology 346
desertion of site, final 241
destruction layers 19, 39, *40*, 42, 88
dice, bone 256
diet 138, 337, 339, 352, 355, 363, 368
Dinas Powys, S Glamorgan 206, 248
disc, incised micaceous flagstone *200*
dishes
  ceramic 293–5, 296, 307
  iron 219
distribution, agricultural 339–41
disturbance of site *see* excavations, earlier; ploughing; robbing
dogs 124, 351, 356
dogs, joiners' iron 198, 220, 256
dolabra, copper alloy 251
Domesday survey 244, 366
domestic items 203, 254
door frames 51–2, 256, 262
doorways
  wear patterns 35, 49, *56*, 57, 58, 60, 61–2, *62*, 64, 66, 74, 79, 80, 81, 86, 106
  see also under individual parts of site
Dorchester (*Durnovaria*), Dorset 340
drains, east–west street 23, 108–17, *109–17*, 223, 228
  charcoal in 347, 348
  dating 117
  timber box-drain *109*, 228
  see also pipes, wooden water-
Drake Hall Open Prison, Stafford 2, 5
dumps
  animal bone 66, 103, 106–7, 166, 195, 363
  building materials 84, *85*, 228
  finds 195–201, *196–200*
  gravel street, by basketful *133*, 134, *134*
  painted plaster 30, 71, 72, 74, 135
  wet-laid layers 121, 164, 231
  see also refuse disposal; residuality
Dunstable, Beds 358
dyeing 125, 231
Dyrrham, Battle of 237

early town, destruction layers 39, *40*, 42, 88
ear-rings 250
earth, flooring of beaten *7*, 22, 60, 61, 66, 67, 72, *72*, 73, 75, 76, 81, 88
eaves drips 144, 184
Edgmond, Shropshire 242, *243*
18th-century ploughing 244–5
elites, Romanised native 222, 227, 231, 235, 236, 237, 246–7, 248
emerald beads 250
enamel objects 197, 198, 252
entrepôt, Meols 237
environmental evidence 324–70
  see also bone, animal; charcoal; fish bones; plant remains
Ephesus, Asia Minor; votive eyes 214
epidemics 241
Ercall, Shropshire 242, *243*
ethnicity, evidence for 201, 203, 211, 212
  see also Roman culture
excavation, present
  circumstances and development 2, 5–8, 127, 141
  organisation and methodology 8–12, 141
  records 10–11
excavations, earlier 15–19
  damage to site 7, *7*, 95, 96, 141, 142
  miss later Roman occupation 141
  records 7
  see also Atkinson, Donald; baths; forum; Fox, George; Kenyon, Kathleen; Webster, Graham; Wright, Thomas
Exeter, Devon 247, 353, 356, 357, 358, 361, 363
eye salves 215
'eyes', model votive
  copper alloy sheet 215, *216*, 256
  gold sheet 214, *216*
  plaster 202, 212–16, *213–15*, 220, 256
  samian sherd 216, *216*, 256

farmer (1859)15–16, 26, 35, 41, 259
faunal remains *see* bone, animal
fences and fence lines
  in basilica (W–Y) 76, 92, 96, 103
  to Buildings **10** and **11** 145, 150, 234
  east–west street 25, 153, 154
  north portico 101, *101*, 103
  north–south street 127, *127*
  precinct 26, 161, 164, 165
field name; Near Old Works 245
figurines, ceramic, copper alloy 256
finds 192–220, 249–58
  Category A contexts 201–20, *204–5*, 207–16
  collection and recording 11
  conservation by owners 202, 203, 218
  date-range and typology 193
  displacement 192, 193
  in dumps (W) 74, 195–201, *196–200*
  ethnicity, evidence for 201, 203, 218
  grids *6*
  layer I/II 193, 202
  methods 192
  pattern of disposition, functional/chronological 201
  patterns of loss or deposition 192
  site-oriented approach 192
  structure of report 12
  see also residuality
fish bones 119, 195, 364, 365–7
Fishbourne, W Sussex 47
fishing tackle 252
flagons, ceramic 303–4
flagstones *see* paving stones; tiles, micaceous flagstone
flashing, lead 162, *164*, 256
floors *see* boardwalks; earth; herringbone tile; mortar; mosaics; *opus signinum*; pebble; plaster; rubble; tiles, ceramic; tiles, micaceous flagstone; timber structures (suspended floors); wear; *and under individual parts of site*
fodder crops 355
ford 2
forum 1–2, *4*, 20
  baths complex beneath 16, 17, 221, 222
  construction 1–2, 221–2
  corn-drying kiln south of 340
  dereliction 230
  east portico 100, 229
  excavation 16
  great rebuilding and 234, 246
  inscription 1, 221–2
  postulated earlier 1, 16, 17, 221
fountain, roadside 112, *113*, 114, 223
fowling 360, 361, 364
fox 359
Fox, George 16, 30
frigidarium
  doorway from south aisle 20, *20*, 21, 33, 34, 40–41, *41*
    partial blocking 138, 229, 236
    paving 16, 21, 40–41, *41*, 224
    post-Roman use 25, 138, 233, 236, 340
    wear 21, 58, 60, 64, 68, 70, *70*, 74, 224, 226
  doorway to *tepidarium* blocked *227*, 236
  grain 26, 236, 330, 340
  late and post-Roman use 25, 26, 138, 226, *227*, 233, 236, 244, 330, 340
    possible cemetery in area 168, 236, 241
  survival of Old Work 20, *21*, 26, 138, 236
frog, common 362
Frog Hall, Upton Magna 242, *244*
fruits 330, 343
fuel
  charcoal 349
  crop processing residue 336, 338, 343, 345
fulling 125, 231
furnaces
  insula 2: 14, 23, *117*, 118, 120, 231
  insula 5: 14, 24–5, 125, *126*, 127, *127*, 172, 231
furniture mounts and fittings 203, 256
furze *see* gorse

Gadebridge Park, Herts 194
galena 118
gems 250
Gildas 237
glass, vessel 319–23
  dating 320–22
  description by colour and form 319–20
  distribution by area and phase 218, 322
  from dumps (W) 195, 198, 322
  functional analysis 322–3
  later 4th century 217, 320–22
  percentage in Category A and Layer I/II 203
  quantity 192
  relationship to site 322–3
  reused items 256, *321*, 322

survival of Roman culture 323
tesserae 256
undecorated body sherds 319
unclassified objects 258
see also under beads; beakers; bowls; bracelets; counters; cups; intaglios; jugs; pins; rings, finger-; stirring-rods
glass, window 192, 193, 195, 198, 203, 319
from annexe 38, 85
Glastonbury Tor, Somerset 248
Gloucester 1, 237, 317
gnawing marks, small mammal 324, 351, 361–2
goat 355
gold objects 206, 250, 251, 258
votive 'eyes' 214, *216*
gorse 346, 347, 348
charcoal *148*, 340
thatch 169, 182
gradient of site 51, *51*, 52
graffiti 109–10, *109*, 137
grains, carbonised 325–7
accidental burning of stored 335, 338, 340, 344
in *frigidarium* 26, 236, 330, 340
higher and lower status diet 138, 337, 339, 352, 355, 363
see also barley; hearths (plant remains); oats; rye; wheat
granaries, possible
Building **70** 26
frigidarium 26, 236, 330, 340
gravel street *see* street, gravel
grid, site *6*, 7
gullies 120
see also pit and gully systems
gutter, forum 100
gutter, north portico 17, 23, *28*, 108–10, *109*, *110*, *130*, 223
charcoal 348
Kenyon on 17
numeral VII, carved 109–10, *109*
partly replaced by wooden box-drain 23, 114–16, *114*, *115*, 228
repair 109, *109*
Gwynedd, kingdom of 241–2

Hadrian, Emperor 1, 221, 222
halls, Saxon; Upton Magna 242, *244*
Halton Chesters, Northumberland 212
handles 203
antler 220, *255*
bone *197*, 252
copper alloy *197*
hard-standings
Building **1** 127, *128*, 129, 172, 231
Buildings **3** and **4** 172
hare 358, 359
Hatfield Chase, Battle of 241
hawthorn 346, 348
hazel 346, 347, 348
hearths
cauldron supports 136, *136*, 138, 148
cooking 25, 136, 137–8, 148, 236, 330, 338, 339–40
industrial 22, 90, 91, *91*, 125, *126*, 127, 135, 186, 189, 228
insula 5, eastern frontage 125, 126, *126*, 127
plant remains 25, 138, 148, *148*, 232, 234, 325, 328, 330, 334, 335, 336–7, 343–4
radiocarbon dates 96, 103, 239, 240
see also under aisle, north; annexe; portico, north; portico, west
Hen Domen, Montgomery 2, 13, *77*, 78
Herculii Palatini 203
herringbone-tile floor (*opus spicatum*) 13, 52–7, 224–5
coin dating 239, 240, 266
irregular rows 54, 55, 224
levels *37*, 53–4, 55–6, *56*
mosaics respected by 39, *41*
wear 35, *38*, *42*, 55, *55*, 56, 59, *59*, *62*
see also under aisle, north; aisle, south; *macellum*; nave
Heslington, N Yorks 268
hillforts 248
Wrekin 1, *2*, 242
hinges, iron 256
hipposandals 251
historical setting, site in 221–48
Hoar Edge Grit 259, 260, 261, 262
hoards *see under* coins
Hodnet, Shropshire 242
hoe, iron 220
holes, amorphous, in south aisle 65–6, *65*
hollow-ways *see under* aisle, south; nave
holly 346, 347, 348
Honorius, Emperor 227
hook, iron 219, *253*
hoops, small
copper alloy 219, 250
jet, shale 250
horncores 354, 357
horse harness and trappings 202, 203, 251, 363
horses 356, 363, 369
hunting 363
hurdles 153, 346, 348

industrial items 195, 203, 254
inkwell, lead 252
inscriptions
amphora sherds 307, *307*
Cunorix memorial 212, 237–8, *238*
in forum 1, 222
insula 2 frontage 8, 9, 23–4, 118–20, 155–60, *155–60*
(S–Y) 14, 23–4, *117–19*, 118–20, 231
see also Buildings **36**, **62**
(Z) 25–6, 155–60, *155–60*, 219, 234–5, 236
boardwalk 235, *235*
coins 266
contexts 371–2
dating 120, 168
exploratory trench (1965) 8, *155*
finds 201, 202, 219
furnace 14, 23, *117*, 118, 120, 231
houses (Z) 25–6, 155–60, *155–60*, 171, 172, 234–5, 236
see also Buildings **7–9**, **13**, **15**, **22**, **35**, **36**, **45–51**, **62**
levelling 14, 24
pathway 24, 119–20, 146
phase linkages with other areas 13
pits and gullies 14, 24, 118, *118*, *119*, 231, 346, 347
planning control 156, 171, 236
pottery 168, 314, 316
wall between terraces 23, 118, 120, 155, 156, *156*, 158, 159
Webster's investigation 19
see also Buildings **7–9**, **13**, **15**, **22**, **35**, **36**, **45–51**, **62**
insula 5, eastern frontage 8, 14, 24–5, 121–9, *122–8*, 165–6, *166*, 223, 231
(W–Y) 24, 121–9, *122–8*, 231
(Z) 26, 165–6, *166*
cistern 26, 165–6, 234
contexts 371
dating 13, 129
dumping and levelling 14, 24, 122
finds 202, 217, 266, 316, 363, 364
furnace 14, 24–5, 125, *126*, 127, *127*
pebble floors 14, 24, 121–2, *122*, 231
pit and gully system 14, 24–5, 122–5, *122–5*, 127, 354
see also Buildings **1–3**
insula 6: 8, 13, 26, 166, 234, 236
insula 8: 330
insula 9: 234, 246
insulae, plan of *4*
intaglios 206, 250
cornelian *196*, 198, 220, *250*, 250
glass 250
Ireland 211–12, 339
iron, concreted 116
iron objects 258
fine, late Roman 206, 207
unclassified 258
see also under arrowheads; awl; brooches; buckets; chape; cleats; hinges; hoe; hook; horse harness; knives; lamps; locks and keys; *martio barbuli*; nails; needles; pins; pipe-collars; plate; rings, finger-; rivets; sewing equipment; spike-loops; strigil; strips; studs; *styli*; tools; tweezers; vessels; weapons; weights and measures
iron staining 96, 101, *101*
iron working 21
Ironbridge Road *see* B4380
ivory bracelets 250

jars, ceramic 298–9, 299–303
jasper intaglios 250, *250*
jet objects 206, 258
see also under beads; bracelets; pins; rings
jewellery 195, 203, 206–7, *207–12*, 211–12, 249–51
see also individual items
Johnson, Dr Henry 15
Jovii 203
jugs
ceramic 304
glass 219, *321*, 322
Julian the Apostate 227

Keele Beds sandstone 259, 260, 261, 261, 262, 263
Kenyon, Kathleen 16–19, 49, 82, 91, 92, 193, 246
on misalignment of walls 16, 17, 30, 34
phasing *18*, 18–19
keys, iron 198, 220
key-ring, ward from *199*
Kiev, Ukraine; Old Post House 119, *120*
kings, Christian sub- 237
knives, iron 203, 219, 252
Köln, Germany 321
Kolofana, Greece; cereal processing 332
Krefeld-Gellep, Germany 321

labrum 69
lace tags, copper alloy *199*, 201, 251
Lactantius 267
Lambaesis, Algeria 223
lamps 198, 254
Lankhills cemetery, Winchester, Hants 207
later Roman occupation, discovery of 5, 19, 141
lathe core, shale 206, *207*, 254
latrine 20, *20*
  doorway from basilica 108, 230
law and order, breakdown of 168
Layer I/II *8*, 9
  finds 193, 202, 206, 216, 217, 320–21, 322
lead mines 118
lead objects
  curved sheet 110
  droplets *94*, 95
  window-lead 256
  unclassified 258
  see also flashing; inkwell
lead-working or casting *94*, 95, 118, 198
lean-to buildings *see* Buildings **5**, **6**, **16–21**, **23**, **27**, **28**, **31**, **32**, **37**, **52–54**, **57**, **58**, **59**, **60**, **64**, **68**
legio XX 1, 221–2
legionary fortress 1, *4*, 39, *40*, 42, 88, 221, 363
legumes 325–6, 342
Leicester; Jewry Wall 194, 236
leisure items 195, 203, 256
Leuna-Merseberg, Germany 320
Licinius, Valerius Licinianus 267
lids, ceramic *277*, 308
lighting equipment 254
lime
  pits *7*, 19, 22, 92–5, *92–4*, 228
  spread 22, 95, 96, *96*, 228
limestone 259
lime-wash 68
Lincoln 236, 320, 358
Linley, Shropshire 118
literacy 207
Littlecote, Wilts 237
loam 73, 75, *75*, 76, 96
location of site 1–2, *1*, *2*
locks and keys 256
London
  Angel Court 355
  animal bone 355, 356, 362
  Billingsgate Bath House 318
  Dowgate Hill 318
  forum-basilica; construction time 221
  General Post Office site 356
  Greyfriars 362
  plant remains 332, 340
  pottery 317, 318
loomweights, stone 254
Lydney, Glos 212

macellum 223
  coin of Tetricus II 57
  colonnade wall 27
  herringbone-tile floor 57, 239, 240
  portico 21, 30, 49, 100, 212
  west wall 30
Maesyrfelth/Cogwy, Battle of 241
magnates, Romano-British 231, 235, 236, 237, 246–7, 248
magnetism, remanent 99, 108, 125
  north portico oven 229
  west portico oven 103, 168, 239, 240, 245
Maiden Castle, Dorset 353
maintenance of basilica 224–5, 246
mammals, small 150, 324, 351, 361–2
manufacture, objects associated with 202
manuring 193
maple 346, 347, 348
marbles, ceramic and stone 256
Margam Beach, Glamorgan 212
marketing, agricultural 339–41
markets, late Roman dwindling of 218
markets, open-air
  basilica 108, 230, *230*
  gravel street 153, 234, 247
martio barbuli (iron throwing darts) 202, 203, *204–5*, 251
Marwnad Cynddylan 241, 242
masonry fragment, fallen 30, 106, *106*, 143, 232
Maw, George 15, *15*, 16, 40, 43, 44, 45, 46
Mayer, Joseph 15
measuring system, *pes monetalis* 25, 30, 49, 169, 170–72
  post-Roman use 138, 142, 156, 170–72, 232, 237
medical implements 251
medieval era 168, 169, 234, 244, 369
Meigen, Battle of 241
Meols, Wirral; entrepôt *1*, 237
Mercia, kingdom of 241–2, 244
metal working 82, *82*, *90*, 91, *91*, 118, 228
  see also individual metals
methods of excavation 8–12
  finds 192
  large-scale open-area 75, 101, 141
micaceous flagstone *see under* tiles
mice 362
midden deposits 74, 195
military control, demise of Roman 218, 265
military equipment 203, *204–5*, 251–2
  see also *martio barbuli*
military phase 1, *4*, 39, *40*, 42, 88, 221, 363
mill-stones 67, *67*
Milton Keynes, Bucks 318
mineral replacement 111, *111*, *112*, 348
mining, lead 118
Ministry of Works 19, 33, *33*
Minster church, Wroxeter 195, 238, 242, *243*
minster parishes, Wroxeter area 242, *243*
mirrors, copper alloy 201, 251
moisture, changes in soil 9, 155, *155*
moles 362
Montans, pottery from 310, *311*
mortar 254
  colonnade sleeper wall 35
  flooring in annexe 19, 21, 48, *48*
  flooring in basilica (W) 17, 19, 22, 71, *71*, 72, *72*, 73, *73*, 78, *78*, 80, *80*, 89
  herringbone tiles skimmed with 53, 54
  mixing areas 189, 228
  mosaics skimmed with 17, 43
  packing in platforms 131, 141
  path 96
  pipe collar covers 111, *112*
  raft under basilica *38*, 39, *40*, 42, *42*, 43, *43*, 53, *54*, *56*, 57, 60, *62*
  ridge in nave 75, 76
  shuttering marks 35
  threshold setting 35
mortaria *see under* pottery
mosaics
  in annexe? 48
  and column spacing 16, 39, 43
  designs 39, 43, 44, *45*, 237
  laying-out lines 39, *41*, 47, *48*
  Maw and *15*, 43, 44, 45, 46
  North African 144, 174
  north aisle 15, *15*, 16, 17, 21, 43–8, *44–8*, 50, 56, 57, 60, 61, 66
    and herringbone-tile floor 39, *41*, 56, 224
    panels, (A) 43, 44, *44*, (B) 43, 44, 46, (C) 57,(E) 43, 44, 46, 57, (F) 45, (G) 60, 61, 66, 45–6, *45*, (H) 43, *45*, 46, 60, 61, 66, (I) 44, 46, (J) 46, (K) 46, (L) 46, 47, *47*, (M) 46–7, *47*, 56, 57, (N) 47, 57
  robbing 80, 95, 96, 145
  south aisle 21, 39–40, 41, *41*, 43, 54, 224
  tesserae types 39, 43, 259–60
  Wright and 43, 44, *44*, *47*
  Wroxeter, *Corinium* Saltire school type design 237
moulds, coin 254, 267, *267*
moulds, metalworking
  ceramic 254
  stone *90*, 91, 186, 254
mounts
  bone 220
  copper alloy 252
mouse, house *and* wood 362
Mucking, Essex 321

nail-cleaners, copper alloy 251
nails
  copper alloy 219, *253*, 256
  iron 198, 219, 220
  unspecified 96, 135, 155, 156, 162
nave 20, *20*
  (S) 20, 21, 22, 36–7, *38*, 41–2, *42*, *43*, 222–3
  (T) 21, 55–6, *55*, *56*
  (U) 21, 58–60, *59–62*
  (V) 21, *65*, 66
  (W) 22, 72–9, *72–6*, *78–9*
  (X) 22, 91–5, *92–4*
  (Y) 23, 104, 105, *105*
  (Z) *see* Building **10**
  charcoal 76, *76*, 78, *78*, *94*, 95, 346, 347, 348
  clerestories *50*, 51
  coin hoards 74, 201, 265, 268
  contexts 373
  doorways *see under* wall, basilica east; wall, basilica west
  finds 202, 219, 220, 322
    dump D1569 195, 197–8, *199–200*, 201
  floors
    original *opus signinum* (S) 21, 22, 36–7, *38*, 41–2, *42*, *43*, 56, *56*, 222–3
    herringbone tile (T) *7*, 16, 21, 35, 36, *38*, 42, *43*, 55–6, *55*, *56*, 58, 59, *59*, *62*, 224–5
    repairs (U–V) 21, 58–60, *59–62*, *65*, 166
    last reflorings (W) *7*, 22, 72–9, *72–6*, *78*, *79*, 80, 89, 222–3
    possible timber step across 21, 55, *56*, 224
    subsidence 21, 35, 59
    wear 21, 35, *38*, 55, *55*, 56, 59, *59*, 62, *62*, 66, 72, *72*, 73, 74, 78
    see also under *opus signinum*; pebble floors
  hollow-ways 66, 72, *72*, 73, 76, 78, *78*

human bone 217, 368
levels 36–7, 42, 55, *56*, 224
lime pit 19, 92–5, *92–4*, 96
linear cut 59, *60*, *61*, 75, 225
phase linkages with other areas 13
plant remains 334, 335–6, 344
post- and stakeholes 5–6, 21, 60, *75*, 76, 225
radiocarbon dates 89, 239, 240
reconstruction 49–51, *50*
see also Buildings **10**, **11**, **30**, **31**, **55**, **65**, **66**; wall, basilica east; wall, basilica west
Near Old Works (field name) 245
Nechtansmere, Battle of 242
necklaces
copper alloy 251
fastener *199*, 201
gold 251
needles
bone *197*, 198, 201, 219, 254
copper alloy 254
iron 220, 254
see also shafts
Nettleton, Wilts 194
Newstead, Borders 212, 320
Northampton, Park Street 358
Northumbria, kingdom of 241–2
numeral VII, carved 109–10, *109*
nut fragments 325–7, 335

oak 108, 346, 347, 348, 349
worm-eaten structural timbers 23, 108, 228, 229, 348
oats 325–7, 339, 342
Old Work 15, 20, 32–3, 33–5, *33*, *34*, 50, *50*
dog-leg 18, *19*, 20, *20*, 34–5, *36*, 69
doorway, see *frigidarium* (doorway from south aisle)
reconstruction 33, *33*
robbing 15, 33, 41
slope 51
survival 26, 138, 236
tile bonding courses 32, 34
Wright's excavation beside *40*
see also under pipe trenches
Oldcroft, Glos 212, 268
opus signinum
aisles
north 21, 43, *48*, 60, *62*, 96
south *38*, 39, 54, *54*, 224
annexe floor 48
burnt slab near hearth in annexe 83, *83*, 228
herringbone-tile floor bedded on 42, *43*, 53, 54, 58, *59*
manufacture 91
mosaics bedded on *38*, 39
nave floor
(S) 21, 22, *38*, 42, *43*, 56, *56*, 222–3
(T) *38*, 42, *43*, 54, 56, *56*, 58, *59*
(W) 22, 73, *73*, 74, 75, 222–3
patches 54, 75, 224
path 96
in pits and dumps 122, 166
wear 60, *62*
opus spicatum
baths site 57
see also herringbone-tile floor
ordo (municipal administration) 195, 226–7, 237
organisation of excavation 8–12
osteoarthritis, animal 357
Ostia, Italy 114, 223
ovens, bakers'
forum portico 100
see also under portico, north; portico, west
ox skulls *see under* cattle

padlock bolt, iron 220, *253*
pads, clay 157, 159, 184
keuper marl and cobble
Building **8** (single internal) 160, 174
Building **36** 24, 118, 119, 120, *between pages 120–21*, 182, 231
padstones
Building **10**, architectural fragments 11, *11*, 25, *140*, 141–2, *142*, *143*, 144, 159, 174, 193, 232
Building **11** *144*, 145
insula 2 frontage 6, 157, *157*, 159, 173, 174, 232
Pagans Hill, Somerset 248
Paget's disease 368, 369–70
palaestra 20, *20*, 221, 223
palettes, stone 251
Pannonia; tower-facade villas 237
pathology
animal 357
human 368, 369–70
paths
to Buildings **10** and **11** *144*, 145–6, *145*, 234
cobble street, east end 154, 155
precinct 161
see also hollow ways *and under* aisle, north; aisle, south; *insula* 2 frontage; portico, north; portico, west
Patrick, St; father of 237
pause in construction 35, 42, 50, 221, 222
paving stones 16, 21, 40–41, *41*, 42, 49, 54, 106
peas 325–6, 342
pebble floors and surfaces
Building **47** 184
Building **53** 186
insula 5, eastern side 14, 24, 121–2, *122*, 231
nave 21, 22, 42, 56, 72, 73, *74*, 75, *75*, 76, 78, *78*
north aisle 22, 80, 81, *81*, 96
north portico 22
patches 21, 54, 56–7, 60, 61–2, 66
precinct 14, 24, 26, 120–21, *121*, 161, 164, 165, 219, 231
south aisle 22, 58, 64, 65, 70
west portico 22, 86
pebbles, lines of 125, 157
Penda, king of Mercia 241
pendants 251
Pengwern 242
peripheral areas 108–29
dating 13, 20, 231, 238, 240
see also insula 2 frontage; *insula* 5, eastern frontage; precinct, baths; street, east–west cobble
Perpetus (potter) 310, 311
pes Monetalis, *see* measuring system
pestle, stone 254
petit appareil 32, 34
petrology 278–9
pets 198, 358, 359
Pevensey, Kent 355
phasing 13–14, 20
see also individual features and phases
photography
Kenyon's 16
quadrupod *8*, 9, *10*, 11, 54
pick marks in floor 58
Piddington Roman villa, Northants 53
pier bases, aisle colonnade *29*, 35–6, *35*, *36*, 37, *37*
pigs 353, 363
pila, iron 251
pins 206, 249
bone *196*, 198, *200*, 201, 203, 206, 219, 249, *253*
copper alloy 206, 249
Cool type IIIB 219, *253*
Covesea type gilt ring-headed 212, *212*, 218, 249
long, proto-zoomorphic, Fowler Class E 108, *211*, 211–12, 237, 239, 240
wound-wire headed 193, 194, *194*, 249
glass 206, 249
iron, glass-headed 207, *208*, 249
jet *200*, 201, 206, 219, 249, *253*
resharpened 203
shale 206, 249
silver 194, 212, 249
pipe collars, iron 110, 111, *111*, 112, *112*, 115, 116, 120, *121*, 223
pipe trenches
insula 2 frontage 24, 120
precinct 24, 32, *33*, 69, 120–21, *121*, 223, 228, 231
along south wall 22, 38, *39*, 64, 68–70, *69*, *70*, 223, 225, 228
exit at west end of Old Work 69, 32, *33*, 223
pipes, wooden water-
east–west street 23, 111–12, 114–16, *114*, *115*, 116–117, 223
mineral replacement 111, *111*, *112*, 348
south aisle 64
see also collars, iron pipe-
pit and gully systems *see under* annexe; *insula* 2 frontage; *insula* 5, eastern frontage; precinct
pits
animal bone in 195
baby burials 82, *82*
by cistern, possibly for lifting structure 165, 166
clay and timber lined 26, 165–6, 234
in cobble street 154
irregular oval, against Old Work 91
large unexplained, nave 92, *92*
lime *7*, 19, 22, 92–5, *92–4*, 228
metal working 82, *82*, 83, *83*, 228
pottery in 17, 314, 315, *315*, 316
quarry 22, 89, 96, 103, *104*, 228, 357
rubbish 24, 96, 119, 120, 195, 231, 234, 351
shallow unexplained
insula 2: 71, 164
north aisle 62, *63*, 225
subsidence into underlying *87*, 88
unexplained, eastern frontage of *insula* 5 127, 166
see also pit and gully systems; soakaway pits; troughs; *and under individual parts of site*

plague 241
plank, possible slot from 71, *71*
planning, archaeological 6, 10, *10*
plant remains 324–45
  accidental burning of stored 335, 338, 340, 344
  burrowing and 324
  chaff 325–7, 328, 329, 330, 331
  crop processing 331, 333–5, 338, 339
    residues as fuel 336, 338, 343, 345
  distribution 330, 334, 335–8, 343–5
  fruits 330, 343
  grains *see separate entry*
  identifications 327, 329, 341–3
  inter-deposit mixing 324
  methods 324–7
  post-depositional activity 339
  sample composition 329–32
  sprouted wheat 325–7, 328, 329, 331–2, 340, 344
  totals and ratios, by context and type 328
  weeds 325–7, 328, 330, 332, 342
  see also individual crops and under individual parts of site and hearths
plaster
  archaeological casts 112
  decorated wall- 21, 30, *32*, 51, 71, 72, 74, 135, 198, 234
    external 32, *33*, 137
    quantity 192
    vaulted ceiling, *Tapetenmuster* 25, 131, 141, 142, 232
    window embrasure 30, 106, *106*, 232
  'eyes', votive 202, 212–16, *213–15*, 220, 256
  floor, pink 73
  reduced, in pit fill 166
  weathering 23
plate, perforated iron 219
platforms, building (Z) 14
  butchery waste in 363
  demolition of north wall provides hard core 131, 232
  finds in 192
  metrical analysis 171
  plaster and mortar packing 25, 131, 141, 142, 232
  pottery 315, *315*
  wet-laid 164
  see also individual buildings
ploughing 5, 19, 26, 142, 152, 168, 193
'plum pudding' layers (wet-laid) 164
plumbatae see *martio barbuli*
plumber's rods, lead 254
plunge pools 18, 69, 223, 236
polisher, glass *321*, 322
pollarding 349
polygonaceae 342–3
Pomoideae 346, 347, 348
Pompeii, Italy 114, *114*, 223
Pontignano, Certosa di, Siena, Italy 51, *51*
poplar 346, 347, 348–9
porched facades
  insula 2 frontage 157–60, *157–60*, 234, *235*
    reconstructions *174*, *179*, 234, 235, *235*
  insula 6 frontage 166
portico, baths courtyard 20, *20*
portico, forum 100
portico, *macellum* 21, 30, 49, 100, 212
portico, north 8, 13–14, 20, *20*
  (S) 20, *20*, *48*, 49, 50, 51
  (W) 22, 87–8, *87*, *88*
  (X) 22, 101–3, *100–103*, 228, 229
  (Y) 107, *107*, 229–30
  (pre-Z) 25, 26, 129, *135–7*, 135–8, 217
  (Z) 26, 150, 234
  abandonment 26, 150, 362, 363, 364
  animal bone 362, 363, 364, 365
  boardwalk 22, *100–101*, 101, 107, 229
  charcoal 89, 239, 240, 346, 347
  coins 216
  collapse of wall 234
  contexts 373–4
  cooking 25, 136, *136*, 137–8, 232
  doorways *see* wall, basilica north; wall, precinct north
  dumps 74, 88, 107, *107*, 135, *135*, 136, *137*, 150, 229–30, 232
    C527, finds 195–8, *196–8*, 201
  finds 195–8, *196–8*, 201, 202, 220, 322
  floors 17, 22, *48*, 49, 100, *101*
  grains 232, 330, 334, 335, 337, 344
  hearths, cooking 25, 26, 129, 135–8, *135–7*
  human bone 217, 351
  iron-staining 101, *101*
  oven 22, 102, *102*, 228, 229
  paths 26, *31*, 146, 150, 220
  phase linkages with other areas 13
  pits 17, *87*, 88
  plaster, fallen 74, 198, 234
  pottery 239, 240, 312, *314*, 315, *315*, 316
  querns tones 232
  radiocarbon dates 89, 239, 240
  roof removed 22, 101
  solution-holes 101, *101*
  stakeholes 101, *101*, 103
  step to street 102, *102*
  subsidence 22, *87*, 88, *88*, 101, 102, 107, *107*
  water course, dry 88, *88*
  water pipe 121
  whitewash 51
  width 49
  see also Buildings **4**, **5**, **57**, **58**; gutter, north portico; portico, north; colonnade
portico, north; colonnade 28–30, *28–30*
  abacus 261
  bedding layers 28–9, *29*, *30*
  capitals 51, 223, *260*, 261
  change of plan, west end 28, 50
  coins 168, 239, 240
  column bases 29–30, 223, 260, *260*
  columns 261
  dismantling 9, 22, 229
  Kenyon's interpretation 17
  road wash accumulated against 108
  robber trench 9, 101, 102, *102*, *103*, *107*, 107–8, 130, *130*, *135*, 149, *149*, 232
    finds 168, 239, 240, 316, 347
  sleeper wall 27, 28, *28–30*
  stylobates 28–30, *29–31*, 102, *102*, 261, *261*
  water pipes and 23
portico, west 13–14, 20, *20*
  (S) 20, *20*, 21, 30, 49
  (W) 22, 86–7, *87*
  (X) 22, 96–100, *97–100*
  (Y) 23, 106–7, 229
  (Z) 16, 25, *144*, 147–50, *147–50*
  as addition to original plan 28
  charcoal 108, *148*, 340, 347, 348
  colonnade 17, 27, 223
    robber trench 130, 230
  contexts 373
  dating evidence 239, 240, 245
  doorway *see under* wall, basilica west
  entrance to north-west corner 147
  finds 202, 220, 322
  fish bones 365
  floor level 30
  floors 21, 22, 30, 49, 106, *107*, 148, *148*
  hearths 98, 99, 138, 148, *148*, 234, 236, 348
    plant remains 334, 335, 336–7, 343–4
  ovens 22, *98–9*, 99, 107, 147, 149, *149*, 189, 229, 239, 240, 348
    plant remains 99, 334, 335, 343, 348
    remanent magnetism 103, 168, 239, 240, 245
  path 75, 86, *87*, 108, *144*, 147–8, 229
  phase linkages with other areas 13
  plant remains, carbonised grain 138, 148, *148*, 234, 335, 339
    hearths 334, 335, 336–7, 343–4
    oven D371: 334, 335, 343
  pottery 315, *315*, 316
  radiocarbon dates 239, 240
  roof, removal of 22, 96
  shops 99, 100, 229
  see also Buildings **14**, **25**, **29**, **32–4**, **37–9**, **63**, **64**
post-built and partly post-built structures *see* Buildings **3**, **4**, **5**, **6**, **8**, **11**, **12**, **15**, **18**, **19**, **20**, **22**, **23**, **24**, **29**, **35**, **36**, **39**, **48**, **59**, **60**, **63**, **64**, **67**
postholes
  in Building **24**, supporting ridge 179–80
  in Building **56** 95, 187
  in Building **61** 22, *48*, 62–3, 66
  cobble street, west end 153, 154
  gravel street 152
  nave 5–6, 6, 21, 60, *75*, 76, 225
  precinct 165
  south aisle *53*, 64, 68, 138
  upstanding packing 5, 127, 129
post-pads 99, 129, 142, 157, 176
  Building **70** 190, 164
  see also pads; clay; padstones
post-pit 118
post-Roman era 241–8
  administration 237, 246–7
  taxation 247
  temples and churches 248
  time-span between Roman and English control 248
  western Britain 249
  urban life 245–7, 340
  see also Anglo-Saxon era; post-Z, Phase; rebuilding, great; Roman culture
post-settings 83, 99, 157, 159, 164, 169, 184
  see also pads, clay
post-in-trench construction 180
post-Z, Phase 13, 14, 26, 166–8, 238, 241–5
  dating evidence 168, 238, 239, 240, 241

pottery 269–318
collapse of industry 316
complete vessels in soakaway 124
dating evidence 245, 317
see also under individual types below
disappearance by mid-6th century 242, 315, 316
distribution 218, 312–18
fabric descriptions 270–73
mended sherds 203, 218, 316
quantity 192
recording and quantification 270
residuality 193, 310, 315, 316
reworked 220, 256
see also counters; 'eyes'
trade in local wares 270, 273
Types, Roman
amphorae 248, 273, 291, *292*, 318; inscribed sherds 307, *307*; Palestinian, late 4–7th century 120, 168, 231, 237, 318; shattered, in path 24, 120
black-burnished wares 218, 270, 271, 273, 282, *283–5*, 317; copies 273, 282, *283–4*, 318; distribution *312*, *313*, 315, 316
calcite-gritted (late shell-tempered) ware 270, 271, 273, *282*, 285–6, *286*, 317–18; counter 220; dating evidence 24, 64, 68, 120, 129, 240, 317; distribution 217, *312*, *314*, 315, 316; mended sherds 218
Central Gaulish colour-coated 288, *290*
coarse wares, miscellaneous *280*, 281–2, *292*
Cologne white ware 288, *290*
colour-coated wares 220, 273, 288, *290*, 291, 317; *see also individual types*
cream-slipped wares 288, *290*
Derbyshire ware or *Eifelkeramik 280*, 282, *292*
grey wares 218, 270, 271, 273, 279, *280*, 281, *282*; distribution *312*, *313*, 316–17
Lyon ware *290*, 291
mortaria 218, 273, 291, *292*, 293, 307–8, *314*, 315, 318
'Moselkeramik', Trier *290*, 291
Much Hadham 288, *290*
Nene Valley ware 270, 271–2, 273, 286–7, *287*; dating evidence 64, 68, 120, 121, 129, 240, 317; distribution *312*, *314*, 315, 316, *317*, 318
New Forest 288, *290*
Oxfordshire wares 201, 270, 272, 273, 288, *289*; copies 273; dating evidence 64, 68, 120, 129, 240, 317; distribution *312*, *314*, 315, 316, 318; mortaria 293, 318; reused 220
percentage of finds in Category A and Layer I/II 203
?Raetian ware *290*, 291
red wares 270, 271, 273, *274–7*, 277–9, 316–17; distribution *312*, *313*; mended sherds 218; other than Severn Valley wares and copies 273, *274–7*, 277; reworked 220; 'Severn Valley' wares 118, 218, 270, 273, *274–7*, 278–9, *307*, 317, (distribution) 316, *317*, (reworked) 220, *255*; 'Severn Valley' ware copies 273, *274–7*, 277; unclassifiable vessels *292*, 309
samian ware 270, 272, 273, 309–10, 310–11, *311*; dating of Central Gaulish 309, 316; distribution *312*, *314*, 316, 318; findspots 127, 195, 201, 239, 240; mended sherds 218; by Perpetus 310, 311; potters' stamps 310; votive eye cut from 216, *216*
storage vessels 195, 273, 291, *292*
white wares 201, 273, 291, *292*, 316
Types, post-Roman
early post-Roman 242, 244, *312–14*, 315; 'Romano-Saxon' jar *292*, 309
medieval 26, 168, 193, 244
mid-18th century and later 26, 193, 244–5
Vessel forms, Roman 293–310
amphorae, see above
see also under beakers; bowls; castor boxes; cauldron; cheese press; colander; dishes; flagons; jars; jugs; lids; spindle whorls; storage jars; tankard; *tazza*; vase
Poundbury, Dorset 340
Powys, kingdom of 237, 241–2
pre-Z, Phase 13, 14, 25, 129–38, 231–2
dating evidence 168, 239
precinct, baths 8, 16, 20, *20*, 24, 26, 120–21, *121*, 223
(S) 18, *19*, 20, *20*, 31–2, *33*, 34–5, *36*, 38, 39, 223
(W) 228
(X, Y, pre-Z) 14, 24, 120–1, *121*, 231
(Z) 26, 160–65, *161–4*, 234, 236
animal bone 162, 356, 364, 365
coins 24, 266–7
contexts 371
doorway from basilica 17, 18, *19*, 20, *20*, 34–5, *36*, 38, *38*, 39, 49, 50, 52, 91, 223
eastern wall 121, *122*
fences 26, 161, 164, 165
finds 201, 202, 219, 322
gullies 120
paths 161
pebble surfaces 14, 24, 26, 120–21, *121*, 161, 164, 165, 219, 231
phase linkages with other areas 13
pit and gully system 161
postholes, unexplained 165
pottery 316
subsidence 120, 231
trough 162
water pipes 24, 32, *33*, 69, 120–21, *121*, 223, 228, 231
wet-laid surface 231
see also Buildings **6**, **23**, **24**, **68**, **70**; wall, precinct north
Prees, Shropshire 242
Primanus of Trier (potter) 310, 311
principia, plan of 221
probes, copper alloy 251
prop, angled, Building **59ii** 83, *85*, 189
Prunus sp. 346, 348
public works, native elites' attitudes to 227
putlog holes 34
pyxides 251

quarrying 26, 146, 232
of basilica floor (X) 22, 96, 103, *104*, 228, 357
quernstones 232, 254, 339

rabbits 338, 351, 362
radiocarbon determinations 238, 245
(W) 89, 239, 240
(X) 96, 103, 229, 239, 240
(Y) 108, 239, 240
(pre-Z) 168
(Z) 168, 239, 240
(post-Z) 26, 168, 238, 239, 240, 241
rebuilding, great (Phase Z) 13, 25–6, 129–68, 232–8, *233*, 246–7
'administrative village' thesis 246–7
dating evidence 147, 168, 239, 240, 241
extent 13, 234, 246
finds 168, 202, 206, 216–17, 219–20, 312–14, 315–16
frigidarium in use 25, 138, 233, 236, 340
grandeur 231, 235–6
insula 2: 25–6, 155–60, *155–60*, 219, 234–5, 236
insula 6: 26, 166, 234, 236
insula 9: 234, 246
measurements 138, 142, 170–71
overall plan 138, 153, 231, 232, 235–6, 237
preparatory work (pre-Z) 13, 14, 25, 129–38, 168, 231–2, 239
private magnate as patron 231, 235–6, 237, 246–7
residential development *see insulae* 2 and 6 *above*
Roman tradition 138, 142, 144, 216, 235, 236, 237
urban way of life 246–7
villa complex *see* Buildings **10**, **11**, **16–21**, **27**, **28**, **31**
see also information on Phase Z under individual topics and parts of site
reconstructions
basilica, Phase S 49–52, *50*
Buildings 169–70
records, excavation 7, 10–11
Red Book of Hergest 241
redeposition *see* residuality
refuse disposal 195, 351, 357, 361, 363
see also pits (rubbish)
religious objects 203, 256, 369
see also ritual activity; skulls, fragments of human; votive offerings
repairs
to artefacts 203, 218, 316
financing of structural 226
rescripts, Imperial 231
residuality of finds 12, 168, 192–3, 322, 350
see also under coins; pottery
reuse of materials *see under* churches; glass, vessel; pottery; tegulae; timber structures
masonry 22, 159, 168, 173, 188, 195, 244, 259
see also padstones (Building **10**)
rings, finger- 203, 206–7, 250
bone 206, 250
copper alloy *199*, 201, 206, 219, 250, *253*
glass 206, 250
intaglio 206, 250
iron 206–7, *208*, 250
copper-alloy inlaid 206–7, *208*, 219
jet 206, 250
lead 250
shale 206, *207*, 250, *253*
silver 206
ritual activity, possible 82, 103, 198, 357, 369

rivets
  copper alloy *199*
  iron *257*
road wash 23, *107*, 108, *109*, *114*, *115*, 116, *116*, 117
roads
  modern (B4380) 121, 166, 234, 246
  Roman 1, 2, *3*, *4*, 19;
    see also street, east–west cobble; street, gravel; Watling Street
robbing
  (W, possible) 23, 114–16, *114*, *115*
  (X) 102, *102*, *103*, 107, *107*, 130
  (Y) 107–8, *107*
  (pre-Z) 25, 30, *32*, *33*, 35, 111–12, 129–31, *130*, *131*, 134, *135*, 141, 232
  (Z) 148, 150
  Anglo-Saxon 166, 168, 195, 244, 259
  contexts of trenches 374
  impact on archaeology 7, *7*, 9, 13, 27, 141
  mosaics 80, 95, 96, 145
  19th century 15–16, 26, 32, *33*, 35, 41, 80, 259
  see also under individual parts of site
rodents 351, 361–2
Roman culture, persistence of 203, 212, 248
  artefacts 203, 211, 216, 218, 245, 323, 316
  diet 352, 363
  great rebuilding 138, 142, 144, 216, 235, 236, 237
  literacy 207
Rome; Market of Trajan 47
roof, basilica 52
  gradient problems 51, *51*
  maintenance 52, 224
  removal 22, 23, 96, 104, 105, 226, 228, 229, 230
  see also tiles, micaceous flagstone
Rowley's House Museum, Shrewsbury 15, *15*
rubbish *see* pits, rubbish; refuse
rubble
  finds in or on surfaces 194
  raft under basilica 35, *38*, 39, *40*, 42, 43, *43*, 49
  spreads in nave 23, 105, *105*, 219, 220, 229
  west portico floor 106, *107*, 148, *148*
Rudston Villa, Humberside 194
rye 138, 325–7, 330, 339, 342

S, Phase 13, 20–21, 23, 27–52
  contexts 371–4
  dating evidence 49, 239, 240, 245
sandstone 259
  blocks
    basilica floor 22, 71, *71*, 75, 76, 78, *78*, 86, *87*
    prop support 83, *85*, 189
  crushed, make-up layer 71, 73, 76, 80, 89, 220
  mortars 254
Saxon era *see* Anglo-Saxon era
scabbards and attachments 251
scaffolding 60, 66
Scarborough, N Yorks 212
seal-boxes, copper alloy with enamel *197*, 198, 252
searchlight battery, World War II 96
sections of site 9, A2–A5
service areas *see* annexe; precinct, baths
Severn, River 360–61, 364, 366, 367
Sevington, Wilts 194
sewing equipment 202, 254
  see also needles; shafts
shafts, bone pin or needle 219, 220
Shakenoak Farm, near Wilcote, Oxon 320
shale objects *see under* beads; bracelets; earrings; lathe core; pins; rings, finger-; spindle-whorls; vessels
Shawbury, Shropshire 242
sheep 355–6, 363
sheets, metal
  copper alloy 198, 219
  lead 110
shell 166
  pendants 251
Shelve, Shropshire 118
shops 20, *20*, 30, 99, 100, 223
  see also *macellum*
Shrewsbury
  Archaeological Institute 16
  Mercian stronghold 242, *243*, 244, *244*
  Rowley's House Museum 15, *15*
Shropshire and North Wales Natural History and Antiquarian Society 15, 16
shuttering marks 35
Siena, Italy; Certosa di Pontignano 51, *51*
sieving 11, 192
Silchester, Hants 117, 212, 340, 357
sill-beams 119, 148
silver objects *see under* pins; rings, finger-; spoons; studs
site 1–2, *1*, *2*
Sites
  A 2, 5, *5*, 6, 8, 13, 14;
    see also insula 5, eastern frontage
  B 6, 8, 13–14
    see also precinct, baths
  C 6, 8, 13, 14
    see also insula 2 frontage; portico, north; street, east–west
  D 6, 8–9, 13–14
    see also basilica *and constituent parts*
  E 6, 8, 9, 13–14
    see also insula 2 frontage; street, east–west; street, gravel
Skara Brae, Orkney 358
skinning of horses 356
skulls, fragments of human 216, *216*, 217, 219, 220, 368–70
  dental evidence 368
  pathology 368, 369–70
  post-mortem treatment 202, *216*, 368–9
  radiocarbon determinations 89, 108, 168, 239, 240
skulls, ox *see under* cattle
slag 24, 118
slates *see* tiles
sleeve, copper alloy 220, *255*
slope of site 51, *51*, 52
slots, beam and other linear
  aisles of basilica 89, 95
  east–west street 116, 152, 153, 154
  insula 2 frontage 155, 157, 158, 159
  insula 5, eastern frontage 125
  precinct 162, *162*, *163*, *164*
  south aisle 71, *71*, 138
  west portico *130*, 147, 148, *148*, 149, 150
snail burrowing 324
soakaway pits
  insula 2 frontage 118, *119*, 231, 346, 347
  insula 5, eastern frontage 122, 124–5, *124*, *125*
  precinct 161
solution-holes *75*, 76, 101, *101*
South Shields, Tyne and Wear 194, 330, 331, 332
spearheads, iron 251
spike-loops 256
spindle whorls
  bone 254
  ceramic 254, 308
  shale 206, *207*, 254
spoon-probes, copper alloy 251
spoons
  bone 220, 254, *257*
  copper alloy 254, *257*
  silver 219, 254
stakeholes and stakehole structures
  east–west street 152, 155
  fountain 112
  nave 5–6, *6*, *75*, 76, 95
  north aisle 80, 96
  oven superstructure 99
  see also Buildings **1**, **3**, **7**, **53–7**, **72**, **74**; fences
staples, copper alloy 256
steps
  basilica
    at doorways 21, 30, 40, 41, *42*, 42, 52, 53
    across nave 21, 55, *56*, 224
  east–west street 102, *102*, 151, *151*, 154, 180
  insula 2 frontage *156*, 157, *157*, 159–60, 176, 179, 184
stirring-rods, glass 251
stone objects 252, 258
  see also architectural stone fragments
stone types 259
storage jars, ceramic 303
store-houses *see* Buildings **6**, **23**, **23**, **70**
strap-ends, copper alloy 252
  late 4th century 203, *205*
  9th-century gilt-bronze, Trewhiddle style 26, 168, *194*, 244, 259
stratigraphic linkages 13, 138, 231
street, east–west cobble 8, 9, 23, 108–17, 150–55
  animal bone 351, 358–9, 362
  charcoal 347, 348
  coins 266
  construction 110, 134
  contexts 371–2
  east of gravel street (Z) 26, 134, 154–5, *154*, 232, 234, 364
    central trench 116–17, *116*, *117*
    contexts 371–2
  finds 219
  fountain or trough 112, *113*, 114, 223
  plant remains 334
  pottery 312, *314*, 316
  road wash 23, *107*, 108, *109*, *114*, *115*, 116, *116*, 117
  robbing on making of gravel street (pre-Z) 25, 129, 131, *131*, 134, 232
  steps to 102, *102*, 154, 180
  trench, central 116–17, *116*, *117*
  west of gravel street (Z) 153–4, *153*, *154*, 364
    contexts 371–2
    rectangular slot 116, 154
    see also Building **26**
  see also drains; pipes, wooden water-

street, gravel 9, 14, 25, *131–4*, 134–5, 150–53, *151*, *153*
access to 151–2, *151*, 232, 235, 236
see also Building **26**
animal bone 198, 356, 359, 364
boardwalk 25, *151*, 152, 234
booths or stalls 25, 78, 152, 153, 223, 234, 237, 247
see also Buildings **12**, **40–44**
in Building **10** complex 232, 236
charcoal 347, 348
cobbles deposited by ploughing 193
condition of surface 150–51, *151*, 153
construction 23, 108, 110, 129, 134, 232, 236
tip lines *133*, 134, *134*, 232
contexts 372
excavation method *131*, 134
finds 202, 315
longitudinal grooves *151*, 152–3
phasing 13, 108, 129, 134
plant remains 327, 328, 330
street, north–south *see insula* 5; *insula* 6
strigil, iron 251
strip-buildings 247
strips, metal 220
structure of report 12
stubble burning 324
stucco 21, 50
studs
bone 251
copper alloy *199*, 219, 220, 251, 252, *253*, 256
iron 256
silver 252
styli
copper alloy 207, 252
iron 207, *209*, 252
copper alloy inlaid 207, *208*
stylobates
bedding layer 27
continuous step between 50
final dressing *in situ* 29, *31*, 51
fragments 30
north aisle colonnade *29*, 37, *37*
north portico colonnade 28–30, *29–31*, 102, *102*, 261, *261*
reuse *in situ*, Building **58** 22, 188
robbing 130, 131, 195
see also under individual colonnades
south aisle colonnade 6, 36–7, *37*, 55
subsidence
basilica 35, *45*, 60, 61, 66, 224
dump deposits 192
gutter 109
precinct 120, 231
north portico 22, *87*, 88, *88*, 101, 102, 107, *107*
Sutton Hoo, Suffolk 212

T, Phase 13, 21, 52–7
contexts 371–3
dating evidence 57, 239, 240, 266
T-clamps, iron 198, 256
tack, copper alloy 219
tankard, ceramic *274*, 309
tanks
settling or quenching 24, 118, 120
water 112, *113*, 114, *114*
tanning 125, 231, 354
Tatton Park, Cheshire 129
taxation 222, 224, 226–7, 230, 236, 247
tazza, ceramic *290*, 308
teeth
animal 350–51, 357
human 198, 217, 368
tegulae, reused as bonding tiles *136*, 137
Telford, Thomas 121
temples, Wroxeter 216, 244, 369
tenant farmer (1859) 15–16, 26, 35, 41, 259
tepidarium *226*, *227*, 236
Tern, River 242, *243*
tesserae, types of 39, 43, 256
thatch, gorse 169, 182
thresholds
frigidarium doorway 40–41
mortar setting, east wall 35
stone, west wall 30, *31*
timber, annexe 82, *82*
Tiddington, Warks 339
tiles, ceramic
arch, transverse, in Old Work 18, *19*
bonding courses in walls 32, 34, *136*, 137
in floors 21, 49, 53, 54, 224
see also herringbone-tile floors
Lydion 54
pathway 24
pedalis 54
'playing card' 53
terracotta 49, 52, 104
wall facing 28
wall repairs 28
tiles, micaceous flagstone 260
basilica floor (Y) 23, 103–4, 105–6, *105*, *106*, 108, 228, 229
Building **1** hard-standing 127, *128*, 129
incised disc *200*
painted plaster attached to 72
palettes 251
path in annexe 106
pipe collar covers 112
timber structures
building techniques, range of 169
drain *109*, 228
floors 159, 160, 165, 167, 172, 173, 179, 182, 183, 184, 185
gullies, timber-lined 122, 161
mineralised 111, *111*, *112*, 348
radiocarbon determination 168
reuse of timbers 166, 236, 241
unreusable timbers burnt 23, 104, 228, 229, 348
threshold 82, *82*
water-pipes 114–16, *114*, 223
see also boardwalks; pipes; post-built structures; stakeholes and stakehole structures; steps; timber-framed buildings
timber-framed buildings 169
see also Buildings **6**, **8–11**, **13**, **14**, **16–22**, **24**, **26–8**, **32–4**, **36–8**, **45–52**, **54**, **56**, **58**, **63**, **64**, **68**
tinder, crop processing residue as 336, 345
tinning 203, *205*, 207, 219, 220, 251
Tintagel, Cornwall 248
tip lines, gravel street *133*, 134, *134*, 232
toilet implements 195, 206, 219, 251
tools 195, 201, 202, 203, 252
iron 219, 252
other materials 252
topsoil 193, 245
removal *8*, 9, 9
torus moulding 29–30
Towcester, Northants 322, 323, 358
towns, late and post-Roman 245–7, 340–1, 362
traction, cattle used for 357, 363
trade
barter 247
fish, from coast 366–7
long-distance 237, 248, 323
pottery, local 273
Trajan, Emperor 227
Traprain Law, E Lothian, Scotland 211, 212, 321
Tribal Hidage 241
Trier, Germany
fresco of tower-facade villa 144, 174, 237
samian ware production 310, 311
troughs, water-
east–west street 112, *113*, 114, 223
precinct 162
trowel, iron 83, *84*, 228
trowelling xiv, *8*, 9, 9, 101
turf walls 165
tweezers
copper alloy *199*, 201, 251
iron 251
two-storey buildings 170
see also Buildings **7**, **10**, **15**, **22**, **35**, **36**, **47**, **50**, **51**
typology of finds 193, 201
tyranni (Christian sub-kings) 237

U, Phase 13, 19, 21, 58–64
contexts 371–3
dating evidence 64, 239, 240
Uley, Glos 248
unctorium (anointing room) 223
Upton Magna
church of St Lucy 195, 216, 259
Frog Hall 242, *244*
urban life, post-Roman continuity 245–7

V, Phase 13, 14, 21–2, 23, 64–8, 118
contexts 371–3
dating evidence 68, 239, 240, 245
Valens, Emperor 227
Valentinian, Emperor 227
variscite 250
vase, ceramic triple *307*, 309
Vegetius 203
verandahs
Building **10** *143*, 143, 144, 174, *175*, 232
insula 2 frontage 119, *120*, 235, *235*
Verulamium 228, 247, 340
vessels
metal or shale 254
see also glass, vessel; pottery
villas 144, 235, 236, 237
see also Building **10**
Viroconium Cornoviorum (Wroxeter); location and brief history 1–2, *1*, *2*
Vitruvius 49, 53, 169
voles 362
Vortigern, king of Powys 237
Votadini 211
votive objects *see* eyes

W, Phase 13, 14, 19, 22, 23, 24, 68–89, 118, 225–8
contexts 371–4
dating evidence 89, 226, 239, 240, 241

Wall, Battle of 241
wall, basilica east 35
  doorways 15, 16, 17, 20, *20*, 35, 52, 55, *55*, 130
  realignment 17, 34, 35, *38*, 49, 50, 223
  robbing 15, 35, 130, 146
wall, basilica north 30–32, *32*
  doorways 16, 20, *20*, 30, *32*, 80, *81*, 96, 107, 146
    wear to floors around 55, *56*, 57, 60, 61–2, 62, 66, 74, 79, 81, 106, *106*
  plaster 30
  robbing 13, 25, 30, *32*, 129–30, 131, 232, 347, 348
    radiocarbon dates from trench 168, 239, 240
  west corner 28, *28*, 30
  width 49
  window embrasure fragment 30, 106, *106*, 143, 232
wall, basilica south 30, *33*, *34*
  dog-leg *see under* Old Work
  doorways 15, 16, 20, *20*
    central 65, 70, 223, 229, 232, 235–6
    to precinct 17, 18, *19*, 20, *20*, 34–5, *36*, 38, *38*, 39, 49, 50, 52, 91, 223
    western 53, 104, *105*, 230
    see also *frigidarium* (doorway from south aisle)
  foundation trench recut 39, *40*, 49, 50
  height 130
  lean-to buildings 21–2, 25, 130, 138–9, 171, 233, 236
    see also Buildings **16–21**, **27**, **28**, **52–4**
  robbing 15, 33, 41, 53
  stub wall to annexe 38, *39*, 69
  western end *17*, 33
  see also Old Work; pipe trenches (south aisle)
wall, basilica west 30
  doorway 16, 20, *20*, 30, *31*, 105, *105*, 234, 316
    partial blocking 16, 106, *107*, 138, 147–8, 149, 150, 229, 233–4
    wear 56, 60, 62, 72, 86
  lean-to buildings 130, 147
    see also Buildings **29**, **32**, **34**, **37**
  northern end 28, *28*, 30
  robbing 30, 148
  southern end *17*, 33
  in Phase Z 130, *144*, 147–8, 233–4
wall, precinct north 223
  collapsed fragment 32, *33*, *136*, 137
  entrances 107, 150, 165, 188
  lean-to buildings *see* Buildings **6**, **23**, **57**, **58**, **68**
  rebuilt portion 32, *33*
  robbing 32, *33*, 150
wall-hooks, iron 256
walls
  clay 160, 169, 173, 176–7, 184, 185
    curving *128*, 129, 156, *156* (*see also* curved corners)
    insula 2 terrace 23, 120, 155, 156, *156*, 158, 159
  colonnade sleeper 27, 28–9, *28*, *29*, *30*, 35, 37
  dry-stone *144*, 145
  dwarf 25, 118, *144*, 145, *175*, 176, 180, 182, 184, 185, 189, 233
  height of basilica 50, 106, *106*
  petit appareil 32, 34
  tile bonding courses 32, 34, *136*, 137
  tile facings 28
Warsaw, Poland 108
waste ground 26, 362
water course, dry 88, *88*
water pipes *see* pipes, wooden water-
Watling Street 1, 2
  colonnades 20, *20*, 27, 49, 223
wattle
  cistern lining 26, 165–6, 234
  iron staining associated 96
  see also Buildings **1**, **3**, **12**, **44**, **53–7**, **65**, **66**, **74**
weapons 195, 201, 202, 203, 251
wear to floors 159, 225–6, 314
  and dating 89, 226, *226*, 238, 240, 245
  herringbone-tile floor 55, *55*, 56, 59, *59*, 62
  high degree (W) 225–6, *226*
  see also under doorways; herringbone tile; *and individual parts of site*
weasel 362
weathering between excavation seasons 9, 141
weaving equipment 254
Webster, Dr Graham 19, 30
  Sites
    19 33, 53
    22 69
    68 *5*, 19
    71 *6*, 19, 237
wedge, iron 219
weeds 325–7, 328, 330, 332, 342
weights and measures 252
  see also measuring system
Welsh-Mercian alliance 241–2
West Meare, Somerset 332
western Britain, Wroxeter in context of 249
wet-laid layers 121, 164, 231
wheat 138, 341–2
  free-threshing bread- 325–7, 330, 333, 334, 337, 339, 342
  sprouted 325–7, 328, 329, 331–2, 340, 344
  tail grains 325–7, 328, 329, 332
wickerwork structures 76, *76*, 78, *78*
Wilderspool, Cheshire 125, 165
wildfowling 360, 361, 364
willow 346, 347, 348–9
Winchester, Hants 207, 320
wind-blown deposits 71, 135
window-lead 256
windows
  annexe 38, 52, 85
  basilica 51
    embrasure fragment 30, 106, *106*, 232
Wintanaed, Battle of River 241
Wirral 237
woodlands, local 348–9
Worcester Cathedral 52
World War, Second 96, 108
worm burrowing 122, 324
Wrekin 1, *2*, 242
Wreocensaete 241
Wright, Thomas 15–16, 26, 30, 148, 264
  and mosaics 40, 43, 44, *44*, *47*
  Old Work excavations 39, *40*, 41
Wrocwardine, Shropshire 242, *243*
Wroxeter, Shropshire; other sites
  Finger-Post Cottage; capital 263, *263*
  Minster church 195, 238, 242, *243*
  mosaic near church 237
  Post Office (now Wroxeter Stores) 234, 246
  St Andrew's Church 168, 195, 242, 244, 259
  Saxon era 242, *243*, *244*
Wulfhere, king of Mercia 241

X, Phase 13, 14, 22, 24, 89–103, 118–19, 228–9
  contexts 371–4
  dating evidence 103, 168, 229, 239, 240, 245

Y, Phase 13, 14, 23, 24–5, 103–8, 119–20, 229–30
  contexts 371–4
  dating evidence 121, 168, 239, 240, 241, 245
York 273, 320, 340, 353, 356, 357, 363

Z, Phase 13, 25–6, 138–66, 232–8
  contexts 371–4
  dating evidence 147, 168, 239, 240, 241
  stratigraphic linkages 13, 138
  see also pre-Z, Phase; rebuilding, great

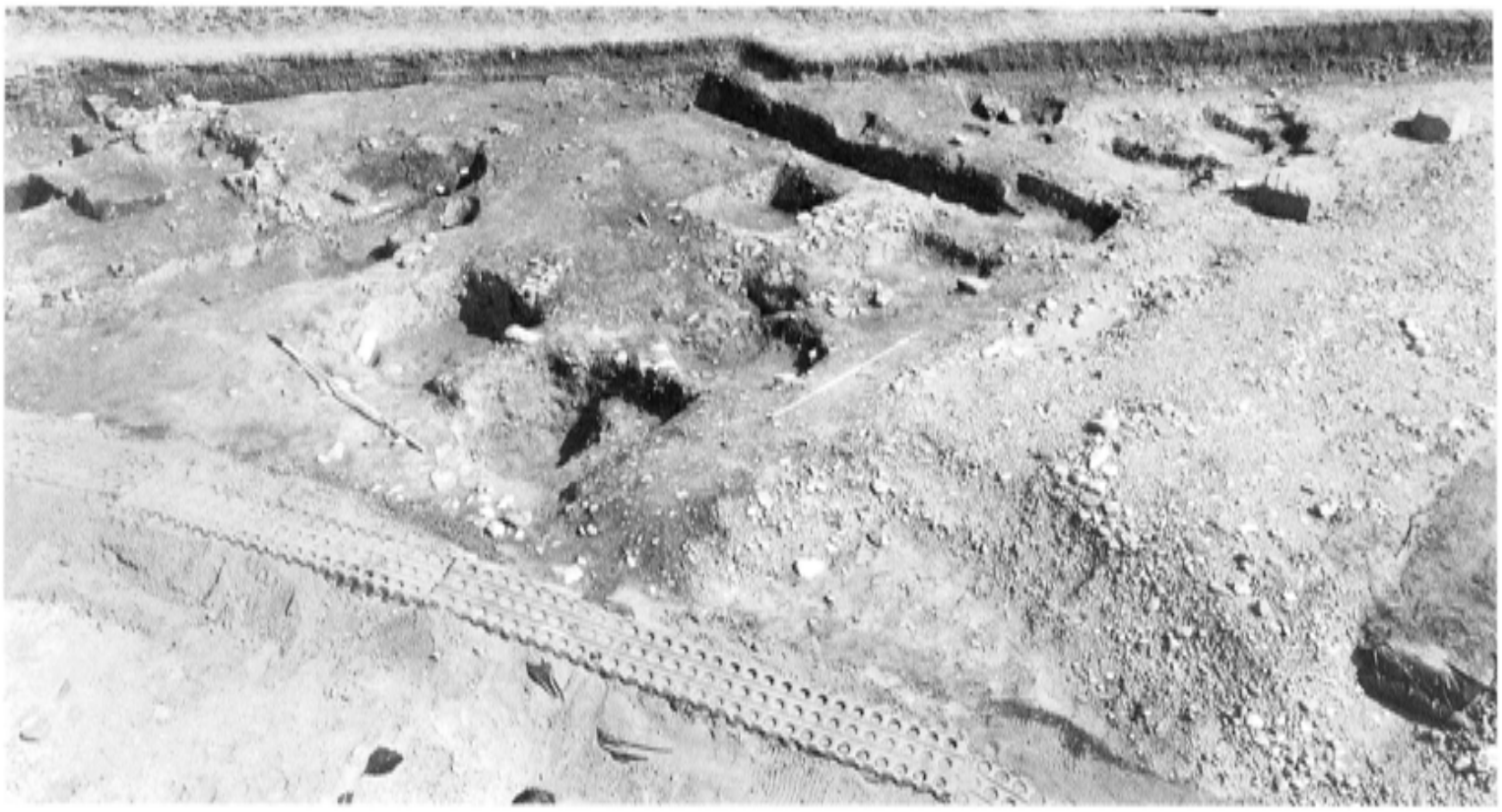
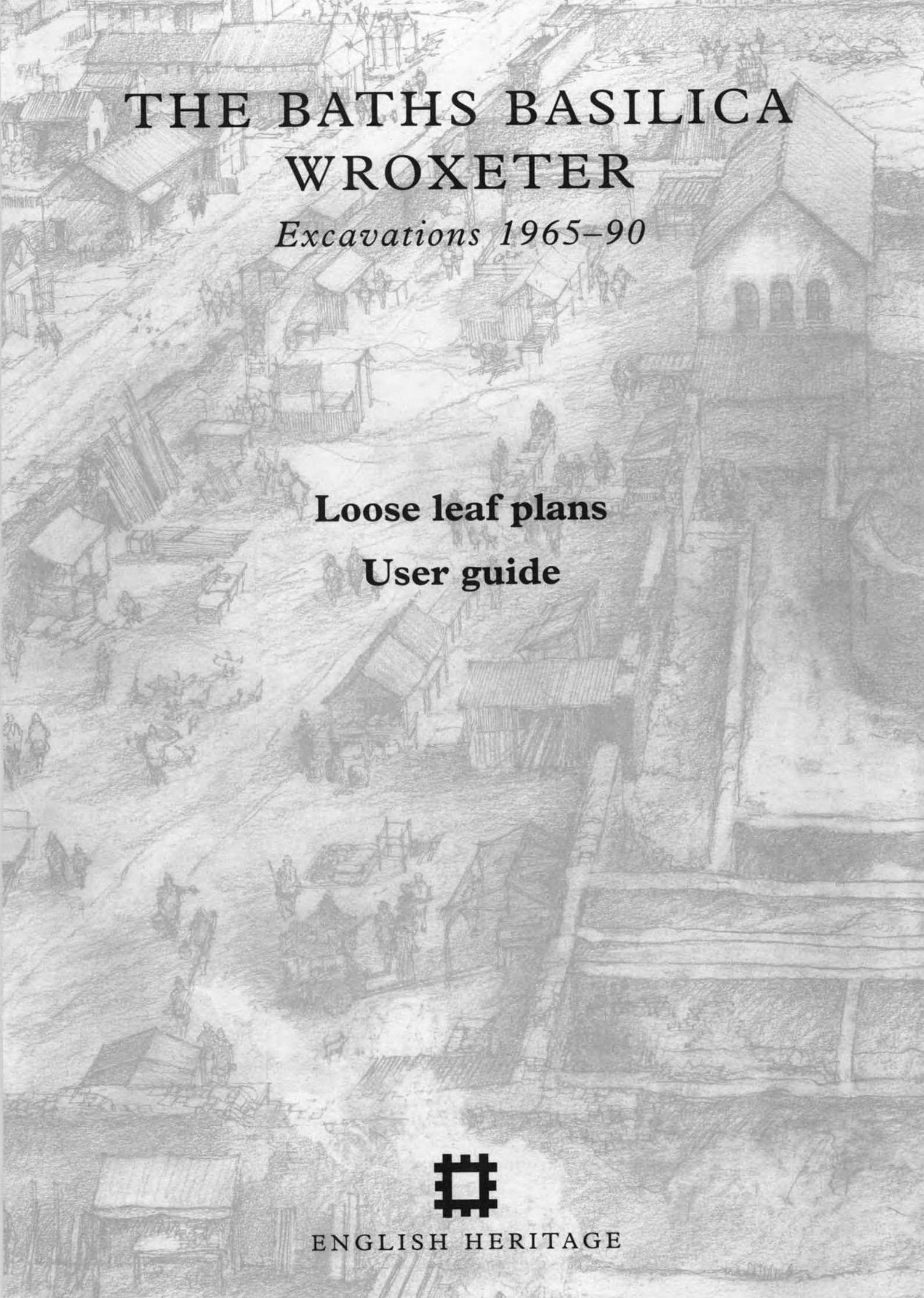


Fig 178 above: Building 36 showing the massive square cut post-pads along the street frontage and the less well preserved west wall. The stones to the right belong to Building 22;
below: Sections of the clay and cobble post-pads and postholes of Building 36: a: C193; b: C304; c: C305; d: C408; e: C400; f: C236-2 (not fully recorded); g: a) C418; b) C419; c) C328; h: C399; i: C398; j: C392



THE BATHS BASILICA WROXETER

Excavations 1965–90

Loose leaf plans

User guide

ENGLISH HERITAGE

Introduction

This series of plans is a companion to the Wroxeter Baths Basilica volume, where these illustrations are referred to with the prefix A. They are intended to support, supplement, and amplify, the site evidence and interpretation set out there, as well as providing a source of material for comparison with other sites. Plans A1–A12 provide information to supplement the interpretation set out in the text, section drawings, and a large scale generalised phase plan for each phase. Plans A13 to A177 provide more detailed record drawings which can be joined to form a series of mosaics of each phase, as well as providing a convenient means of comparing evidence for the development of individual structures. Where the individual plan sheets are a component of more than one phase mosaic, their numbers are repeated within each phase list to help the user make up the phase composites. The text figures showing how the plans are arranged to produce the phase mosaics are also repeated here. The key following the lists is common to all plans.

General plans: baths baslican area

A1 Robber trenches and archaeological disturbances

Composite sections

A2 North–south along 61m east
A3 North–south along 100m east
A4 North–south along 120m east
A5 West–east along 10m north

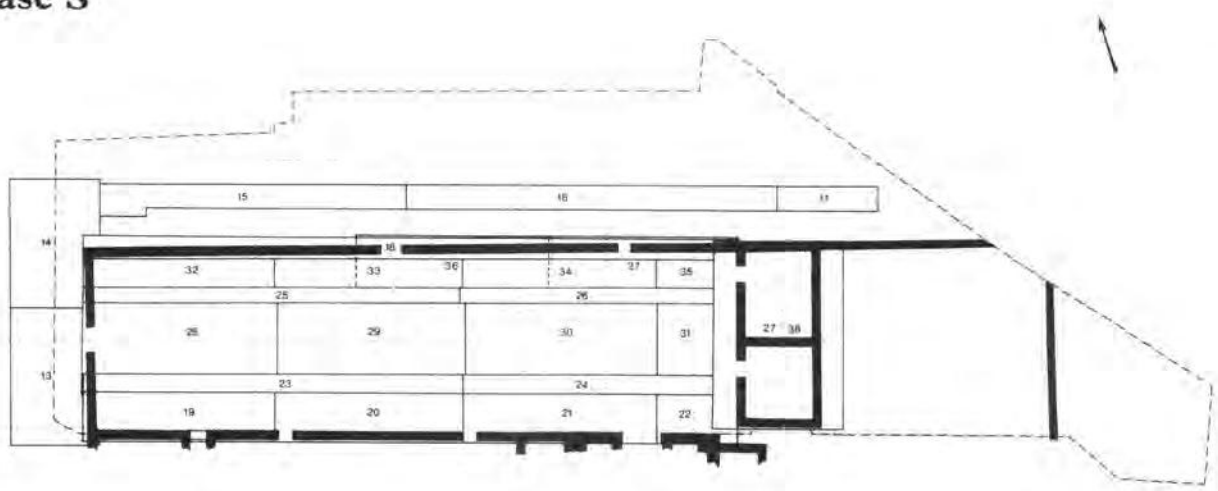
Interpretative phase plans

A6 The original building, Phase S
A7 Repairs and modifications
A8 The last reflooring, Phase W
A9 The building yard, Phase X
A10 Partial dismantling of the basilica, Phase Y
A11 The great rebuilding, Phase Z
A12 The last building and a burial, Phase post-Z

Phase S

A13 West portico, south
A14 West portico, north
A15 North portico colonnade, west end
A16 North portico colonnade, centre and east end
A17 North portico colonnade, east end
A18 North wall, robber trench, west end, centre and east end, evidence
A19 South aisle, west end
A20 South aisle, centre
A21 South aisle, east
A22 South aisle, extreme east end
A23 South aisle, annexe, evidence
A24 South aisle colonnade, robber trench, west end and centre
A25 South aisle colonnade, robber trench, east end
A26 North aisle colonnade, west end and centre
A27 North aisle colonnade, centre to extreme east end
A28 Nave, west end, evidence
A29 Nave, middle, evidence
A30 Nave, east end, evidence
A31 Nave, extreme east end, evidence
A32 North aisle, west end
A33 North aisle, middle
A34 North aisle, east end
A35 North aisle, extreme east end
A36 North aisle, middle to east end
A37 North aisle, east to extreme east end
A38 Annexe, interpretation

Phase S



Phase T

A19 South aisle, west end
A20 South aisle, centre
A21 South aisle, east
A27 North aisle colonnade, centre to extreme east end
A28 Nave, west end, evidence
A29 Nave, middle, evidence
A30 Nave, east end, evidence
A31 Nave, extreme east end, evidence
A32 North aisle, west end
A33 North aisle, middle
A34 North aisle, east end
A35 North aisle, extreme east end
A39 South aisle, interpretation
A40 Annexe, interpretation

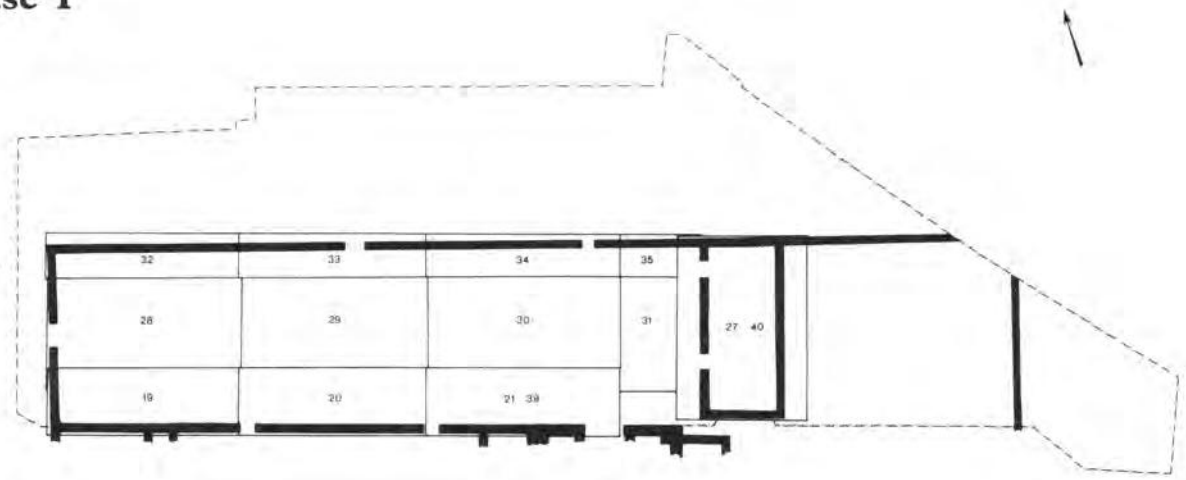
Phase U

A19 South aisle, west end
A20 South aisle, centre
A21 South aisle, east
A27 North aisle colonnade, centre to extreme east end
A28 Nave, west end, evidence
A29 Nave, middle, evidence
A30 Nave, east end, evidence
A31 Nave, extreme east end, evidence
A41 North aisle, west end, evidence
A42 North aisle, middle, evidence
A43 North aisle, east end, evidence
A44 North aisle, extreme east end, evidence
A45 Annexe, interpretation

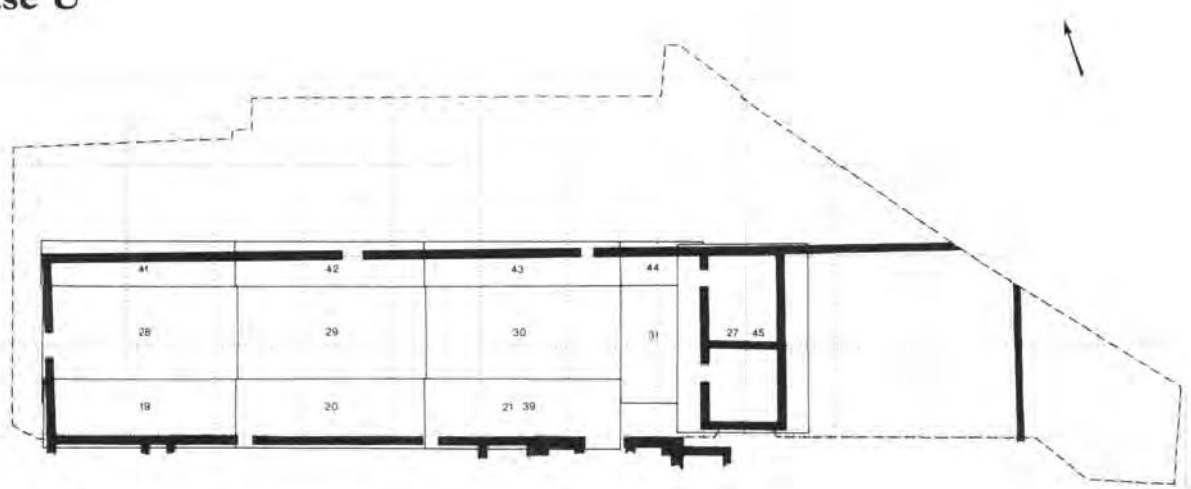
Phase V

A28 Nave, west end, evidence
A29 Nave, middle, evidence
A30 Nave, east end, evidence
A31 Nave, extreme east end, evidence
A41 North aisle, west end, evidence
A42 North aisle, middle, evidence
A43 North aisle, east end, evidence
A44 North aisle, extreme east end, evidence
A46 South aisle, west end
A47 South aisle, middle
A48 South aisle, east end
A49 Annexe
A100 Insula 2, east end

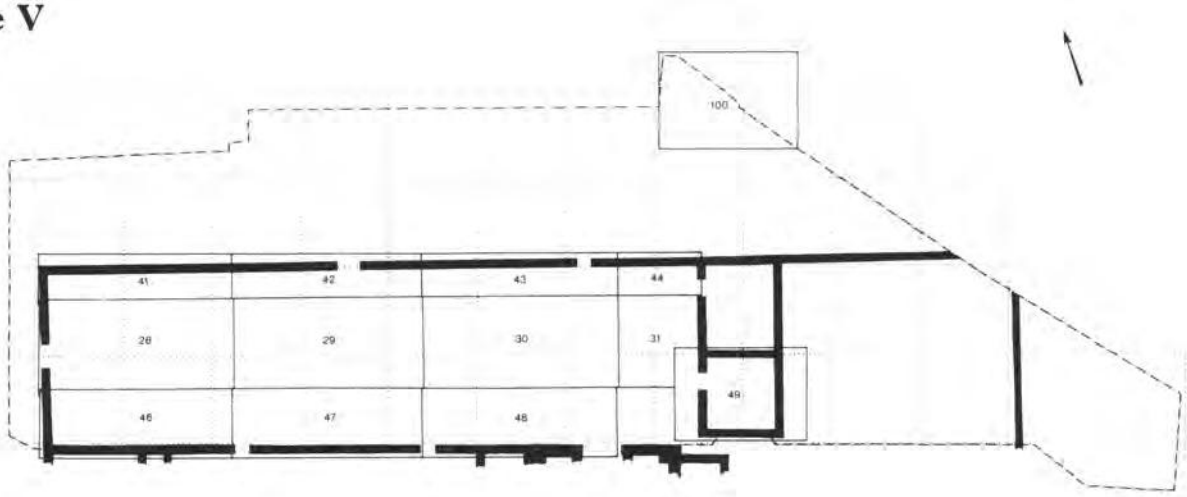
Phase T



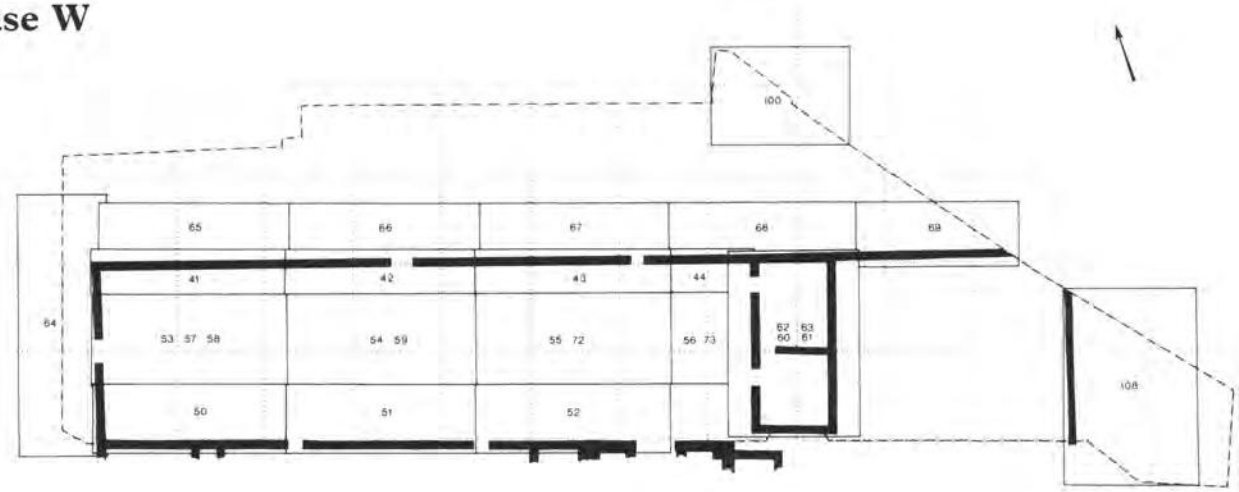
Phase U



Phase V



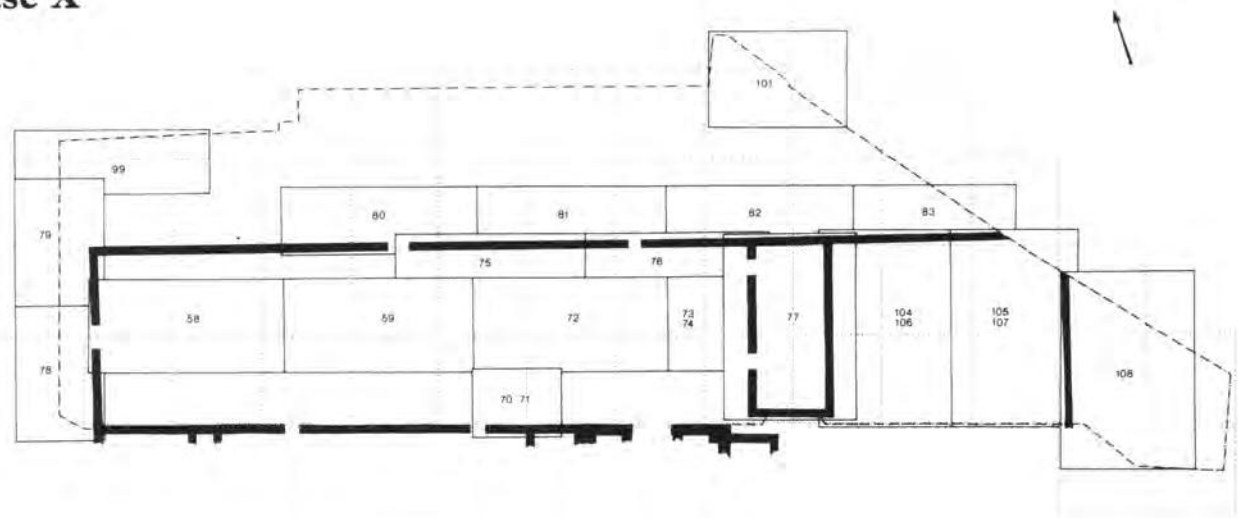
Phase W



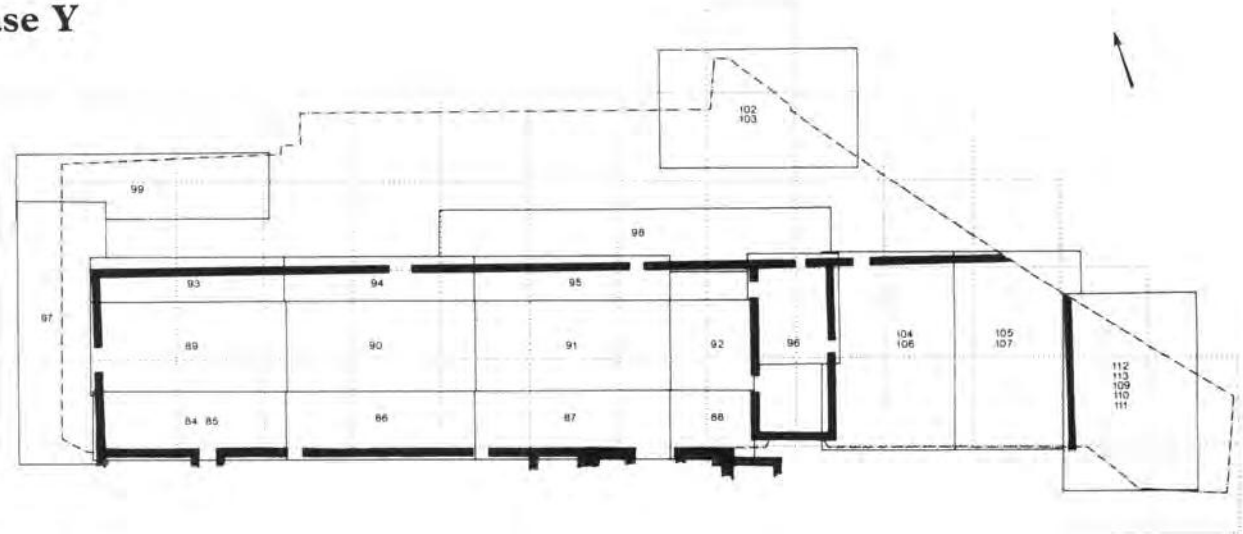
Phase W

A41 North aisle, west end, evidence
A42 North aisle, middle, evidence
A43 North aisle, east end, evidence
A44 North aisle, extreme east end, evidence
A50 South aisle, west end, evidence, Phases W1 and W2–3
A51 South aisle, middle, evidence, Phases W1 and W2–3
A52 South aisle, east end, evidence, Phases W1 and W2–3
A53 Nave, west end, evidence, Phase W1
A54 Nave, middle, evidence, Phase W1
A55 Nave, east end, evidence, Phase W1
A56 Nave, extreme east end, evidence, Phase W1
A57 Nave, west end, evidence, Phase W2
A58 Nave, west end, evidence
A59 Nave, middle, evidence
A60 Annexe, evidence, Phase W1
A61 Annexe, interpretation, Phase W1
A62 Annexe, evidence, Phase W2
A63 Annexe, interpretation, Phase W2
A64 West portico, evidence, Phases W1 and W2
A65 North portico, west end, evidence, Phases W1 and W2
A66 North portico, west end to middle, evidence, Phases W1 and W2
A67 North portico, middle, evidence, Phases W1 and W2
A68 North portico, east end, evidence, Phases W1 and W2
A69 North portico, extreme east end, evidence, Phases W1 and W2
A72 Nave, east end, evidence, Phase W3
A73 Nave, extreme east end, evidence, Phase W3
A100 Insula 2, east end
A108 North-south street and frontages

Phase X



Phase Y



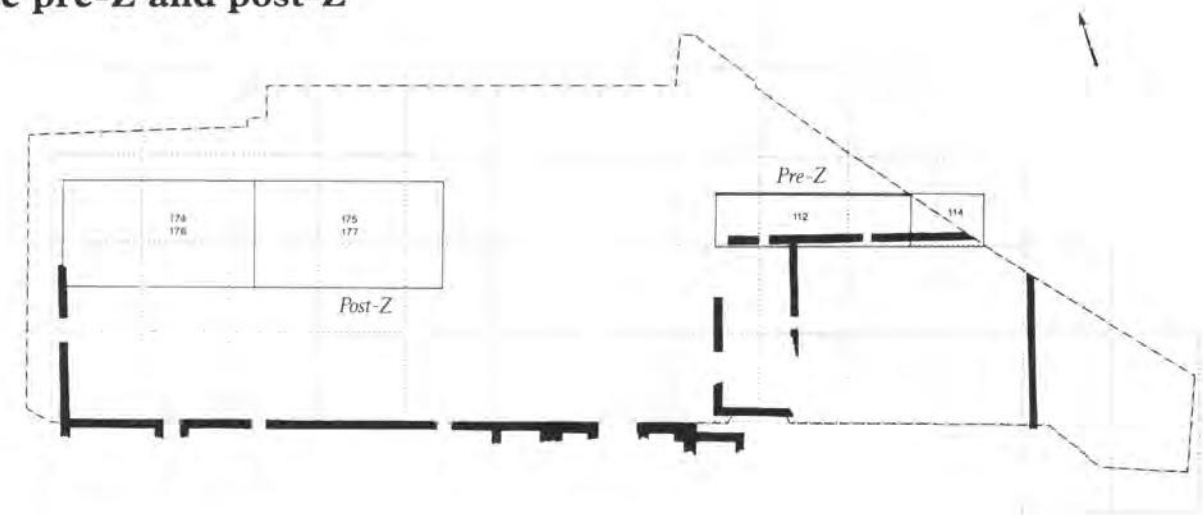
Phase X

A58 Nave, west end, evidence
A59 Nave, middle, evidence
A70 South aisle, east end
A71 South aisle, extreme east end
A72 Nave, east end, evidence
A73 Nave, extreme east end, evidence
A74 Nave, extreme east end, interpretation
A75 North aisle, middle to east end
A76 North aisle, east end
A77 Annexe, interpretation
A78 West portico, south
A79 West portico, north
A80 North portico, west end to middle
A81 North portico, middle to east end
A82 North portico, east end
A83 North portico, extreme east end
A99 East to west street, west end, evidence
A101 *Insula* 2, east end
A104 Precinct, west, evidence
A105 Precinct, east, evidence
A106 Precinct, west, interpretation
A107 Precinct, east, interpretation
A108 North-south street and frontages, evidence

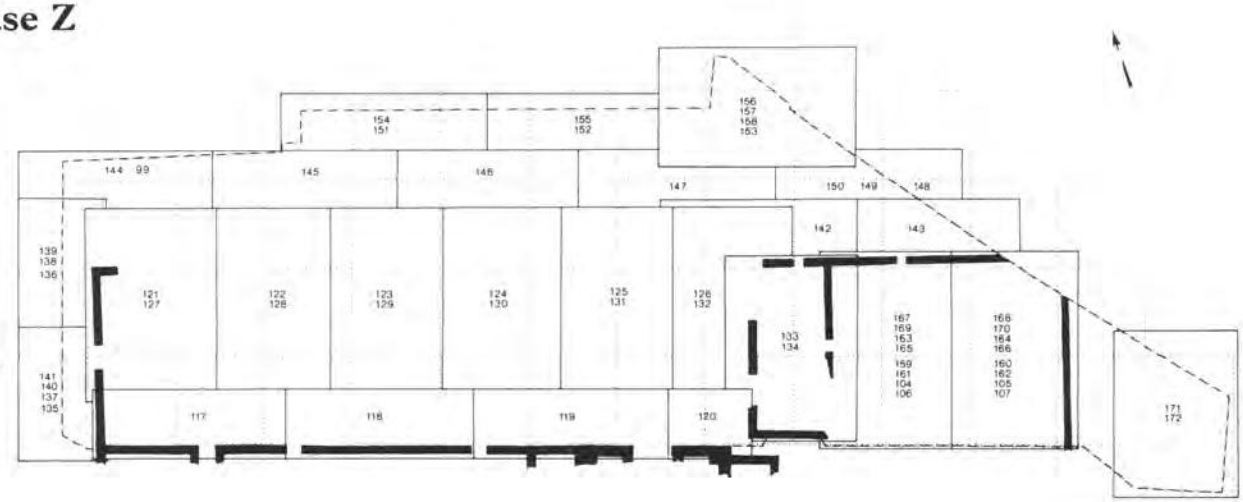
Phase Y

A84 South aisle, west end, Phase Y1
A85 South aisle, west end, Phase Y2
A86 South aisle, middle
A87 South aisle, east end
A88 South aisle, extreme east end
A89 Nave, west end, evidence
A90 Nave, middle, evidence
A91 Nave, east end, evidence

Phase pre-Z and post-Z



Phase Z



A92 Nave, extreme east end, evidence
A93 North aisle, west end
A94 North aisle, middle
A95 North aisle, east end
A96 Annexe, evidence
A97 West portico, evidence
A98 North portico, evidence
A99 East–west street, west end, evidence
A102 *Insula* 2, east end, evidence
A103 *Insula* 2, east end, interpretation
A104 Precinct, west, evidence
A105 Precinct, east, evidence
A106 Precinct, west, interpretation
A107 Precinct, east, interpretation
A109 North–south street and frontages, evidence, Phase Y1
A110 North–south street and frontages, interpretation, Phase Y1
A111 North-south street and frontages, pit and gully systems 1 and 2, interpretation, Phase Y1
A112 North-south street and frontages, evidence, Phase Y2
A113 North-south street and frontages, interpretation, Phase Y2

Phase pre-Z

A112 North-south street and frontages
A114 North portico, evidence, Phase pre-Z1
A115 North portico, evidence, Phases pre-Z2 and 3
A116 North portico, evidence, Phase pre-Z4

Phase Z

A99 East to west street, west end, evidence, Phase Z2
A102 *Insula* 2, east end, evidence, Phase Z1
A104 Precinct, west, evidence, Phase Z1
A105 Precinct, east, evidence, Phase Z1
A106 Precinct, west, interpretation, Phase Z1

A107 Precinct, east, interpretation, Phase Z1
A117 South aisle, west end
A118 South aisle, middle
A119 South aisle, east end
A120 South aisle, extreme east end
A121 North portico, north aisle, and nave, west end, evidence
A122 North portico, north aisle, and nave, west, evidence
A123 North portico, north aisle, and nave, middle, evidence
A124 North portico, north aisle, and nave, east, evidence
A125 North portico, north aisle, and nave, east end, evidence
A126 North portico, north aisle, and nave, extreme east end, evidence
A127 North portico, north aisle, and nave, west end, interpretation
A128 North portico, north aisle, and nave, west, interpretation
A129 North portico, north aisle, and nave, middle, interpretation
A130 North portico, north aisle, and nave, east, interpretation
A131 North portico, north aisle, and nave, east end, interpretation
A132 North portico, north aisle, and nave, extreme east end, interpretation
A133 Annexe, evidence
A134 Annexe, interpretation
A135 West portico, south, Phase Z1
A136 West portico, north, Phase Z1
A137 West portico, south, Phase Z2
A138 West portico, north, Phase Z2
A139 West portico, south, Phase Z3
A140 West portico, north, Phase Z3
A141 West portico, Phase Z4
A142 North portico, east end
A143 North portico, extreme east end
A144 East-west street, west end, Phase Z3
A145 East-west street, west, Phase Z2
A146 East-west street, middle, Phase 2Z
A147 East-west street, east, Phase Z2
A148 East-west street, east end, Phase Z1
A149 East-west street, east end, Phase Z2
A150 East-west street, east end, Phase Z3
A151 *Insula* 2, west end, Phase Z1
A152 *Insula* 2, middle, Phase Z1
A153 *Insula* 2, east end, interpretation, Phase Z2
A154 *Insula* 2, west end, Phase Z2
A155 *Insula* 2, centre, Phase Z2
A156 *Insula* 2, east end, evidence, Phases Z2 and Z3
A157 *Insula* 2, east end, interpretation, Phase Z2
A158 *Insula* 2, east end, interpretation, Phase Z3
A159 Precinct, west, evidence, Phase Z2
A160 Precinct, east, evidence, Phase Z2
A161 Precinct, west, interpretation, Phase Z2
A162 Precinct, east, interpretation, Phase Z2
A163 Precinct, west, evidence, Phase Z3
A164 Precinct, east, evidence, Phase Z3
A165 Precinct, west, interpretation, Phase Z3
A166 Precinct, east, interpretation, Phase Z3
A167 Precinct, west, evidence, Phase Z4
A168 Precinct, east, evidence, Phase Z4
A169 Precinct, west, interpretation, Phase Z4
A170 Precinct, east, interpretation, Phase Z4
A171 North to south street and frontages, evidence
A172 North to south street and frontages, interpretation
A173 North to south street and frontages, dissection of cistern A17

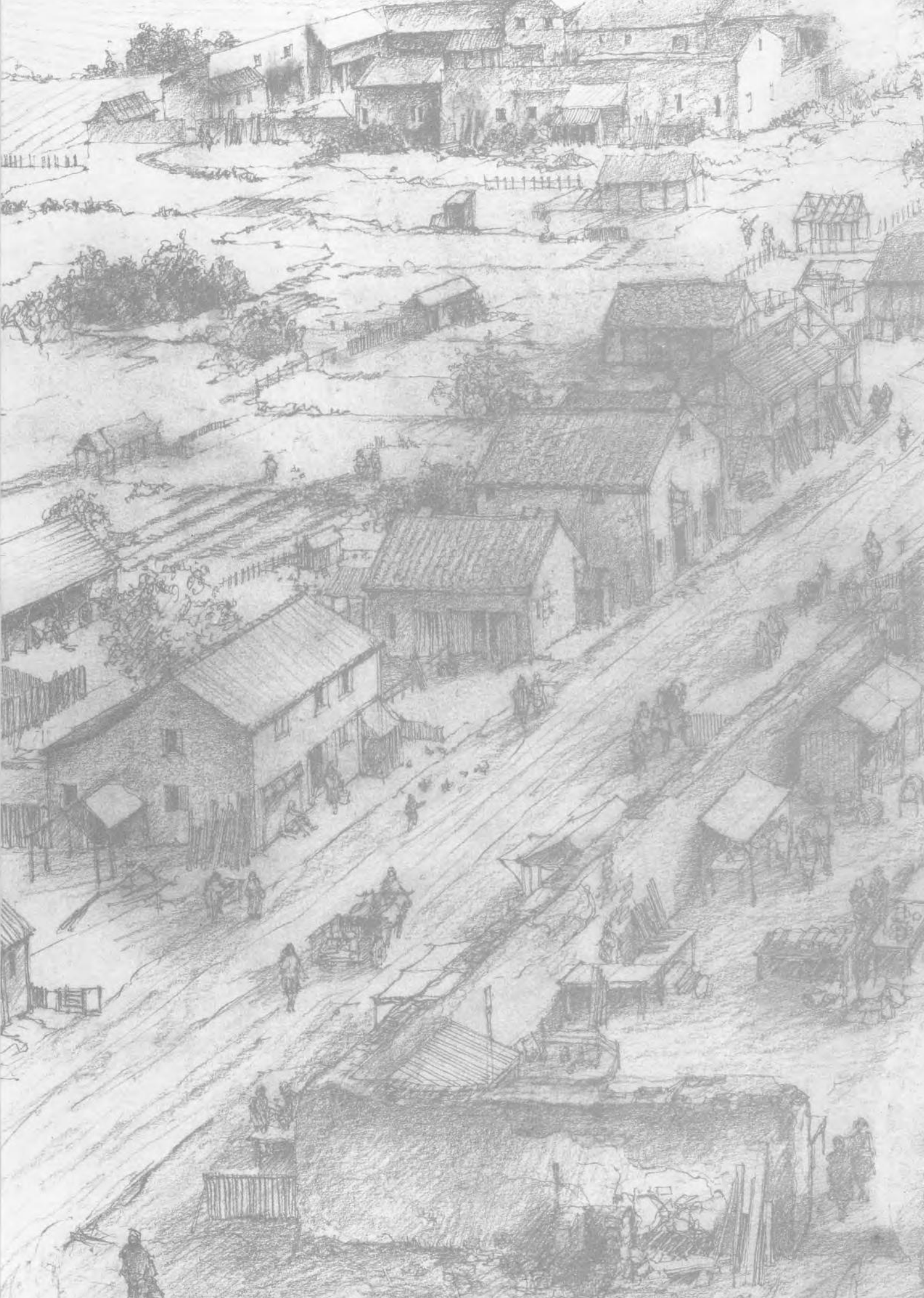
Phase post-Z

A174 North portico and north aisle, west, evidence
A175 North portico and north aisle, east, evidence
A176 North portico and north aisle, west, interpretation
A177 North portico and north aisle, east, interpretation

Key

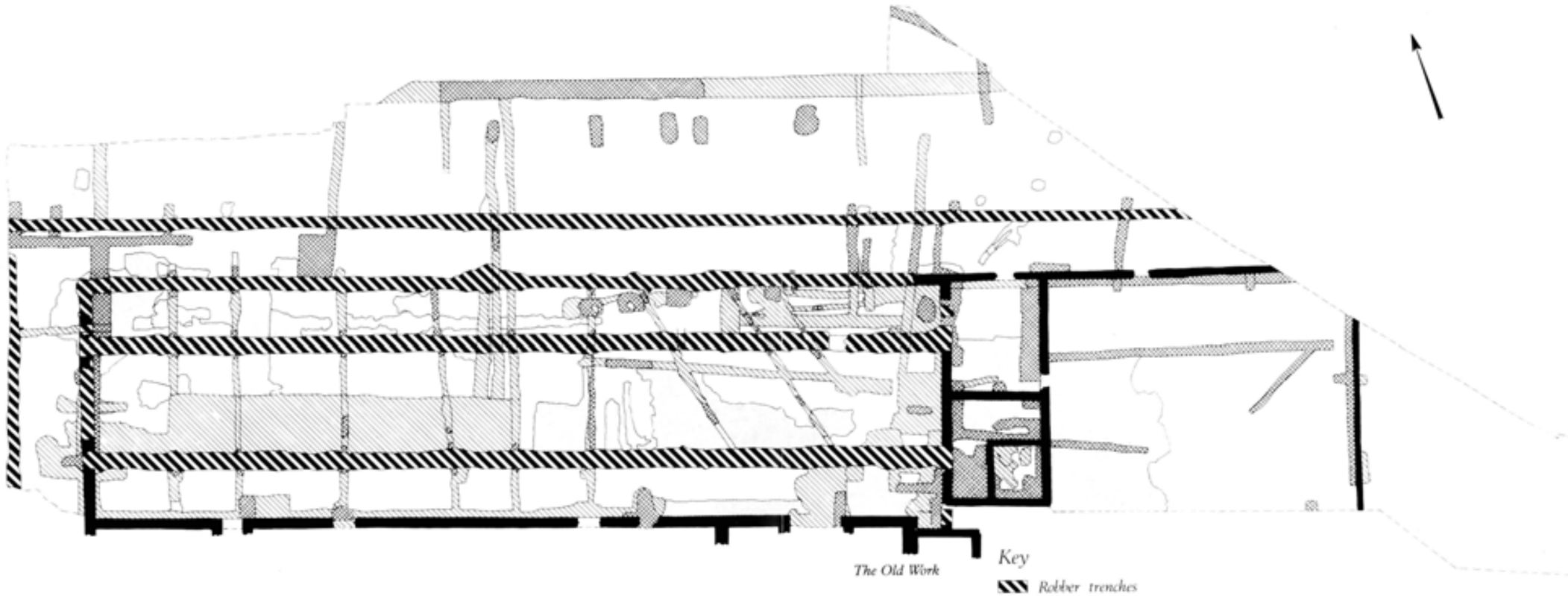
Mortar
Opus signinum
Clay
Burnt clay / daub
Ash
Charcoal
Micaceous flagstone slate

Nail
Beam
Path
Doorway
Edge of excavation
Linked drawings



WROXETER · BATHS BASILICA

Robber Trenches and Archaeological Disturbances



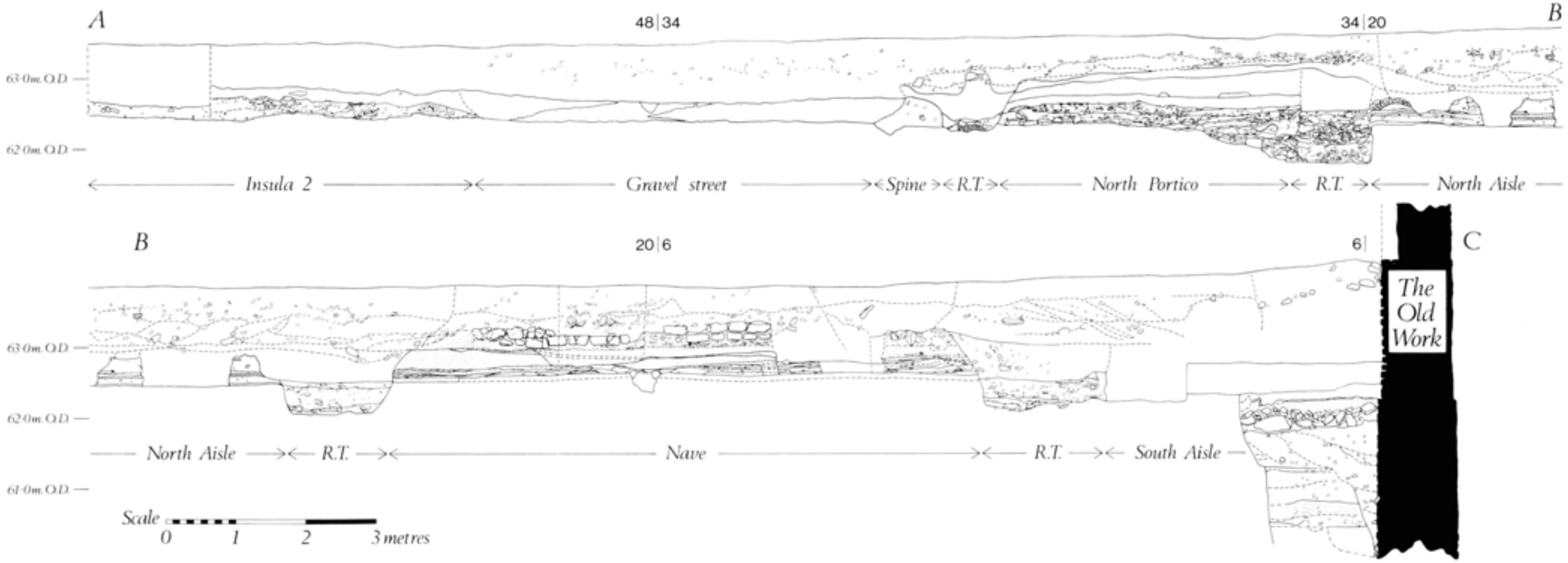
Scale

0 5 10 15 20 25 metres

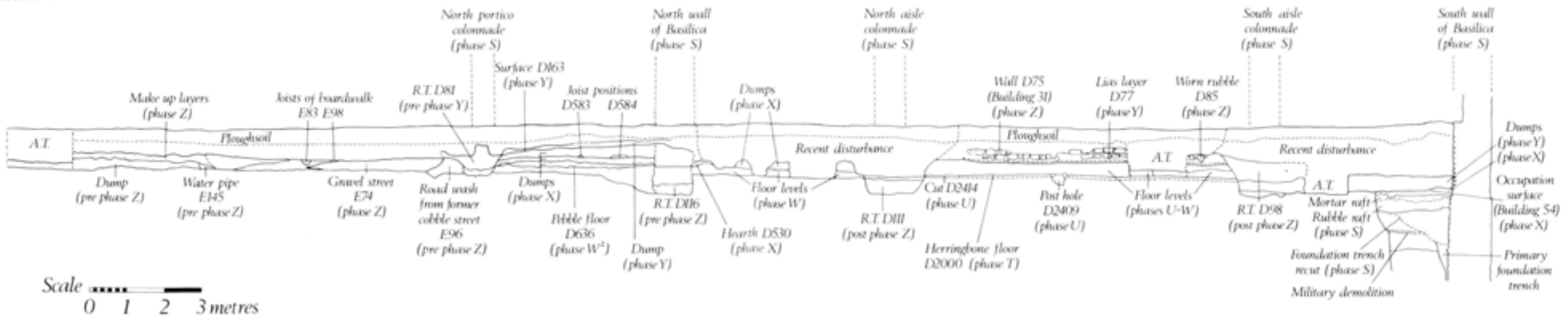
Key

- *Robber trenches*
- *Archaeological trenches penetrating through basilica floor*
- *Archaeological trenches penetrating to basilica floor*
- *Shallow disturbances*
- *Standing walls of original basilica*
- *Secondary walls*

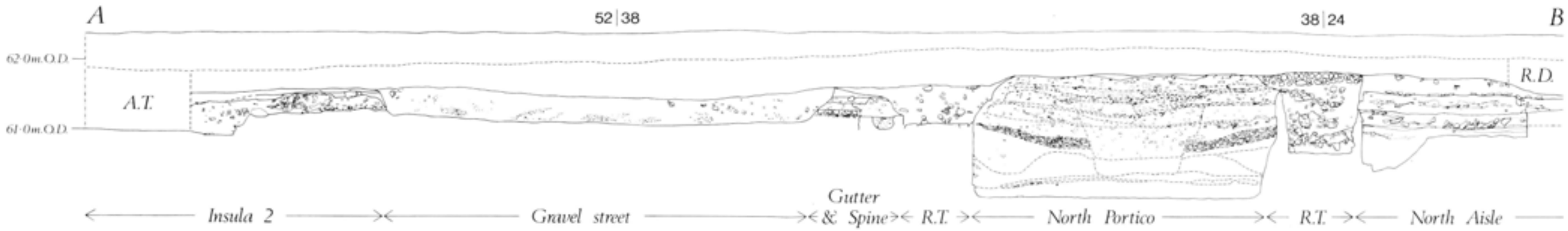
WROXETER ◦ Baths Basilica
Composite Section N–S along 61 metres East

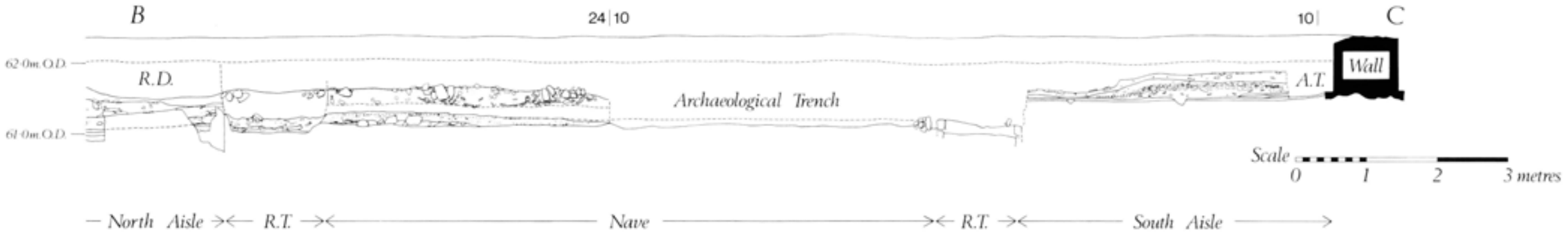


Interpretation

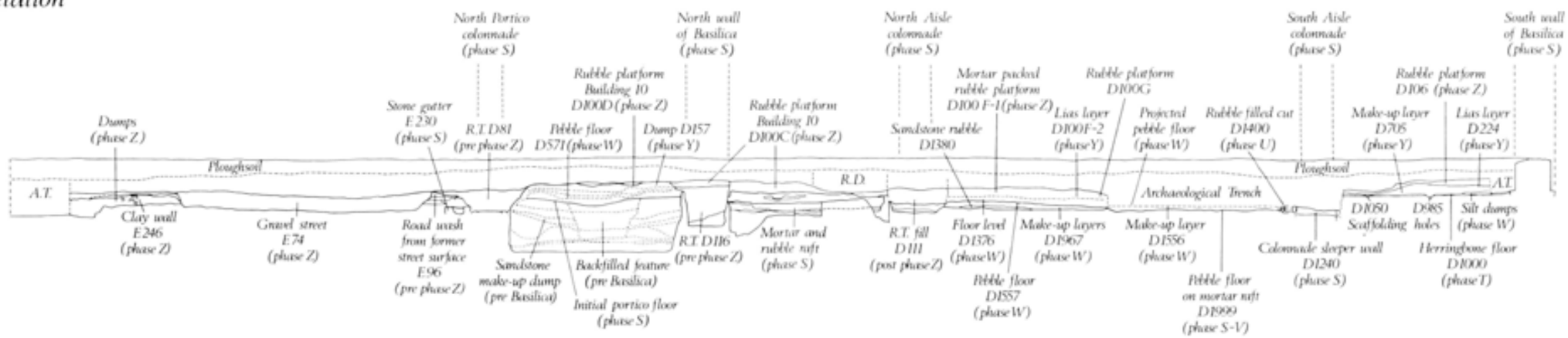


WROXETER · Baths Basilica
Composite Section N–S along 100 metres East



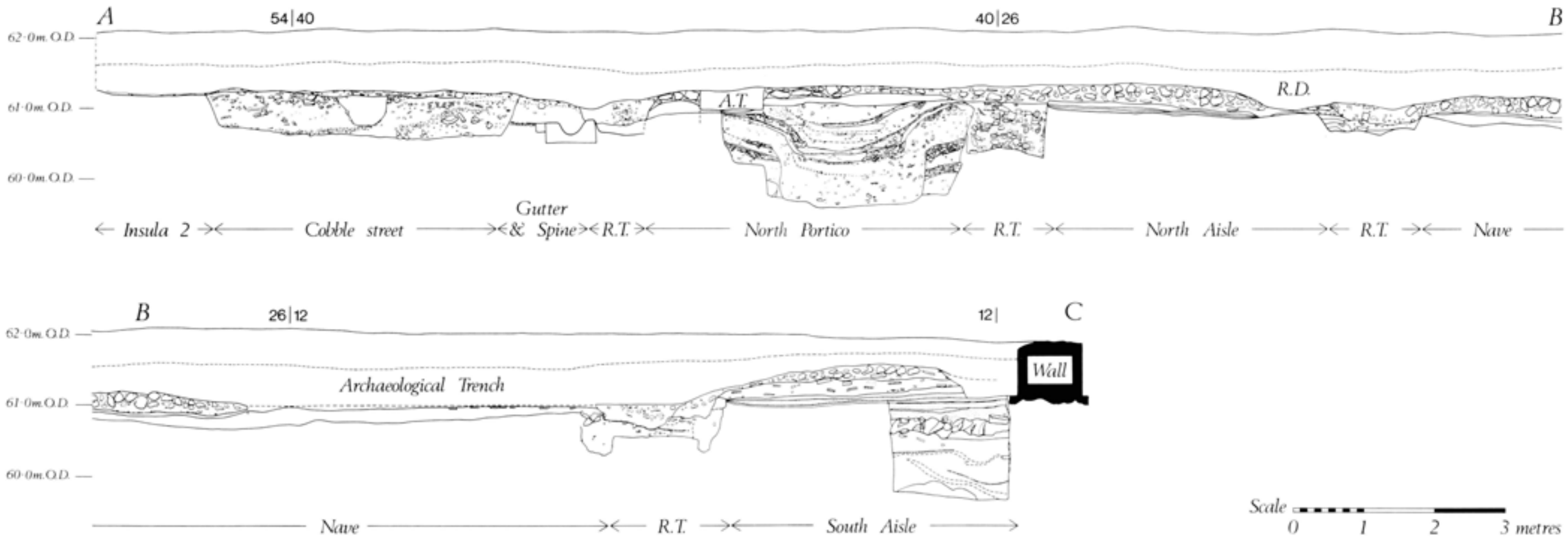


Interpretation

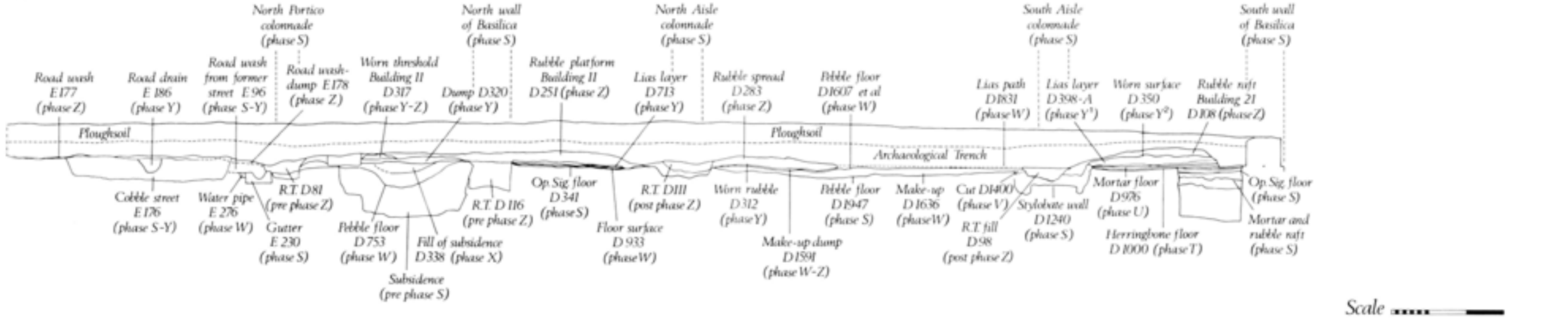


Scale
0 1 2 3 metres

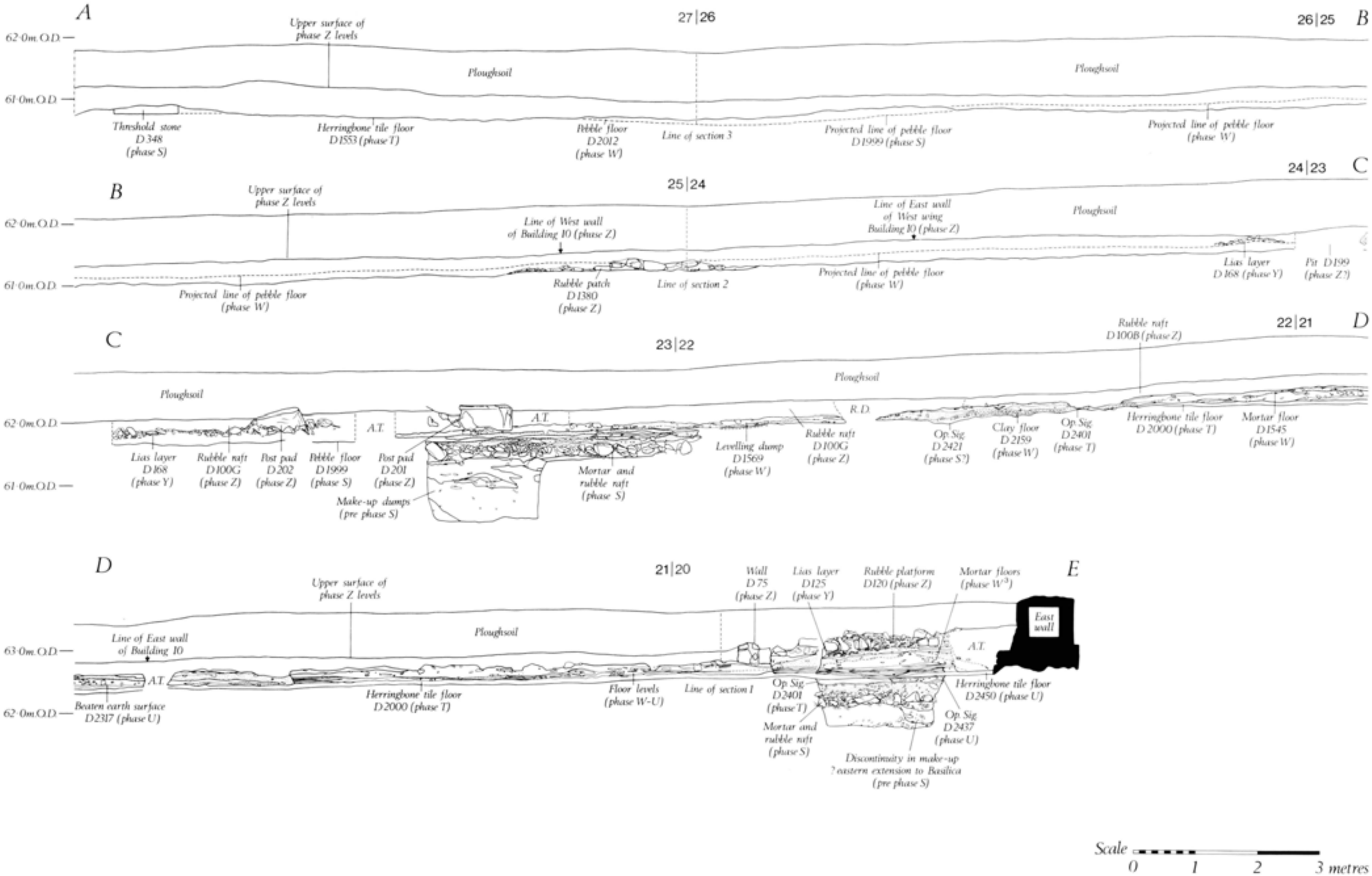
WROXETER · Baths Basilica
Composite Section N-S along 120 metres East



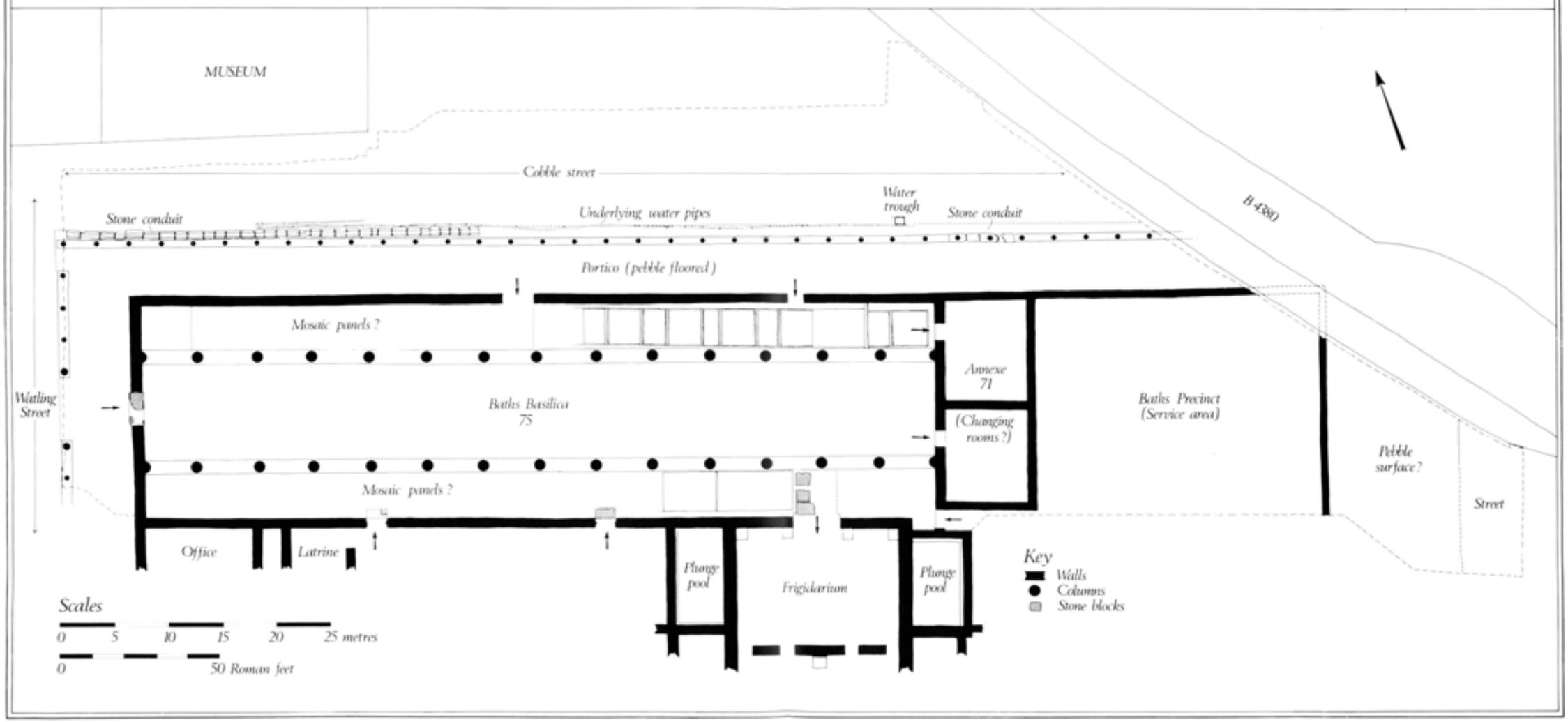
Interpretation



WROXETER · Baths Basilica
Composite Section W–E along 10 metres North



WROXETER · Baths Basilica · The Original Building · c.A.D. 150 (Phase S)



WROXETER · Baths Basilica · Repairs and Modifications · c.A.D. 270–370 (Phases T,U & V)

MUSEUM

62

Furnace

Cobble street

Stone subsiding

Replaced stone

Stone conduit

B 4380

Not excavated in these phases

61

Watling Street

Pit and gulley system

Cross-wall dismantled

Wall rebuilt

74

69

Not excavated in these phases

?Original pebble surface still in situ

Street

Underlying water pipes

Office

Latrine

Plunge pool

Frigidarium

Plunge pool

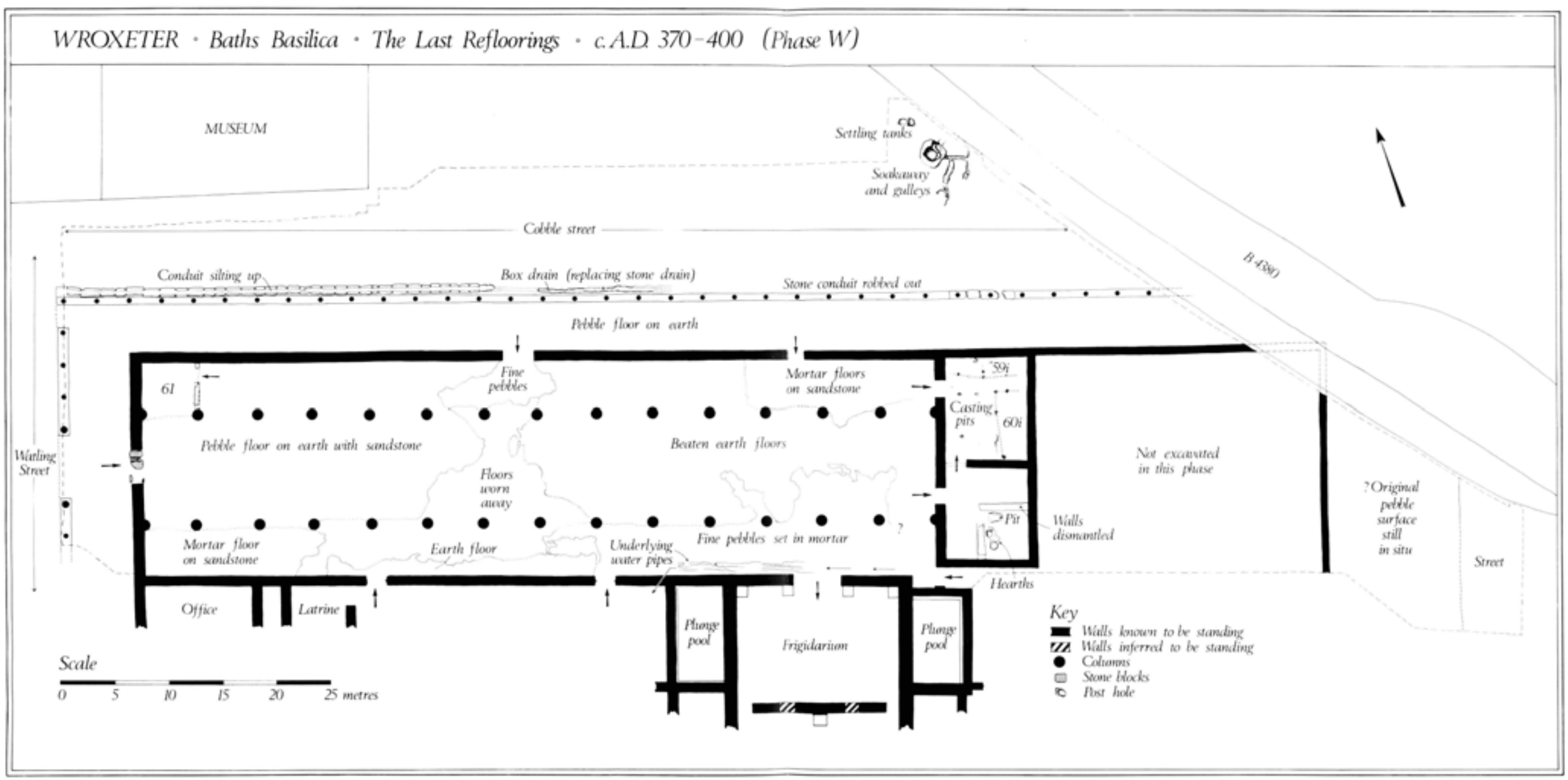
Scale

0 5 10 15 20 25 metres

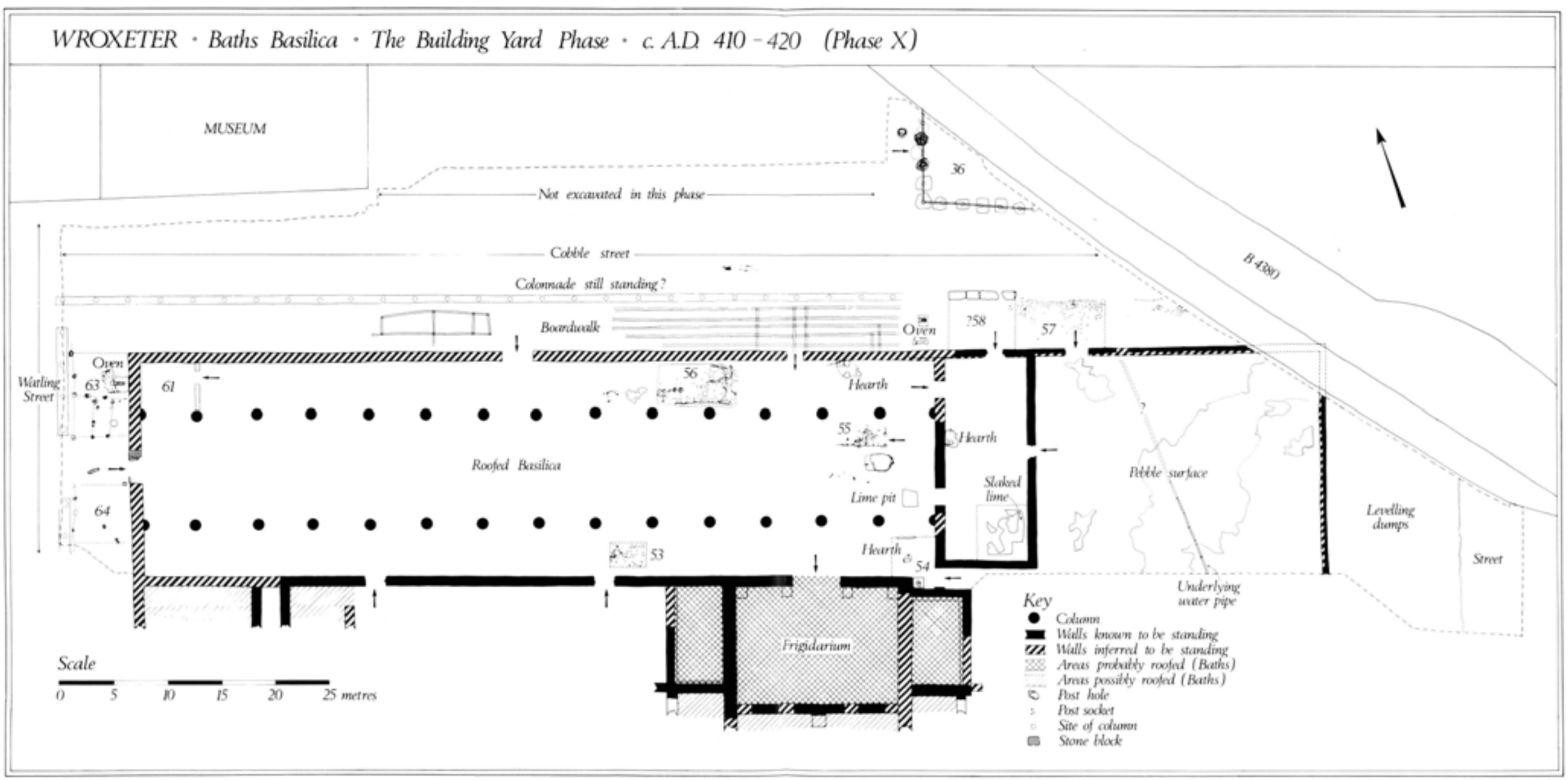
Key

- Walls known to be standing
- Walls inferred to be standing
- Column
- Stone block
- Masonry wall built in this phase
- Worn surface
- Post hole
- Post socket
- Pebble surface
- Silt surface
- Edge of surviving herring-bone tile floor
- Full extent of herring-bone tile floor

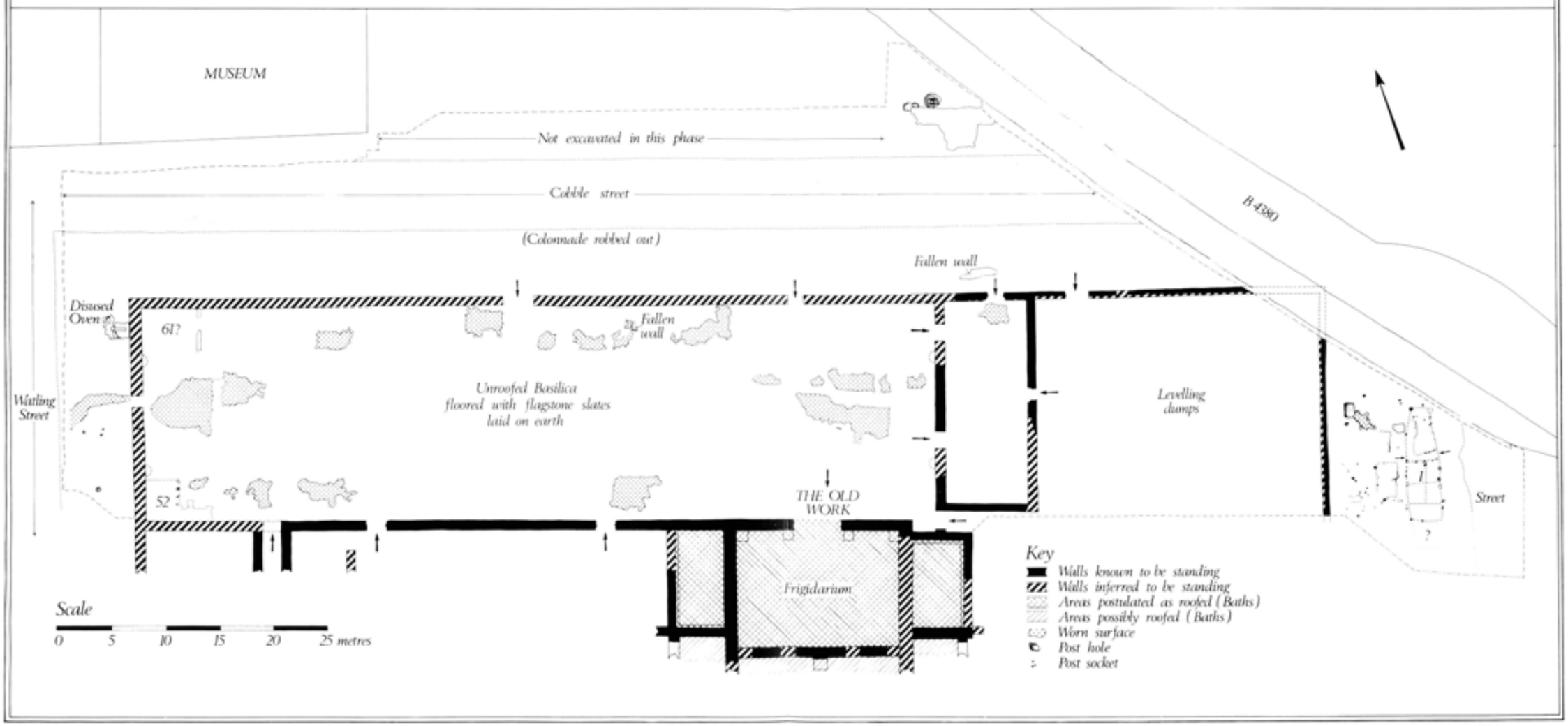
WROXETER · Baths Basilica · The Last Reflooring · c.A.D. 370–400 (Phase W)



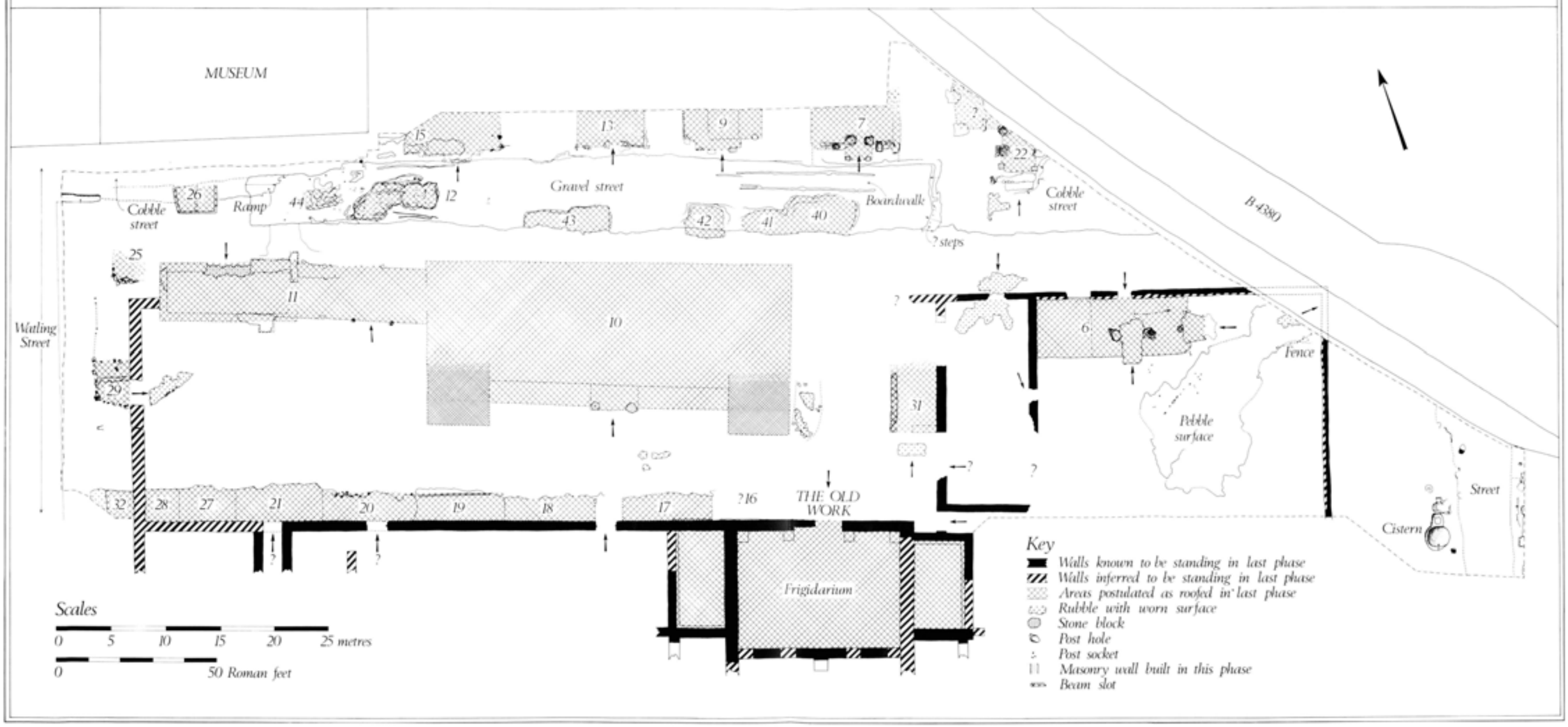
WROXETER · Baths Basilica · The Building Yard Phase · c. A.D. 410 – 420 (Phase X)

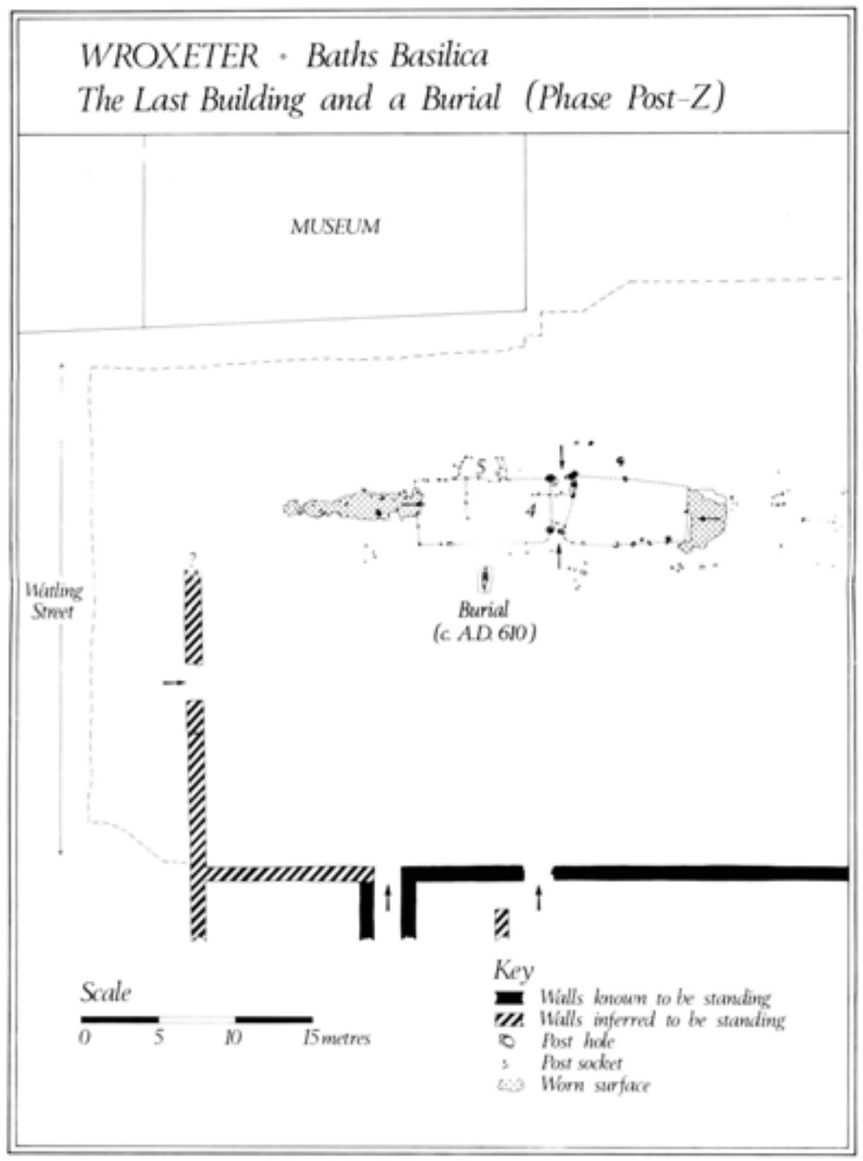


WROXETER · Baths Basilica · Partial Dismantling of the Basilica · c. A.D. 420 – 450 (Phase Y)

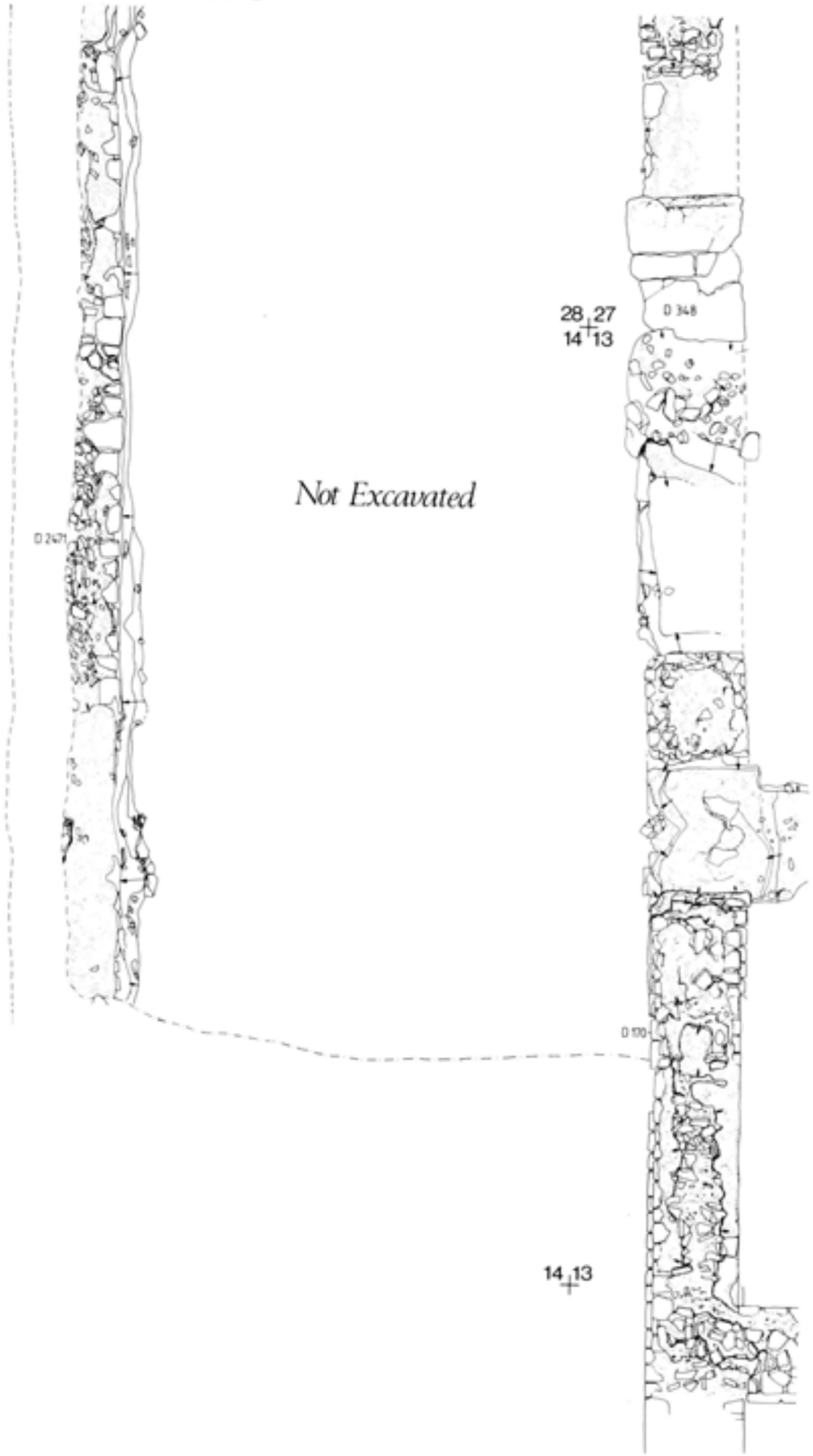


WROXETER · Baths Basilica · The Great Rebuilding · c. A.D. 450 – 550 (Phase Z)




WROXETER · Baths Basilica
The Last Building and a Burial (Phase Post-Z)
MUSEUM
Watling Street
Burial
(c. A.D. 610)
Scale
0 5 10 15 metres
Key
Walls known to be standing
Walls inferred to be standing
Post hole
Post socket
Worn surface

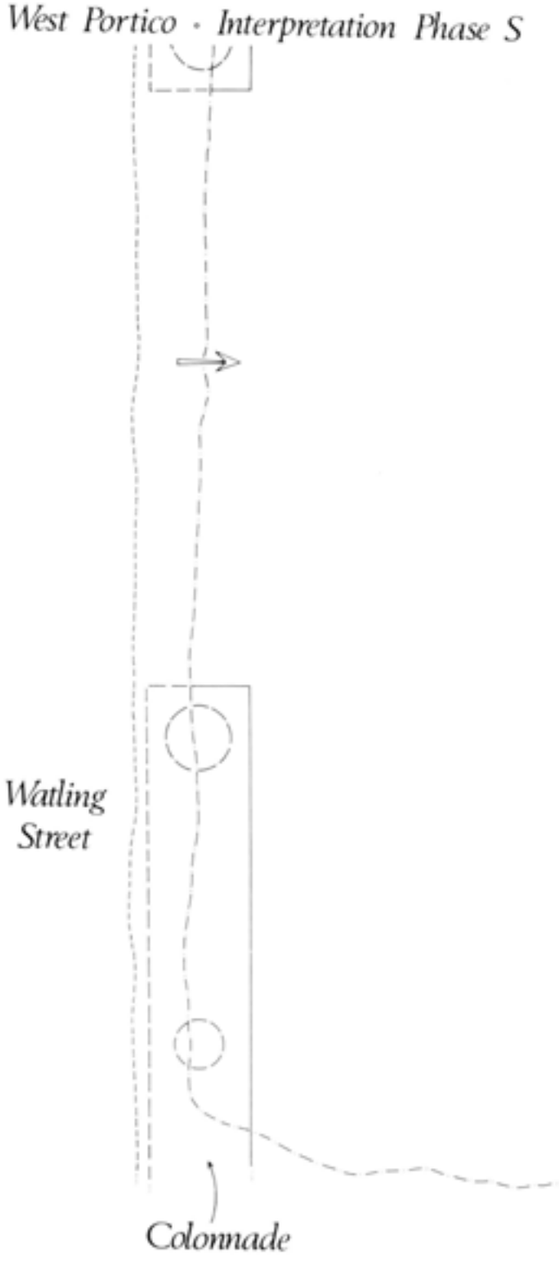
West Portico · Evidence Phase S



Watling Street

Not Excavated

West Portico · Interpretation Phase S

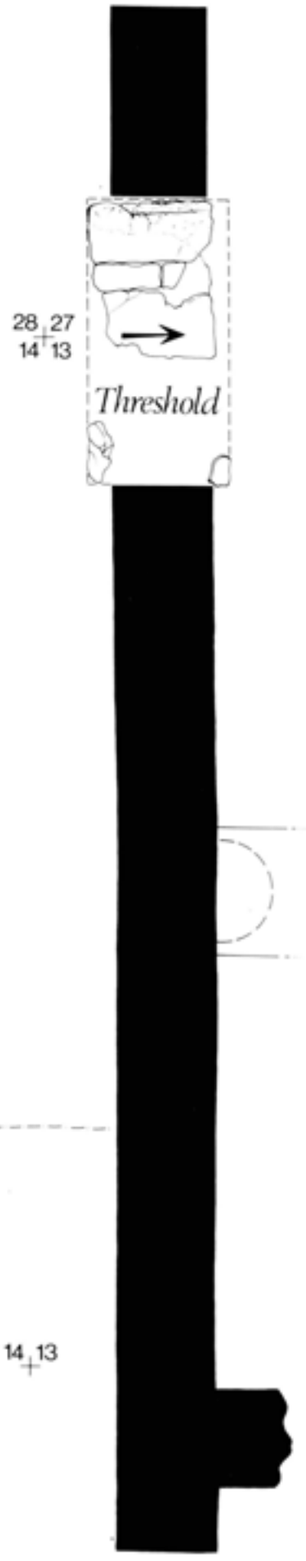


Watling Street

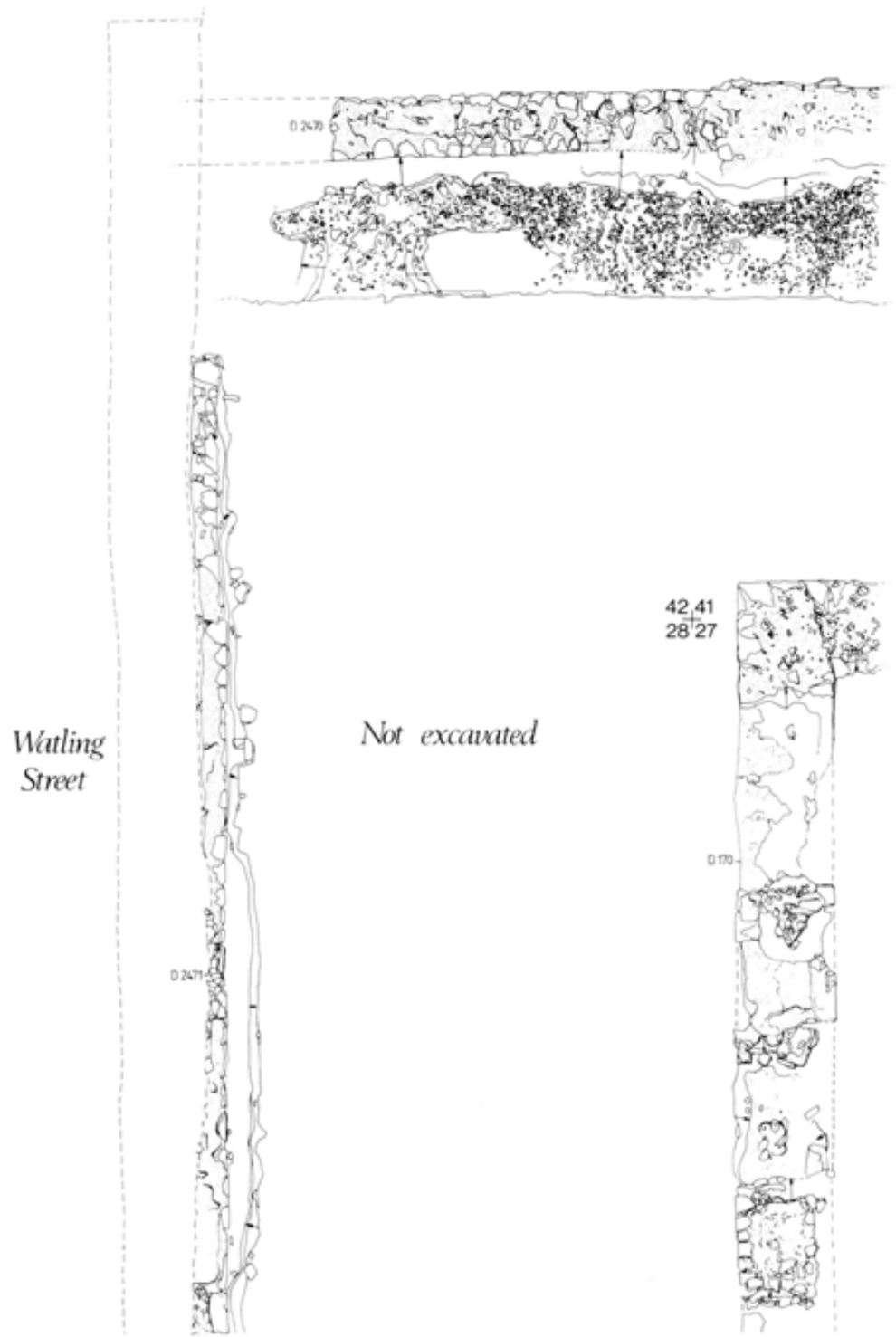
Colonnade

Scale
0 1 2 3 metres

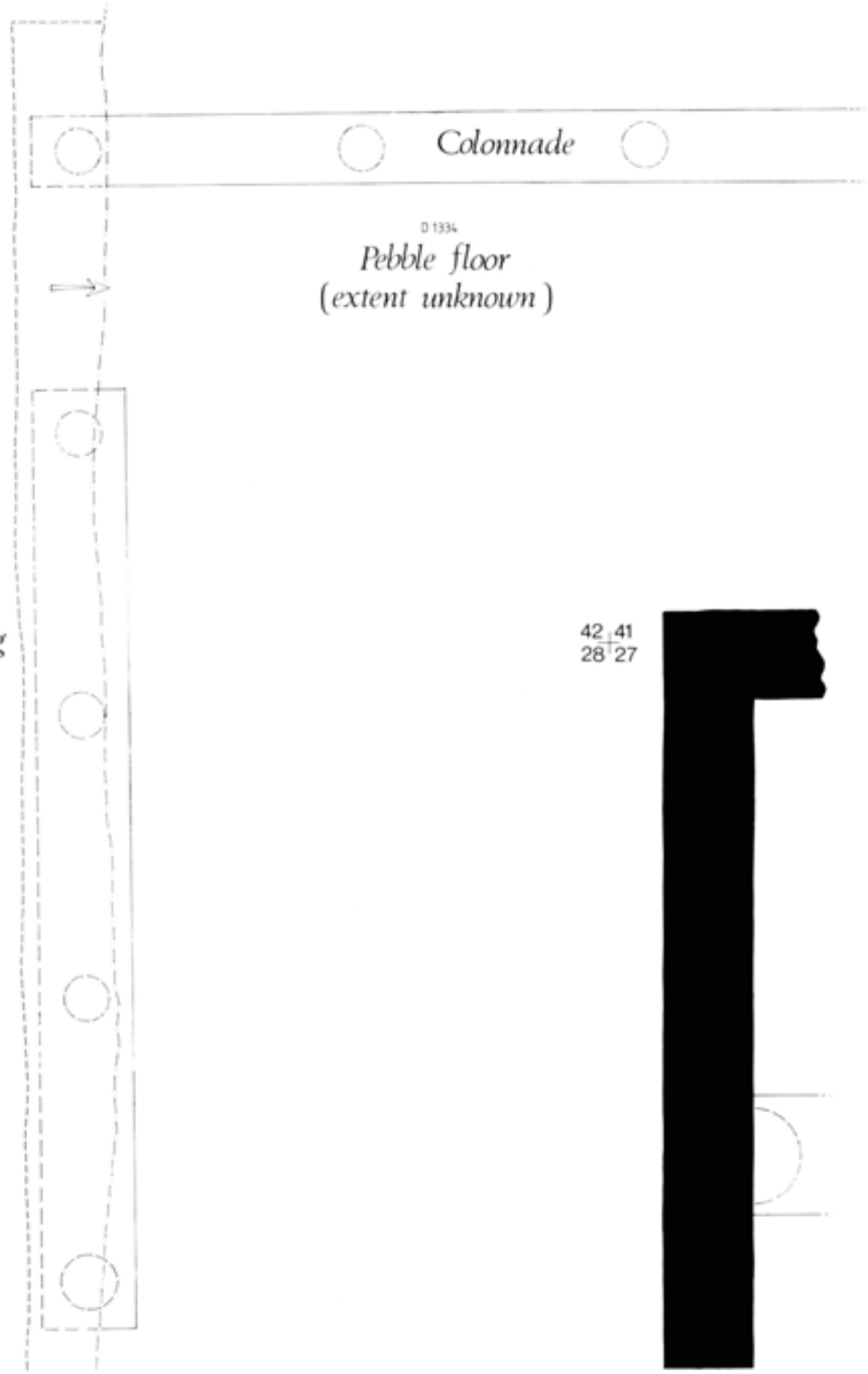
Key
Column position , inferred
Stylobate edge , inferred
Stylobate edge , known



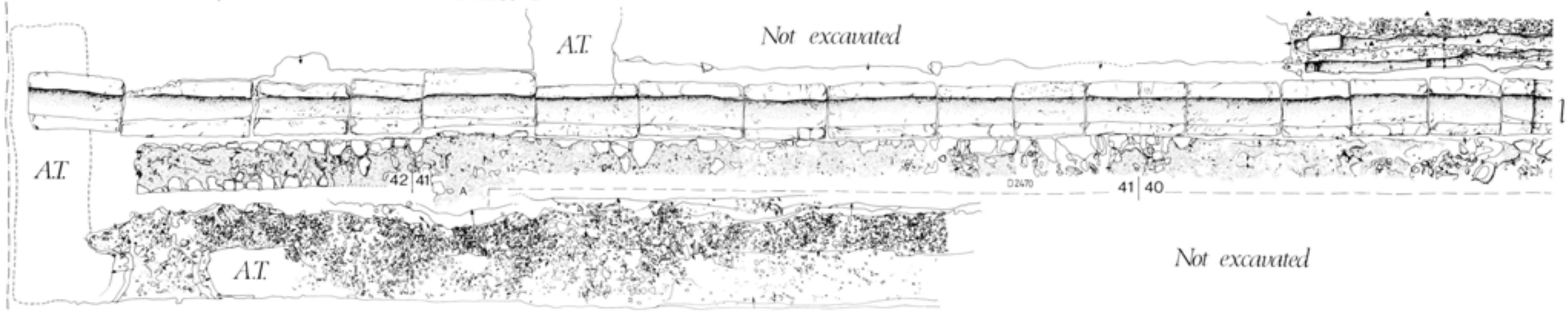
West Portico - Evidence Phase S



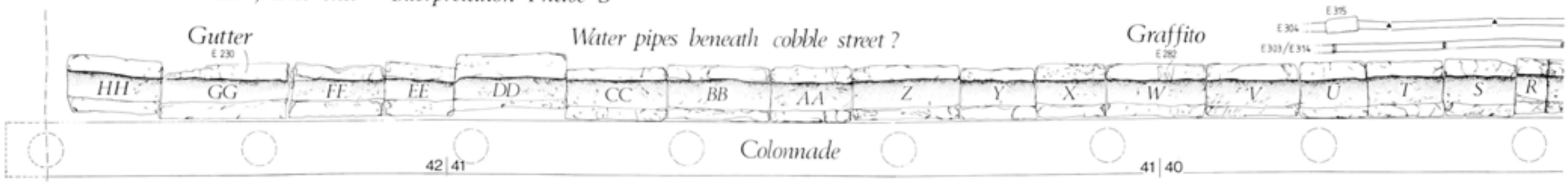
West Portico - Interpretation Phase S



North Portico Colonnade , west end · Evidence Phase S

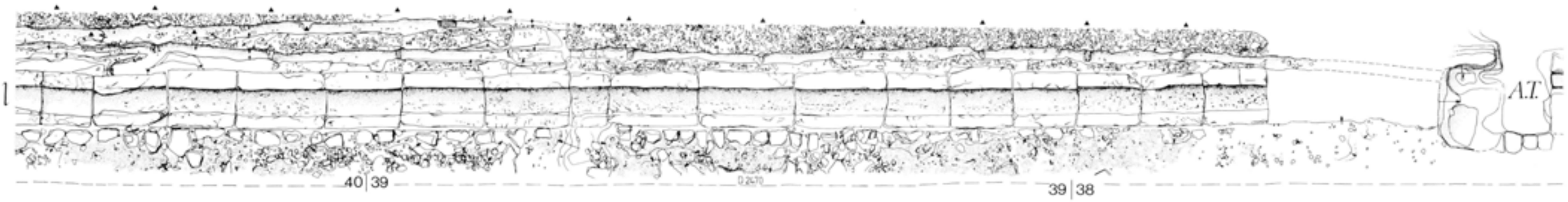


North Portico Colonnade , west end · Interpretation Phase S

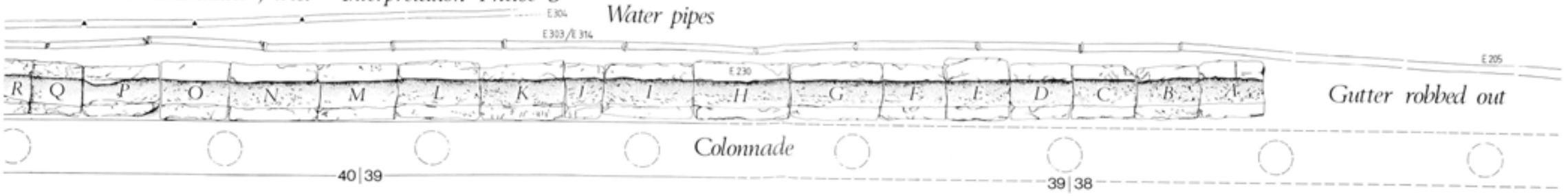


Pebble surface
D 1334

North Portico Colonnade , west · Evidence Phase S



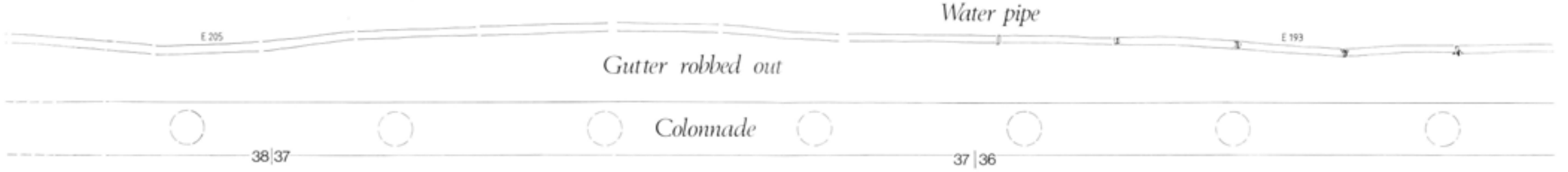
North Portico Colonnade , west · Interpretation Phase S



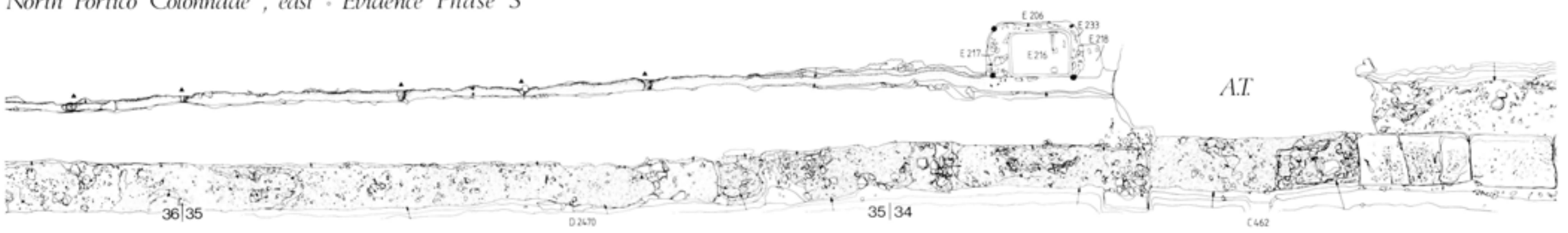
North Portico Colonnade , centre - Evidence Phase S



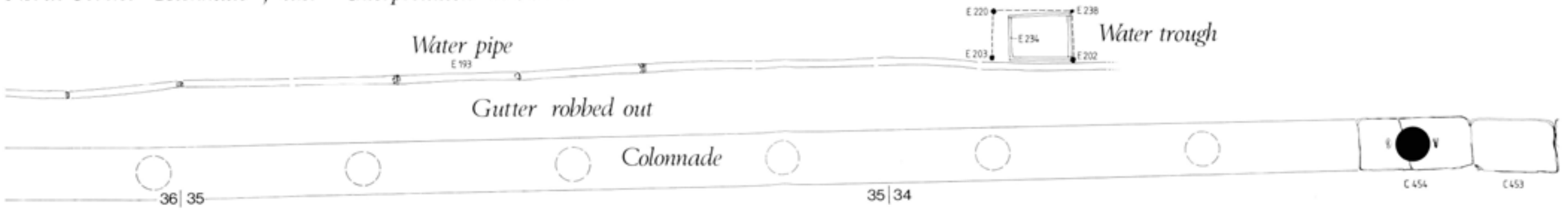
North Portico Colonnade , centre - Interpretation Phase S



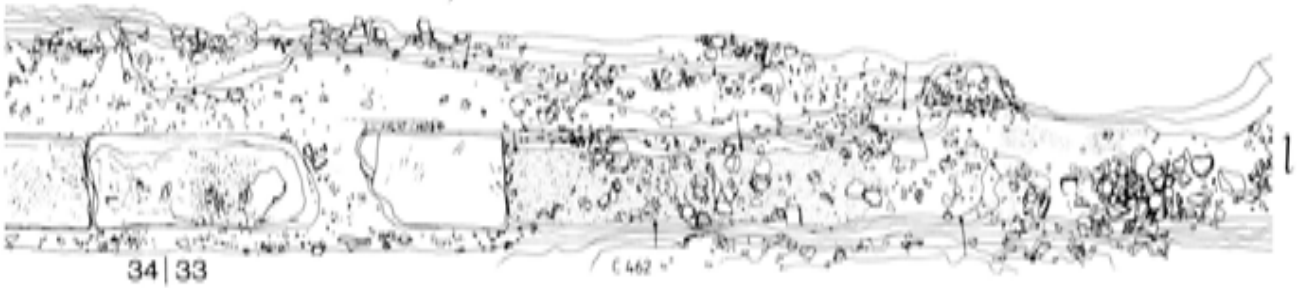
North Portico Colonnade , east - Evidence Phase S



North Portico Colonnade , east - Interpretation Phase S



North Portico Colonnade , east end · Evidence Phase S



North Portico Colonnade , east end · Interpretation Phase S



North Portico Colonnade , east end · Evidence Phase S



Not excavated

Key

- *Column position , inferred*
- *Column position , known*
- *Stylobate edge*
- *Pipe collar (iron)*
- *Pipe cover (mortar)*
- *Possible wall line ?*

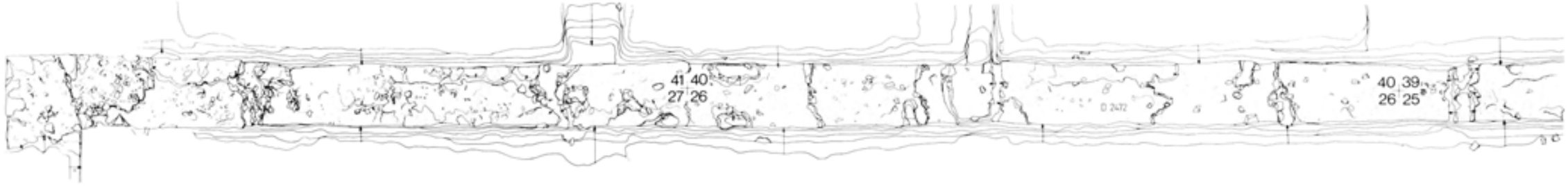
North Portico Colonnade , east end · Interpretation Phase S



Scale

0 1 2 3 metres

North Wall , west end · Evidence Phase S



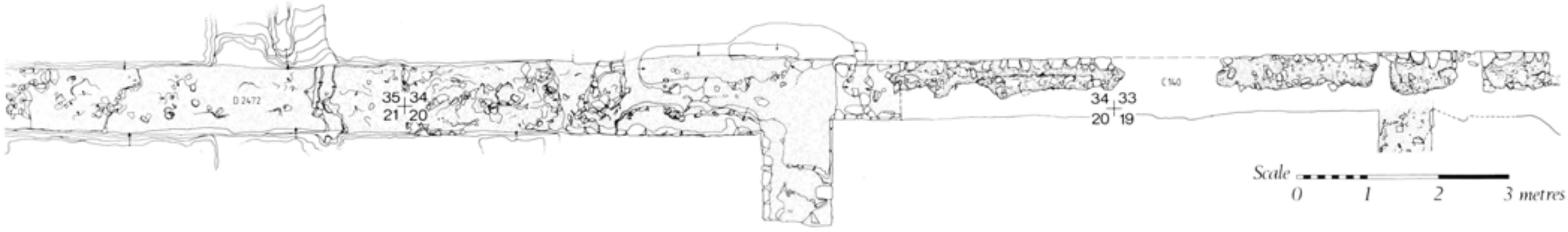
North Wall , centre · Evidence Phase S



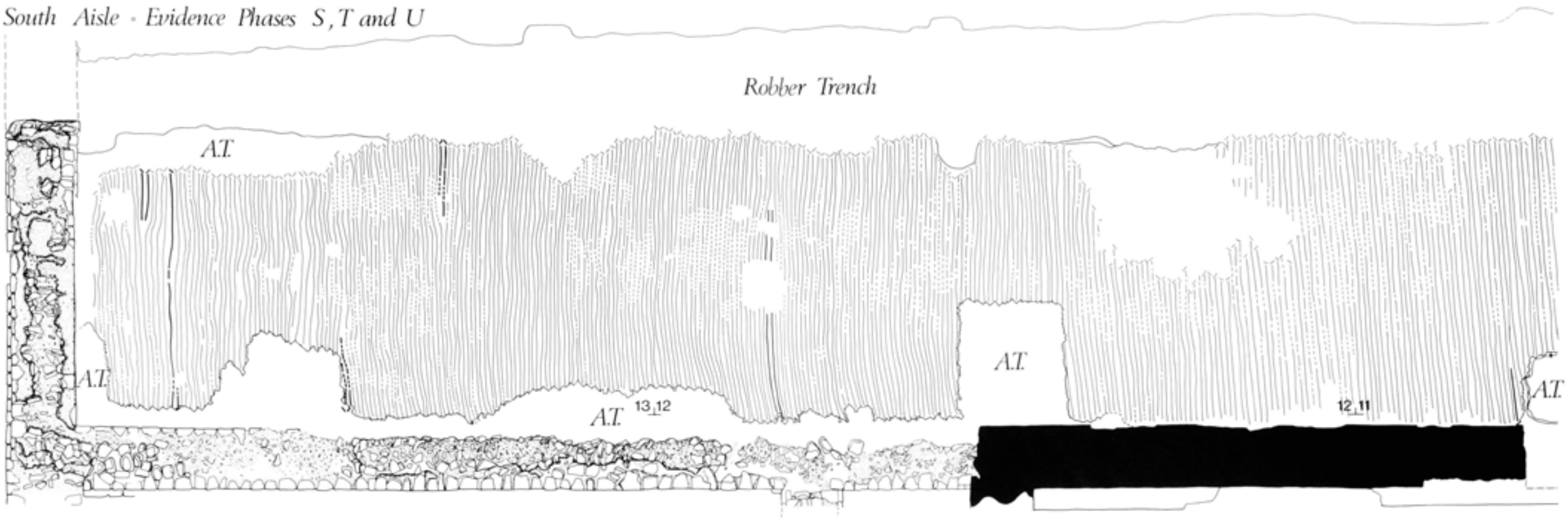
North Wall , east · Evidence Phase S



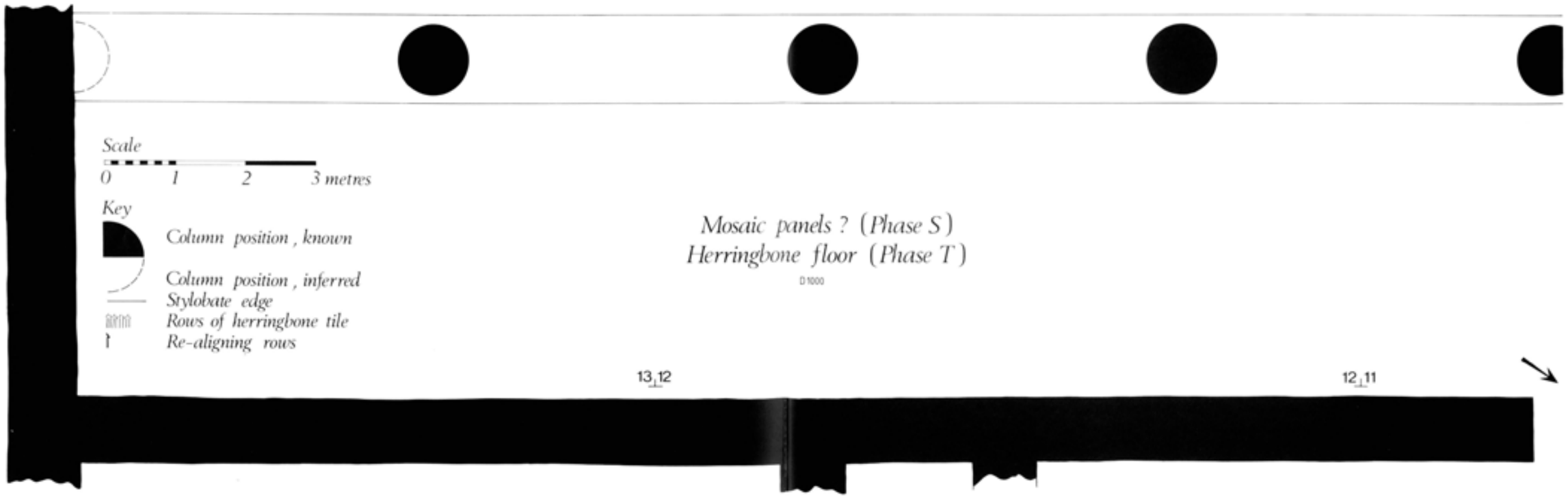
North Wall , east end · Evidence Phase S



South Aisle - Evidence Phases S, T and U

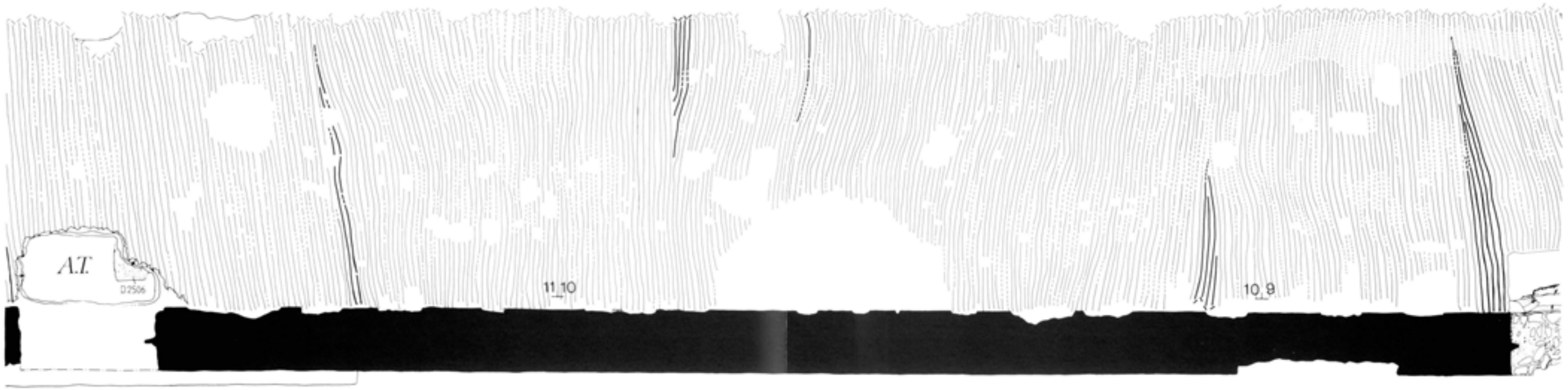


South Aisle - Interpretation Phases S, T and U



South Aisle - Evidence Phases S, T and U

Robber Trench



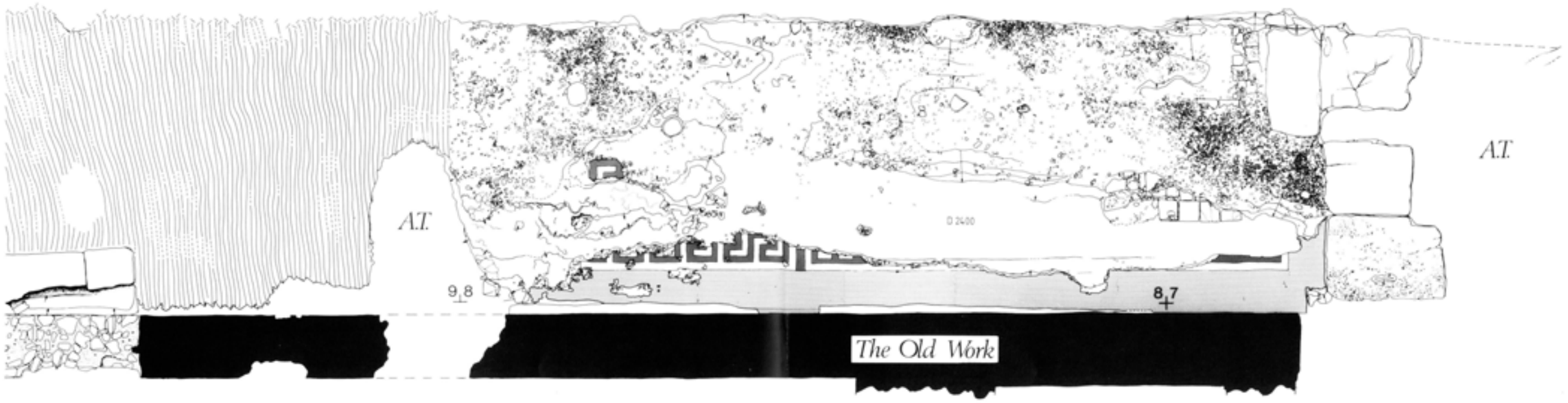
South Aisle - Interpretation Phases S, T and U



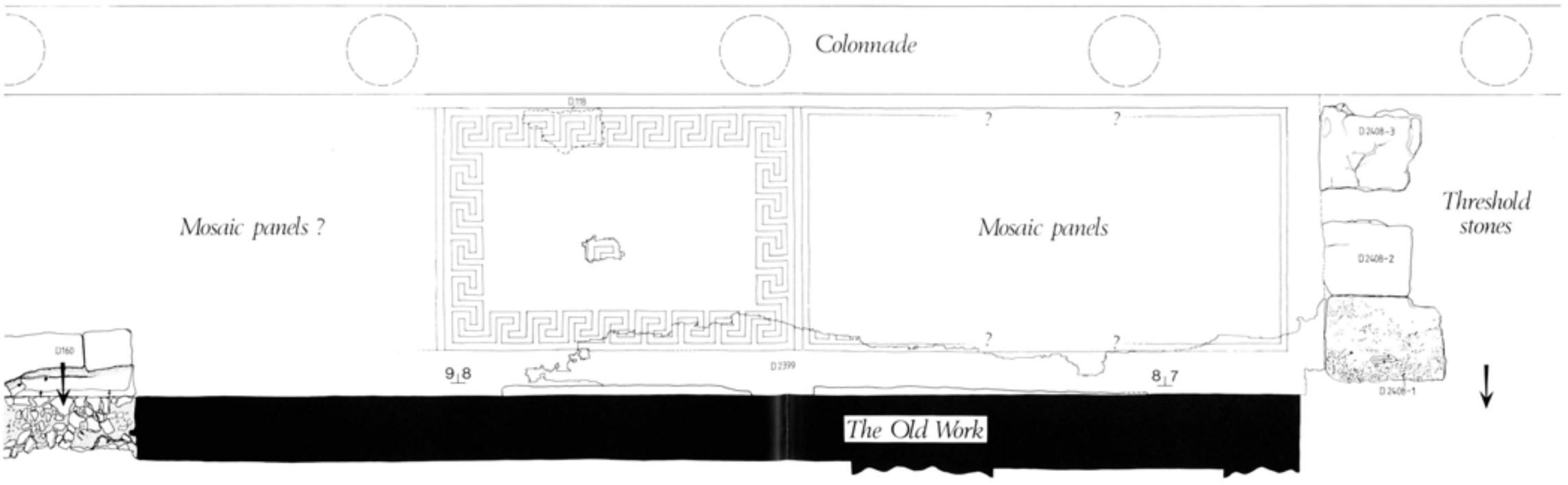
Mosaic panels ? (Phase S)
Herringbone floor (Phase T)
D 1060



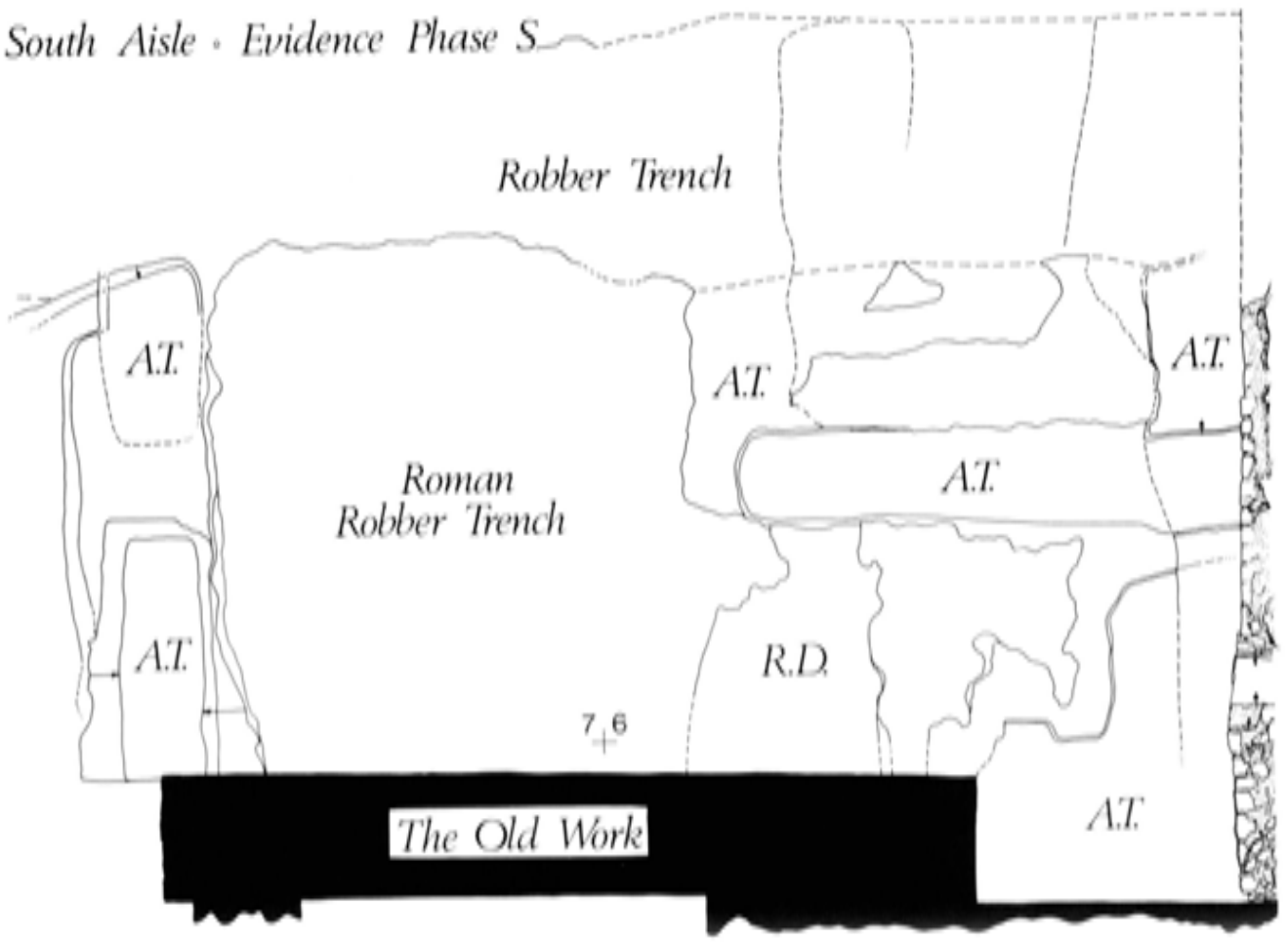
South Aisle - Evidence Phases S, T and U



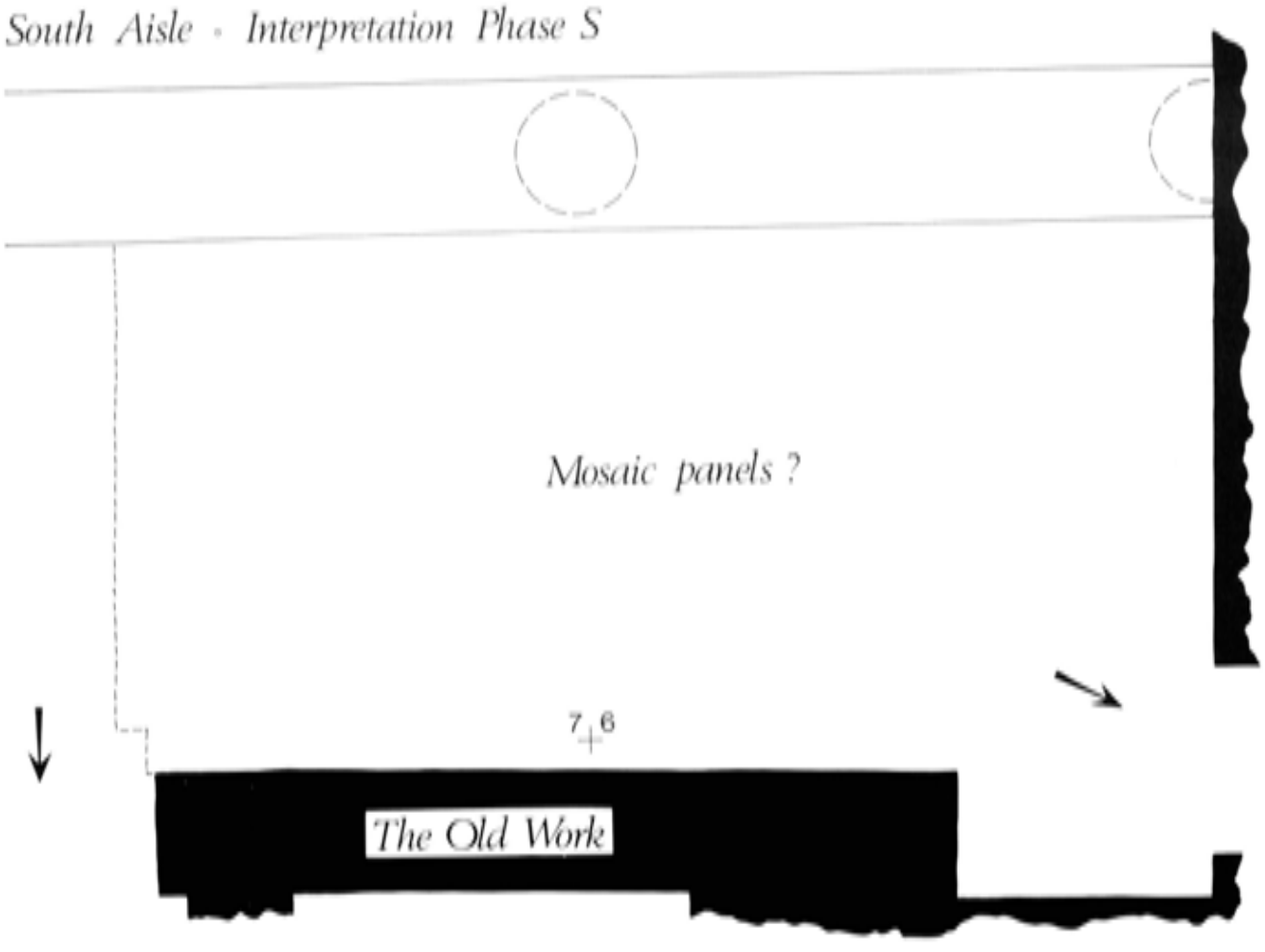
South Aisle - Interpretation Phase S



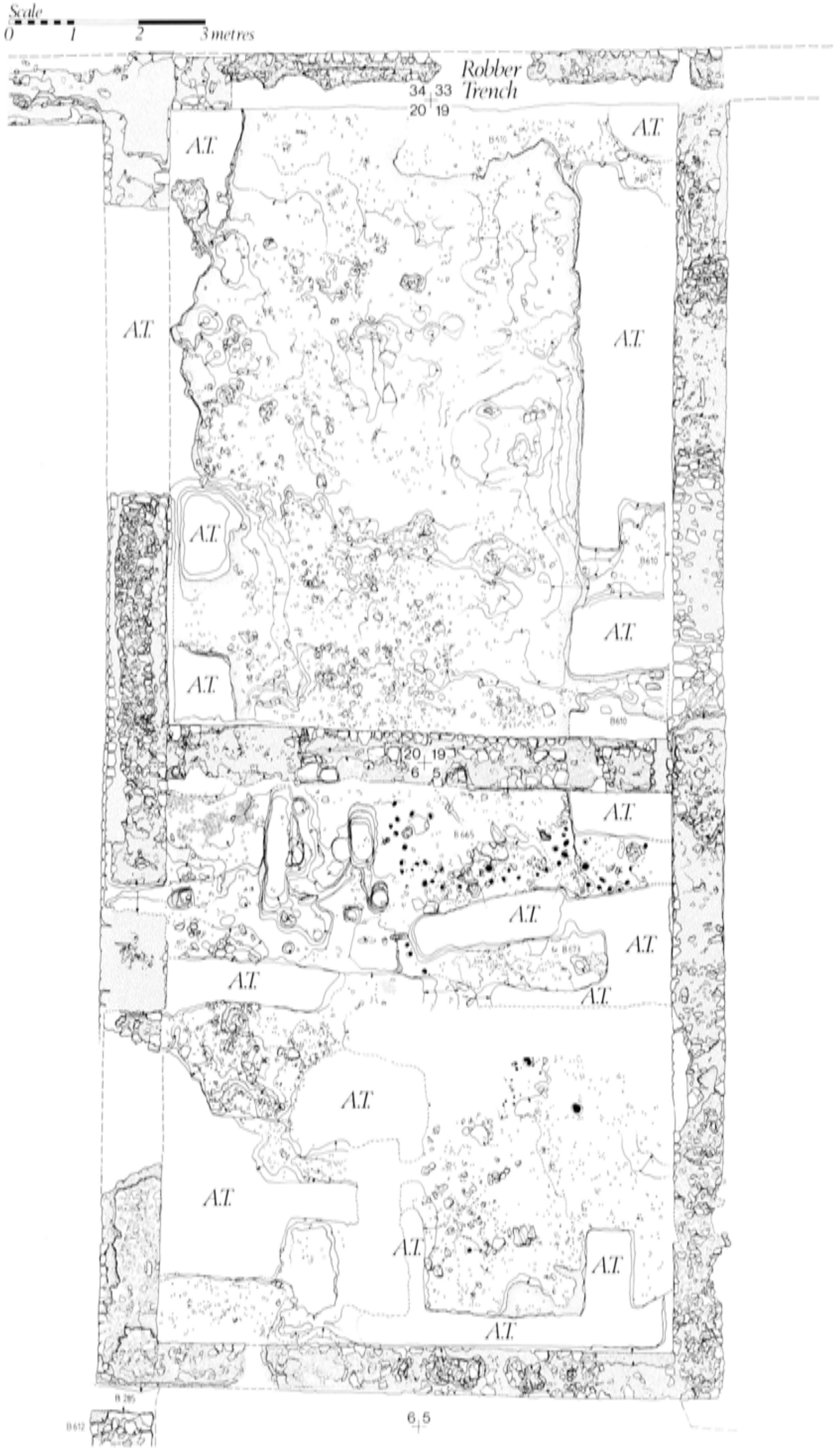
South Aisle - Evidence Phase S



South Aisle - Interpretation Phase S



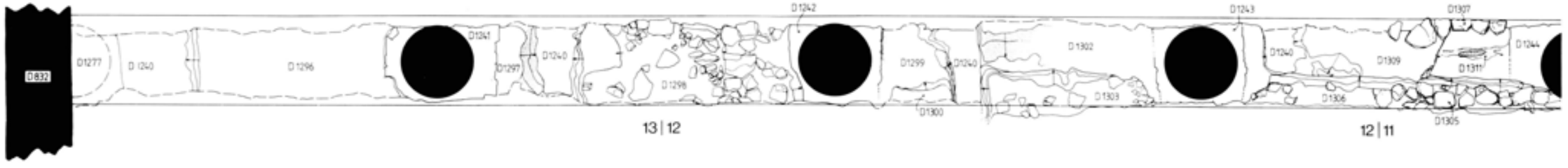
Annexe · Evidence Phases U, T and S



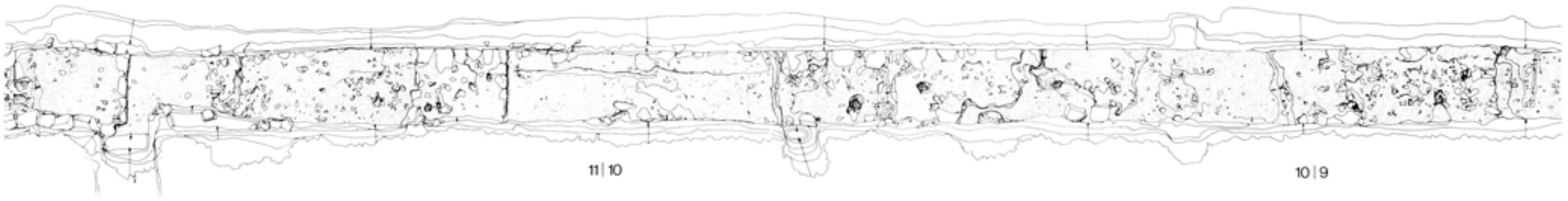
South Aisle Colonnade , west end · Evidence Phase S



South Aisle Colonnade , west end · Interpretation Phase S



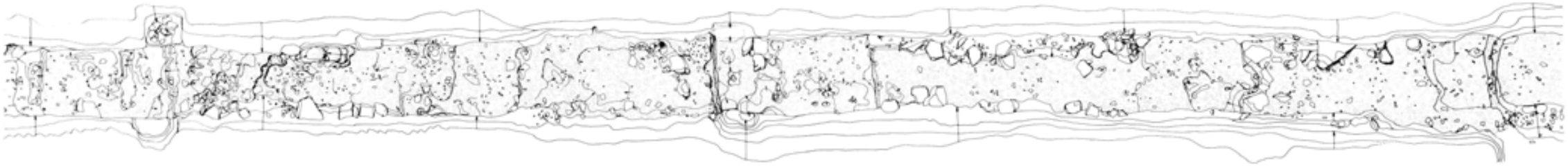
South Aisle Colonnade , centre · Evidence Phase S



South Aisle Colonnade , centre · Interpretation Phase S



South Aisle Colonnade , east · Evidence Phase S



9|8

8|7

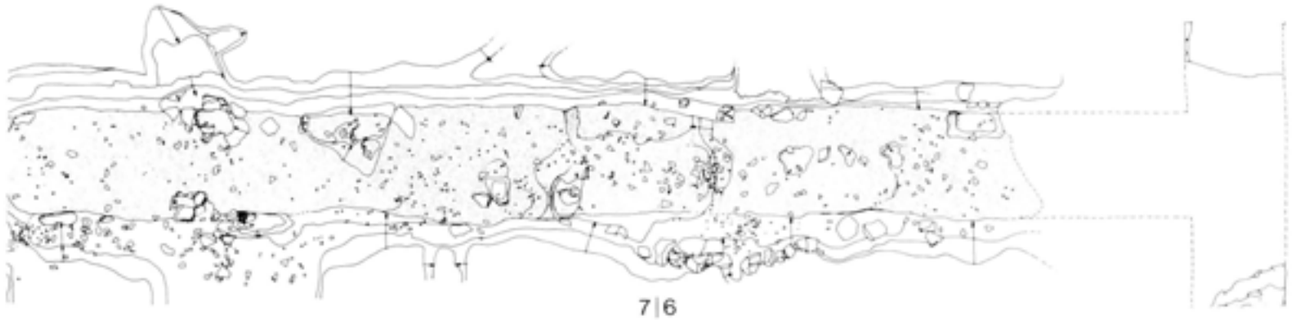
South Aisle Colonnade , east · Interpretation Phase S



9|8

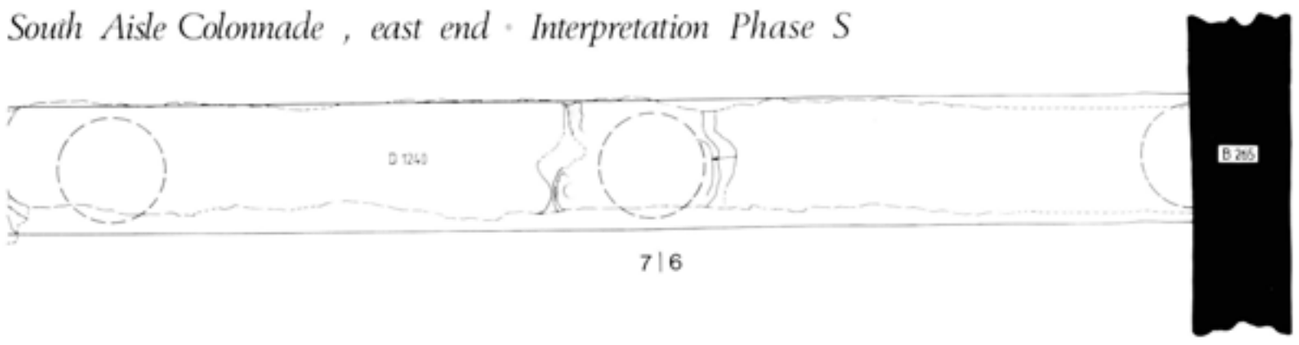
8|7

South Aisle Colonnade , east end · Evidence Phase S



7|6

South Aisle Colonnade , east end · Interpretation Phase S



7|6

Eastern Wall of Basilica

Scale

0 1 2 3 metres

Key

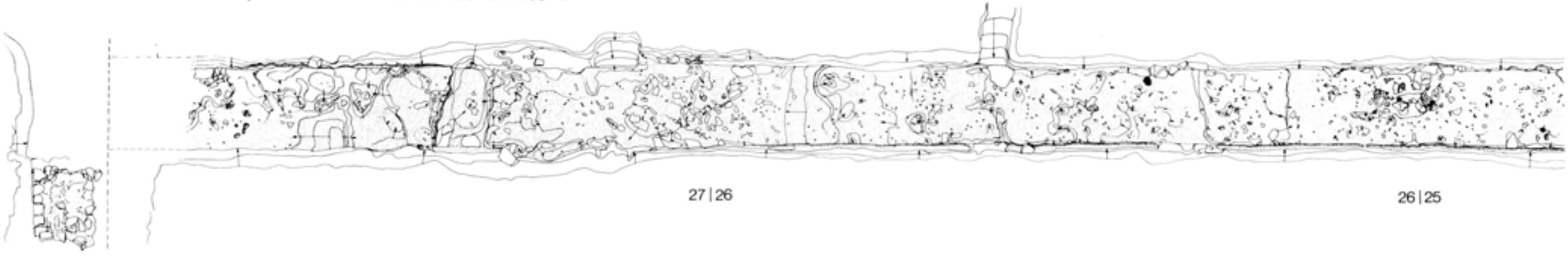
Standing wall

Column position , known

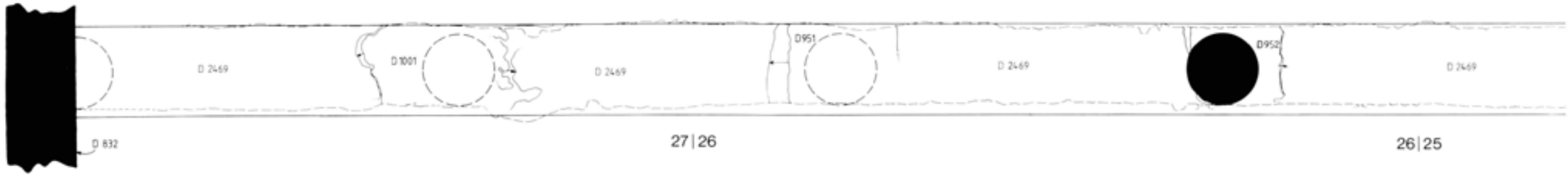
Column position , inferred

Stylobate edge

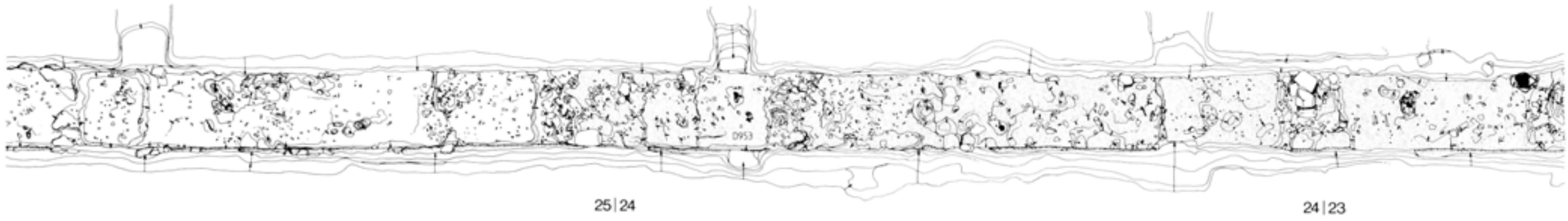
North Aisle Colonnade , west end · Evidence Phase S



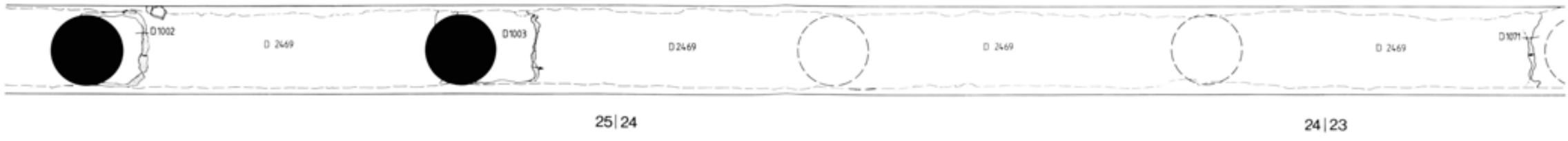
North Aisle Colonnade , west end · Interpretation Phase S



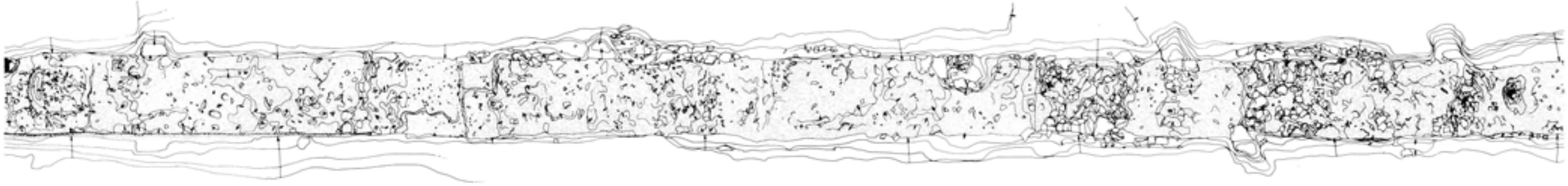
North Aisle Colonnade , centre · Evidence Phase S



North Aisle Colonnade , centre · Interpretation Phase S



North Aisle Colonnade , east · Evidence Phase S



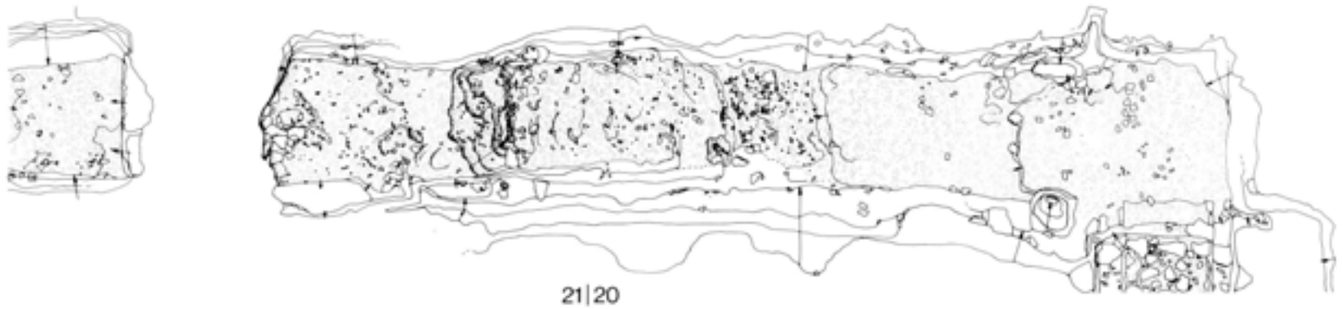
23|22 22|21

North Aisle Colonnade , east · Interpretation Phase S



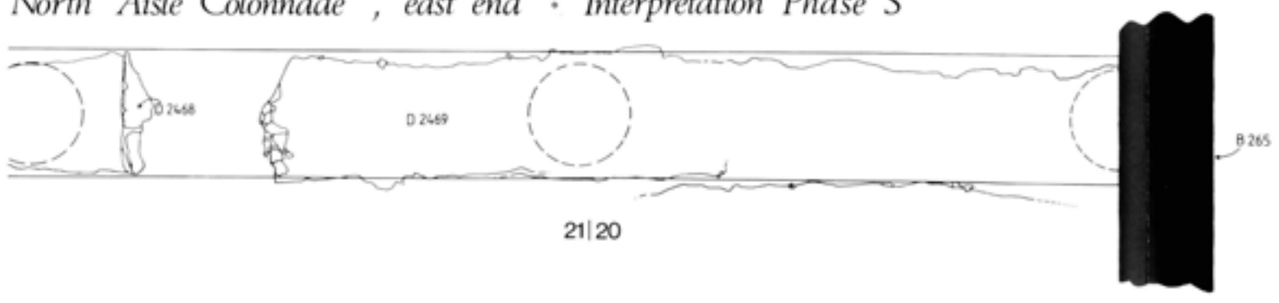
23|22 22|21

North Aisle Colonnade , east end · Evidence Phase S



21|20

North Aisle Colonnade , east end · Interpretation Phase S



21|20

Scale

0 1 2 3 metres

Key

Standing wall

Column position , known

Column position , inferred

Stylobate edge

Nave · Evidence Phases S, T, U and V

Scale
0 1 2 3 metres

Key
Column position, known
Column position, inferred
Stylobate edge
Rows of herringbone tiles
Re-aligning rows

Colonnade

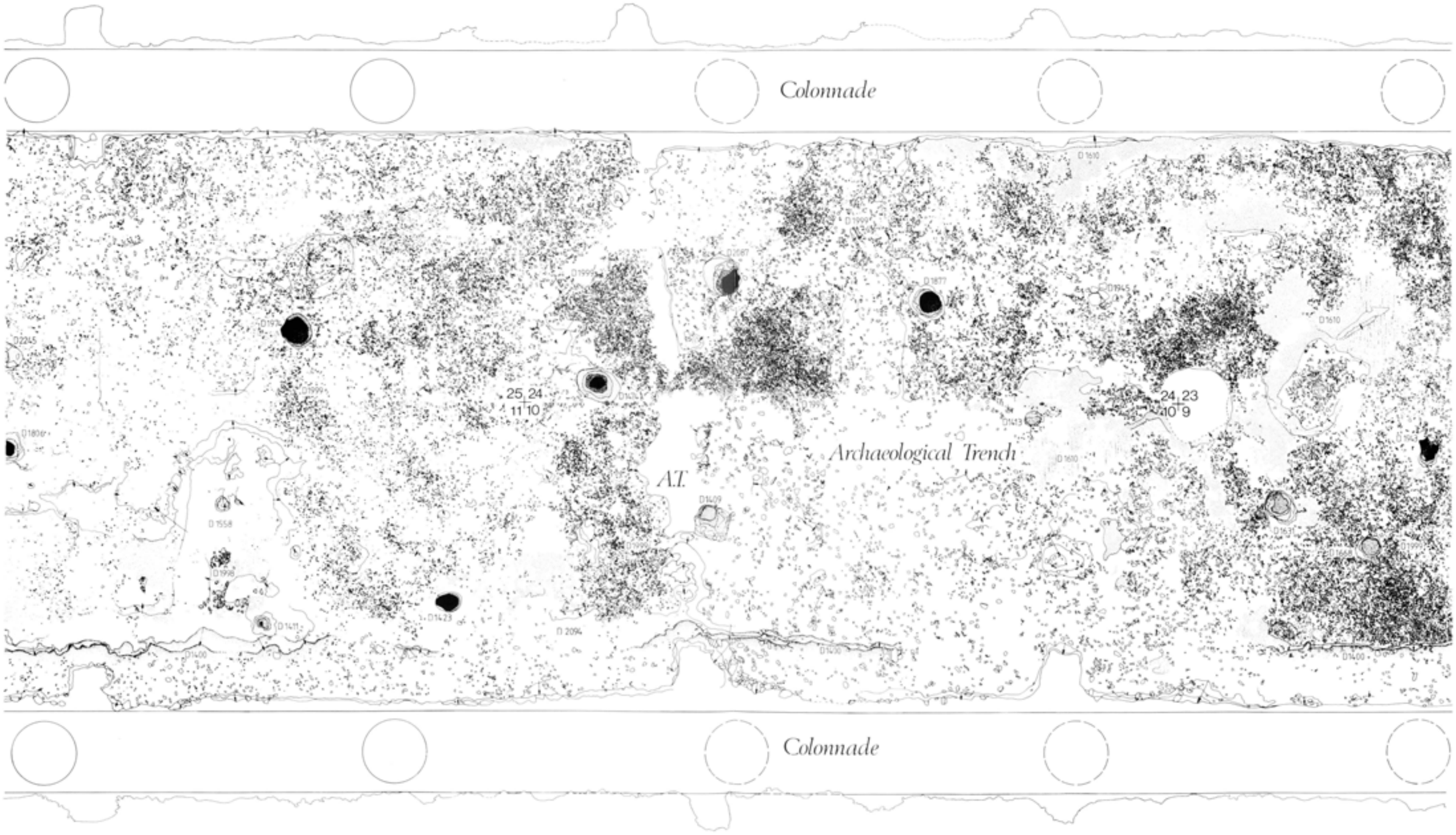
Westward limit of 1985 excavation

27,26
13 12

26,25
12 11

A.T.

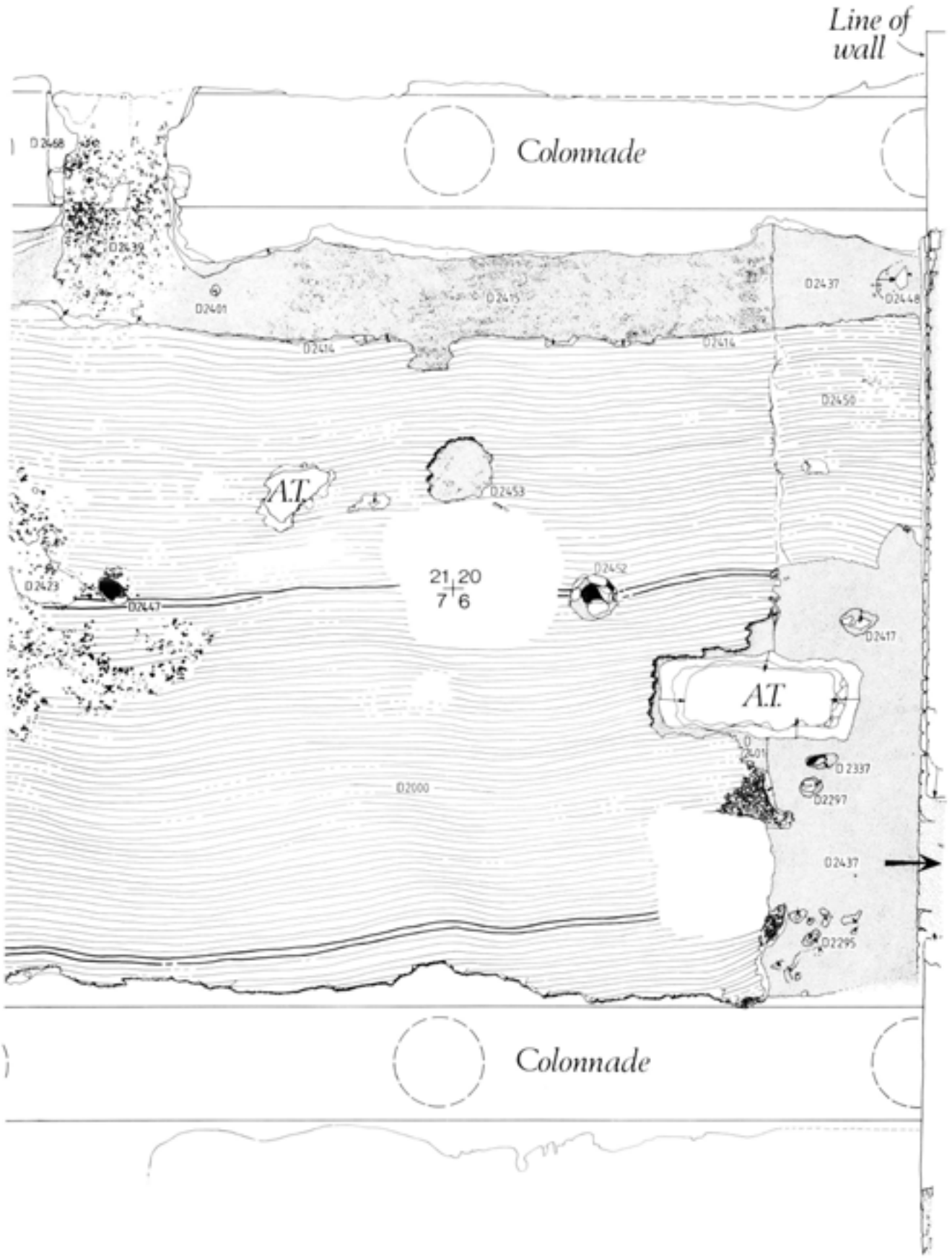
Colonnade


Colonnade
25 24
11 10
24 23
10 9
Archaeological Trench
A.T.
Colonnade

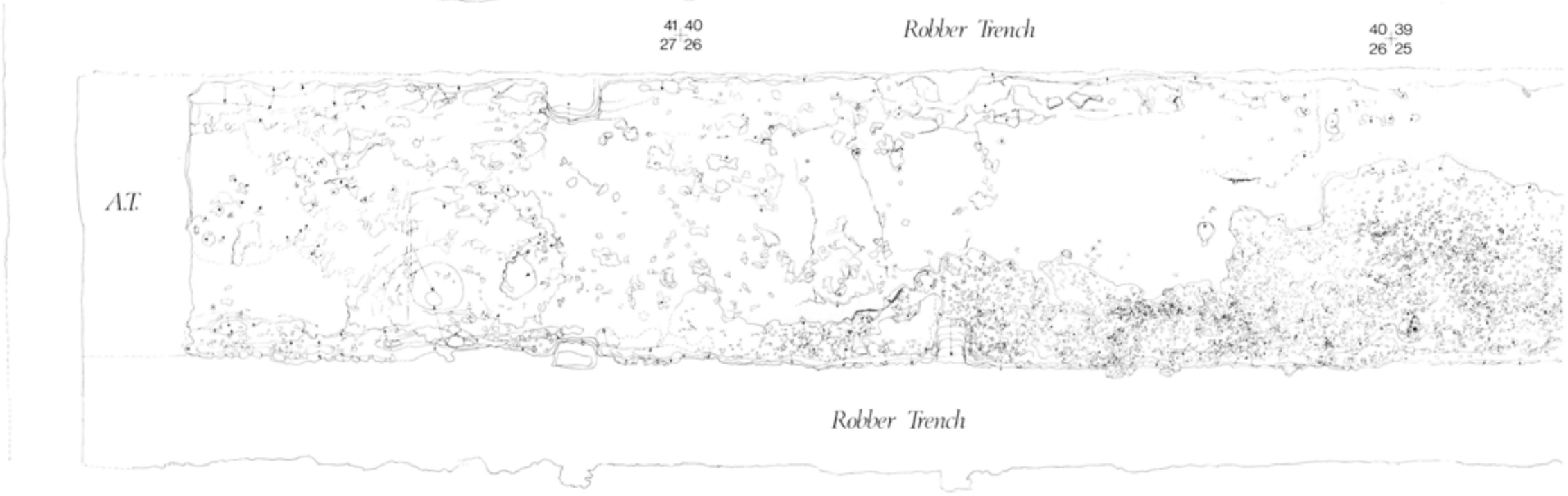
Nave · Evidence Phases S, T, U and V



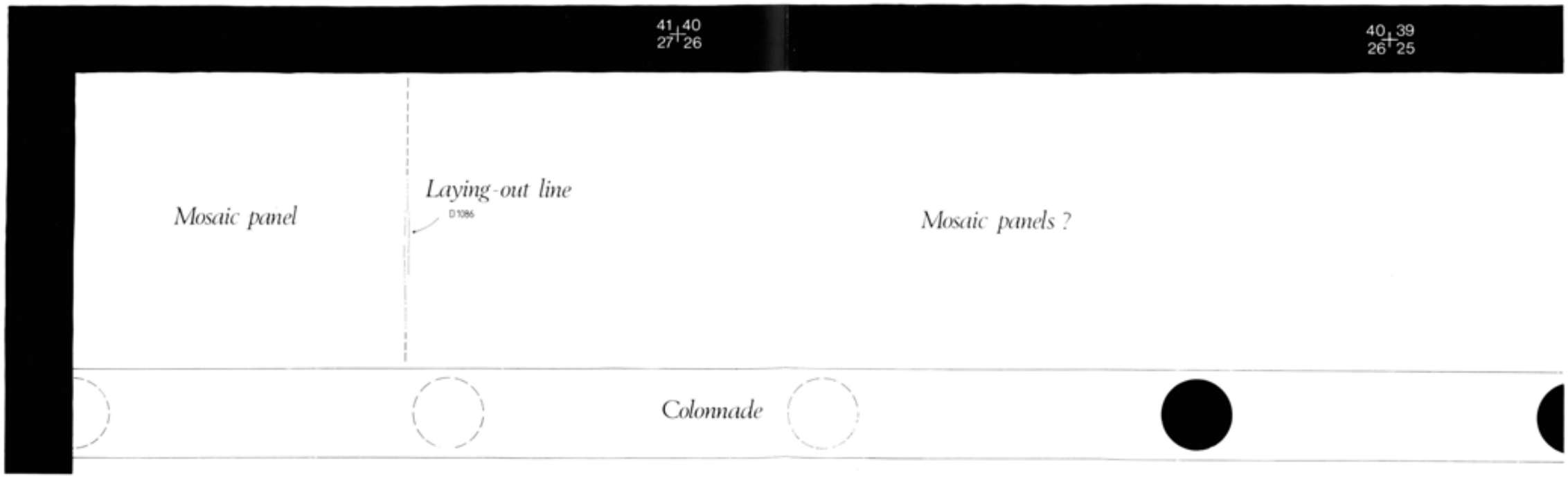
Nave · Evidence Phases S, T, U and V



North Aisle - Evidence Phases S and T



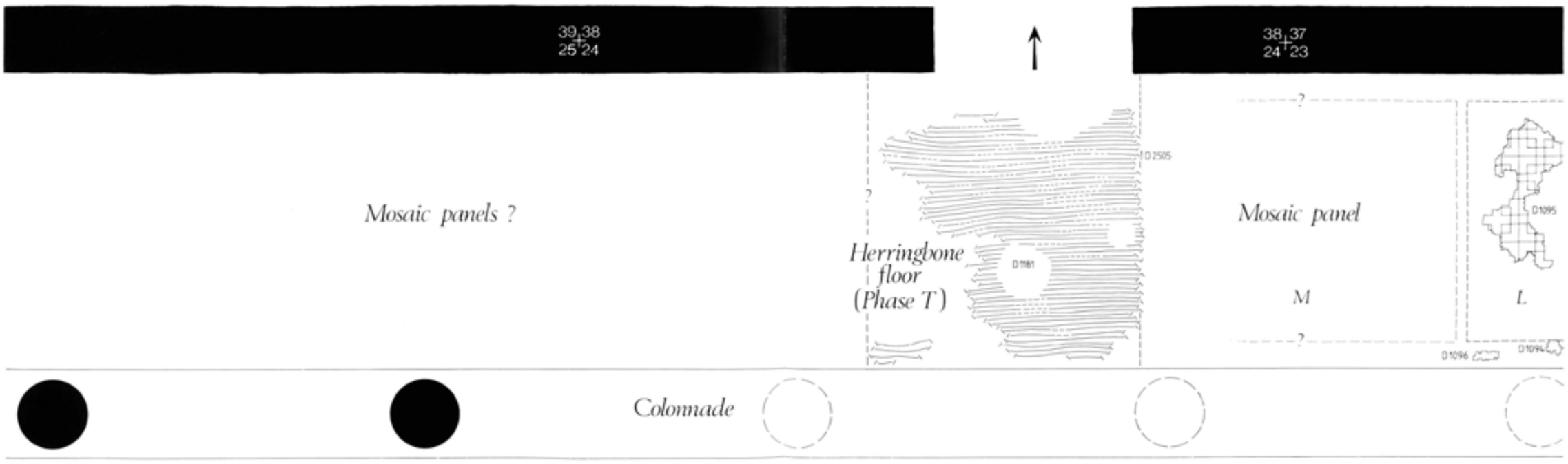
North Aisle - Interpretation Phases S and T



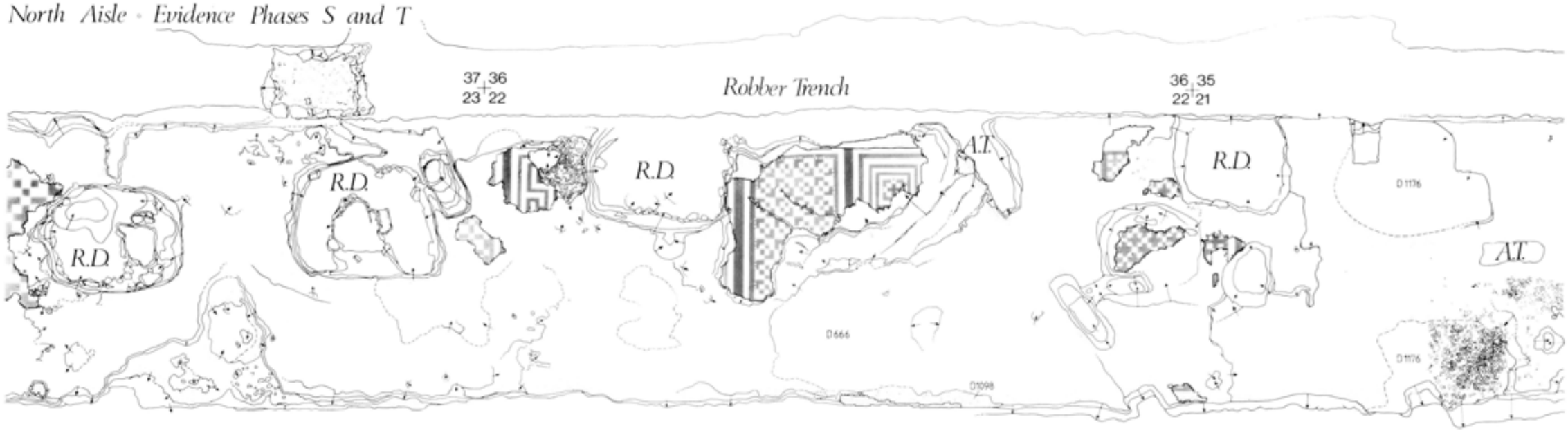
North Aisle - Evidence Phases S and T



North Aisle - Interpretation Phases S and T

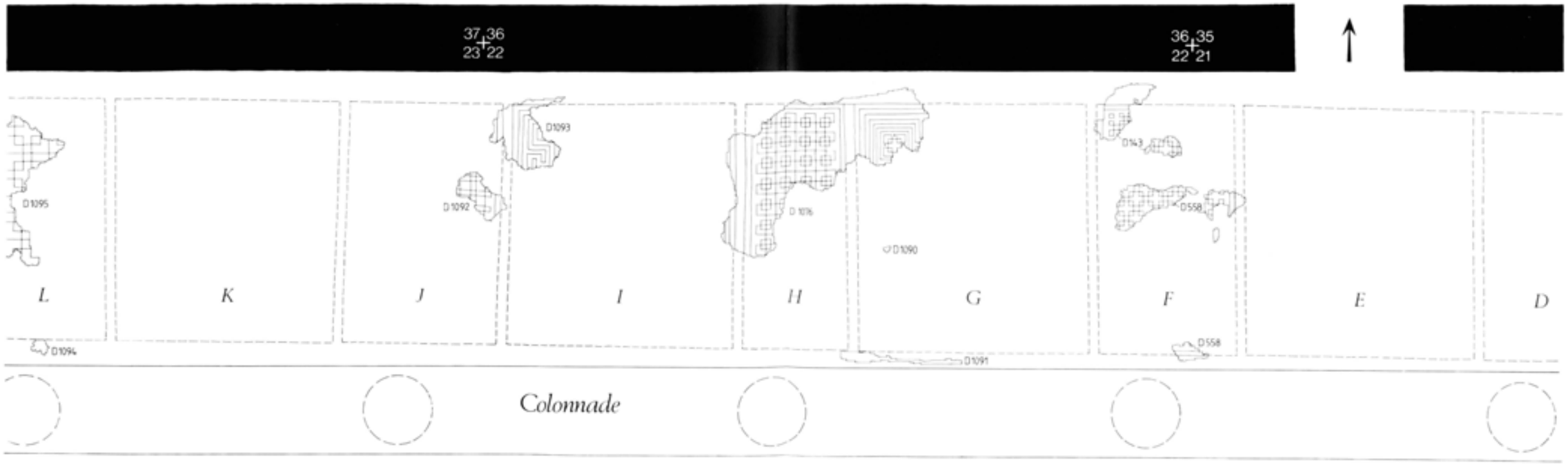


North Aisle - Evidence Phases S and T

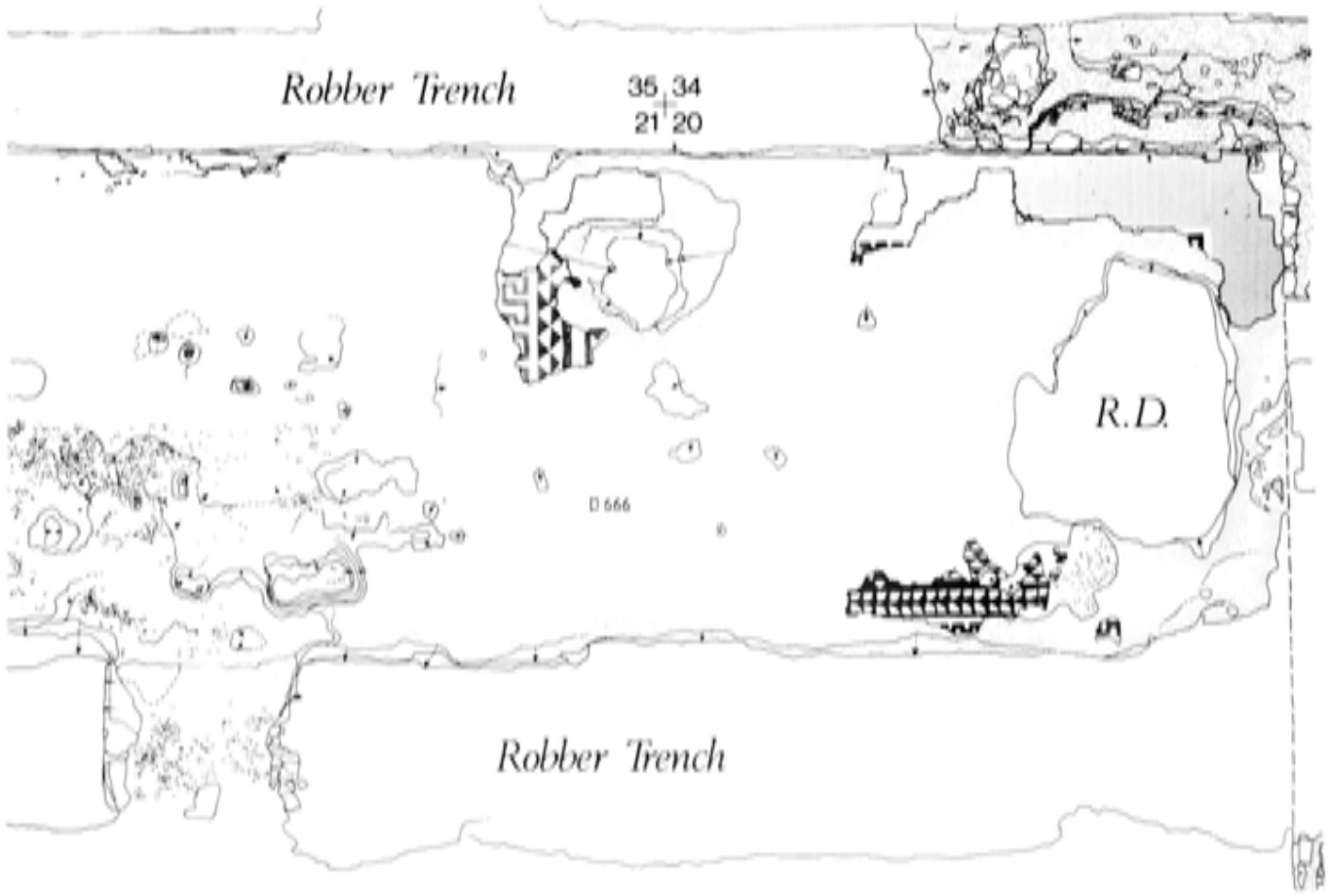


Robber Trench

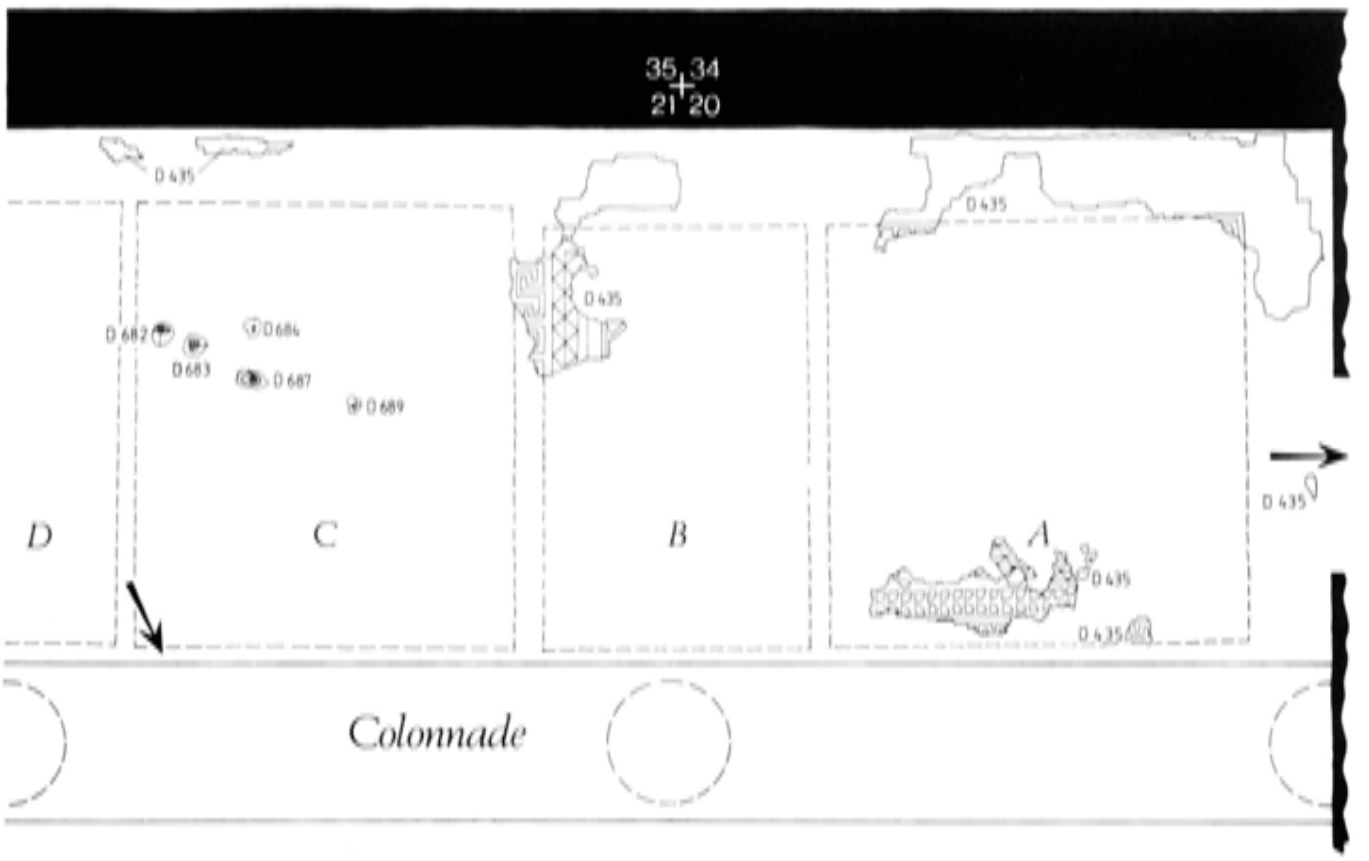
North Aisle - Interpretation Phases S and T



North Aisle · Evidence Phases S and T



North Aisle · Interpretation Phases S and T



North Aisle ◦ Evidence Phase S

38 37
24 23

Robber Trench

37 36
23 22







Key

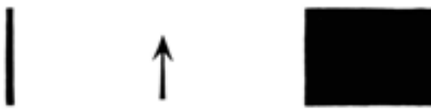
On site evidence

Areas of mosaic recorded in Maw, 1859

Fragments in Rowley's House Museum

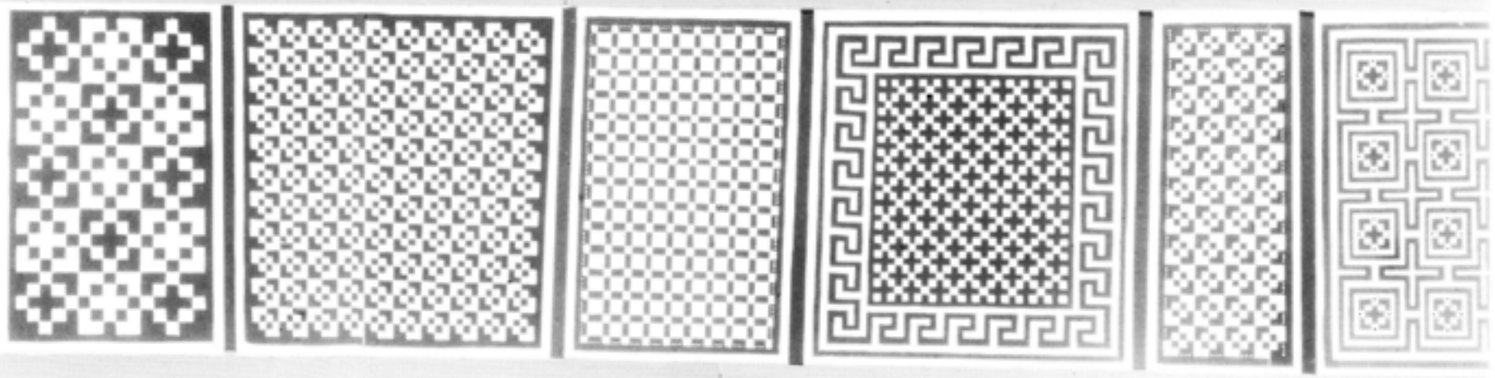
Robber Trench

North Aisle ◦ Reconstruction Phase S



38 37
24 23

37 36
23 22



Scale
0 1 2 3 metres

Colour key for mosaics

Grey green

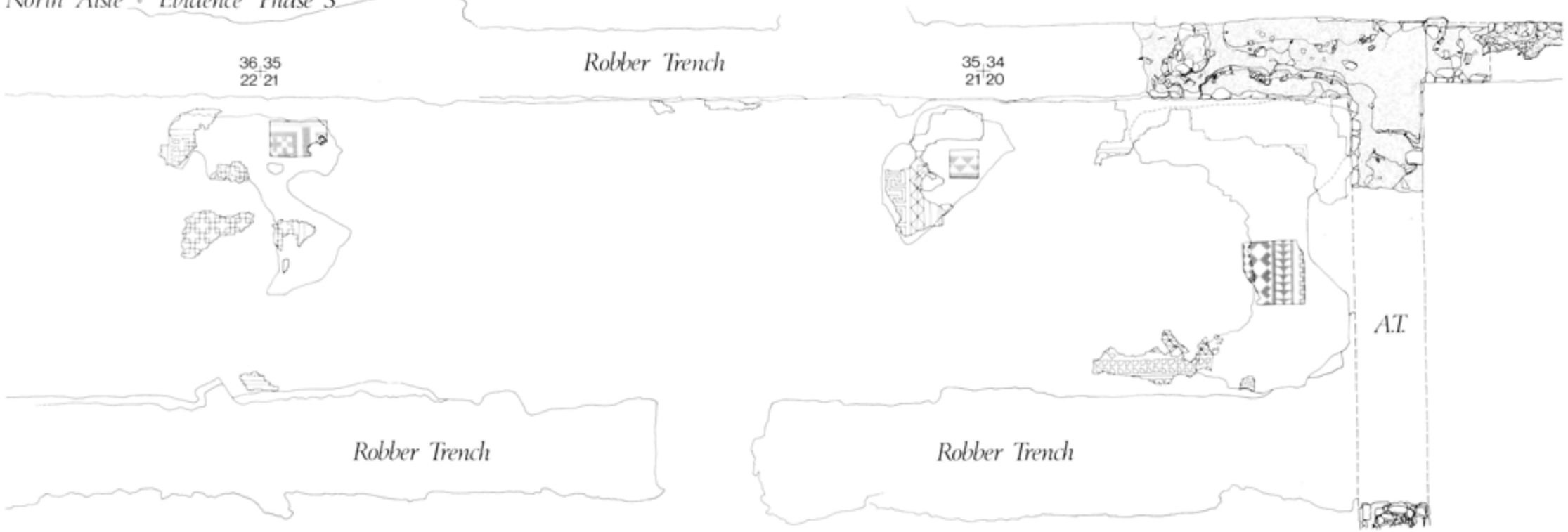
Dark blue

Red

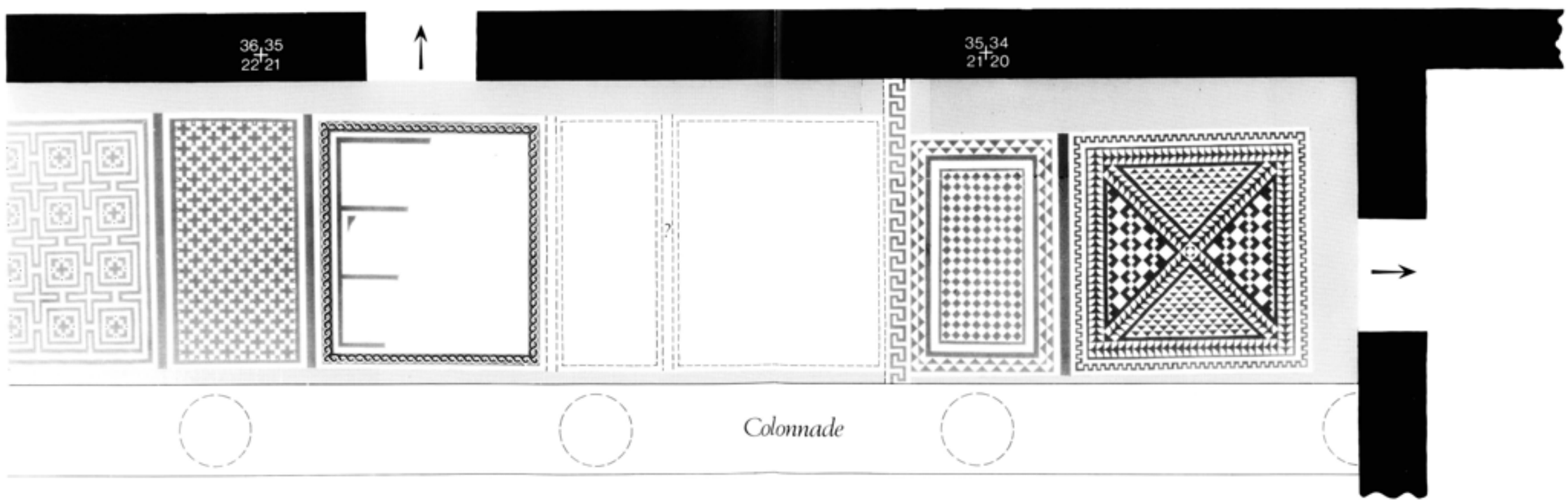
White

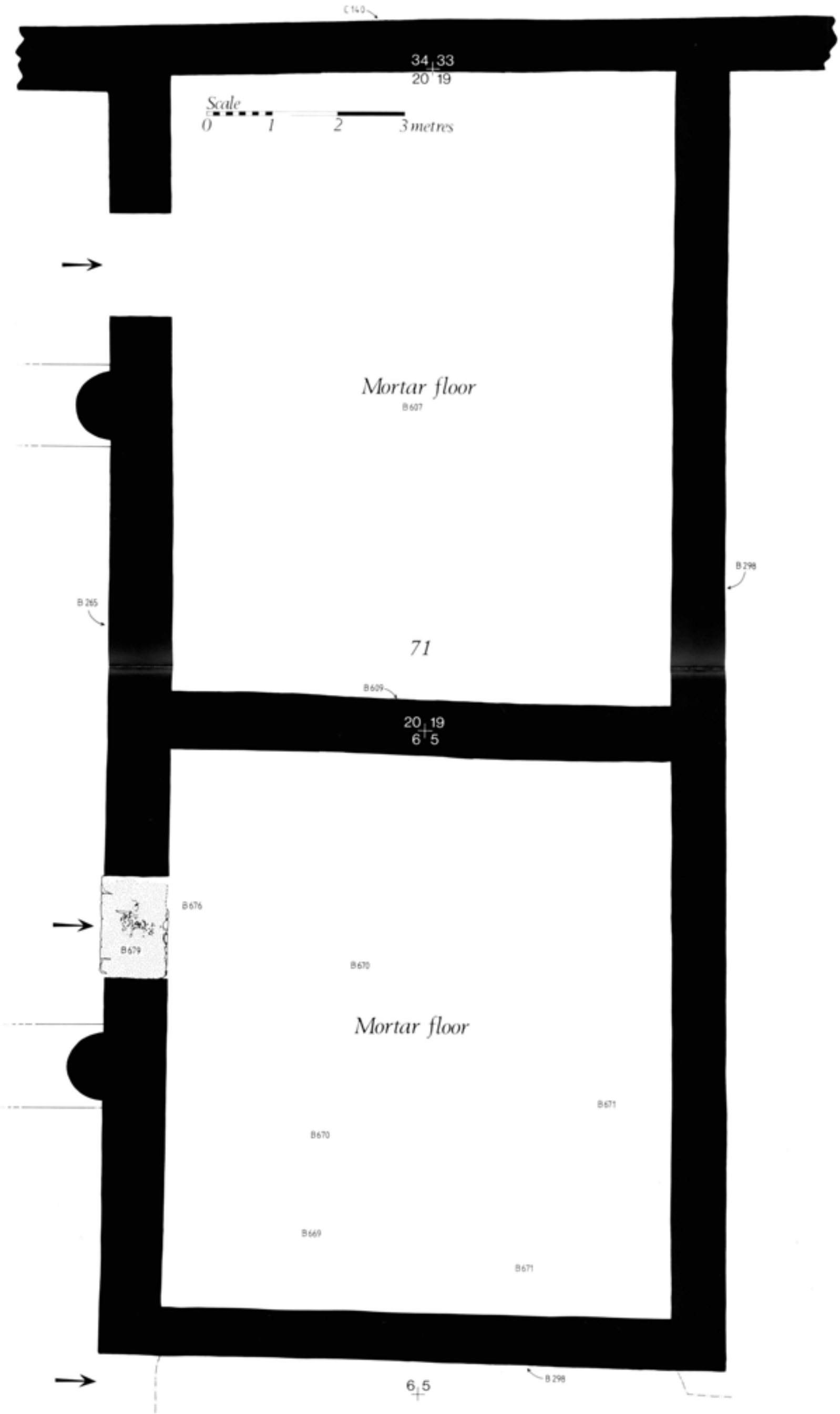
Colonnade

North Aisle - Evidence Phase S

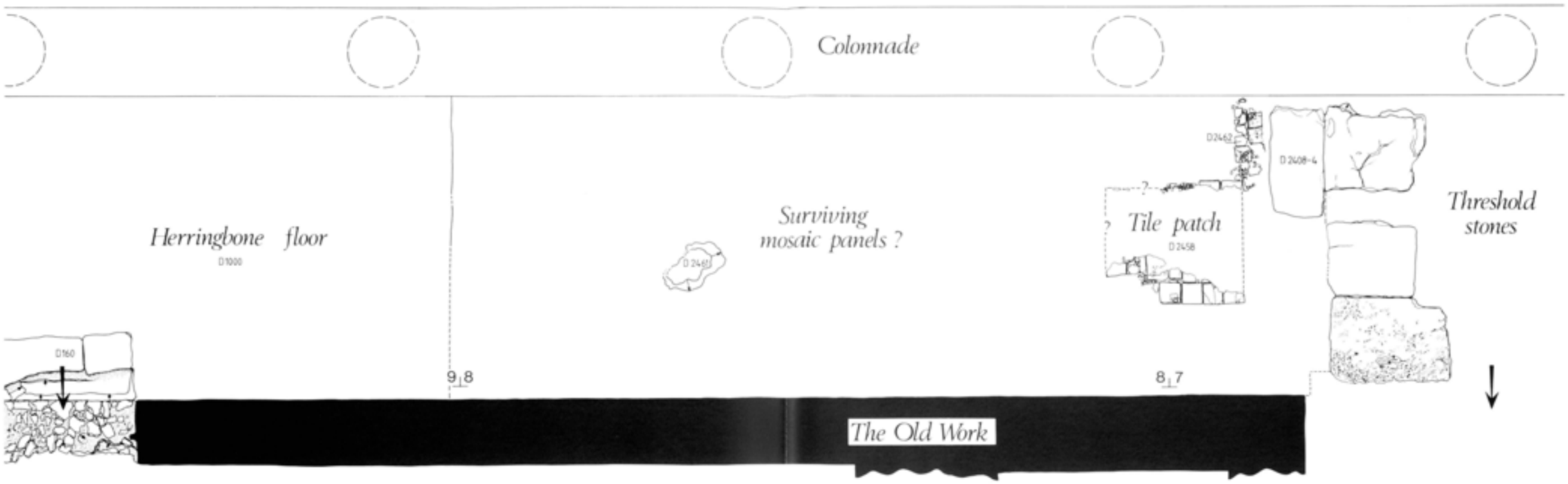


North Aisle - Reconstruction Phase S

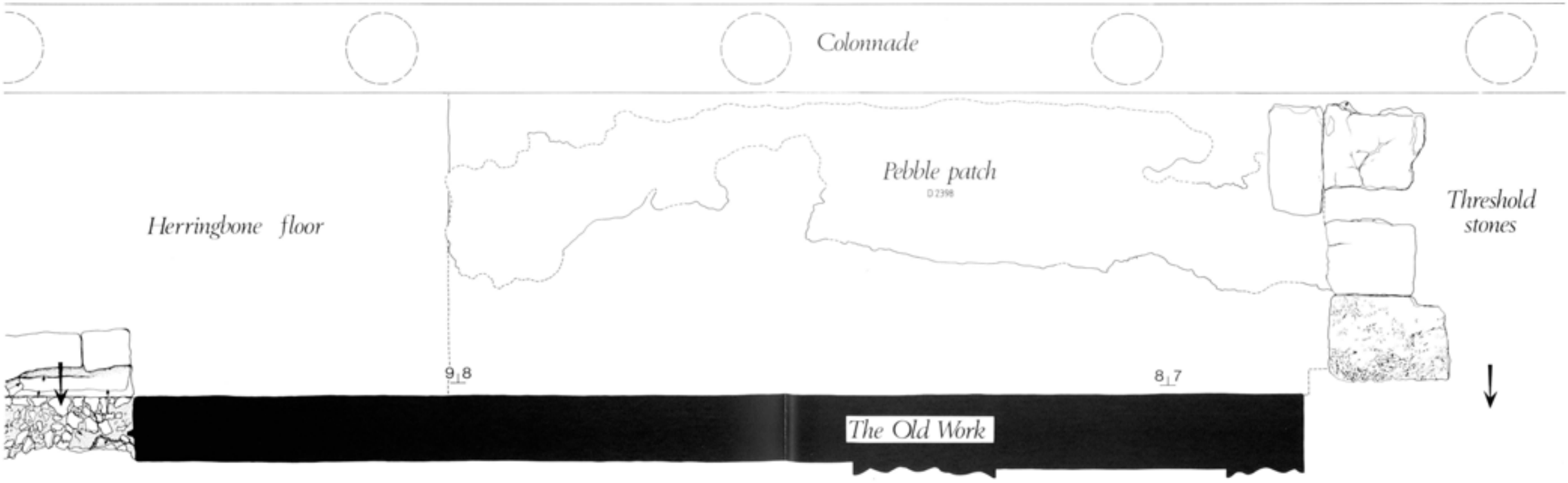


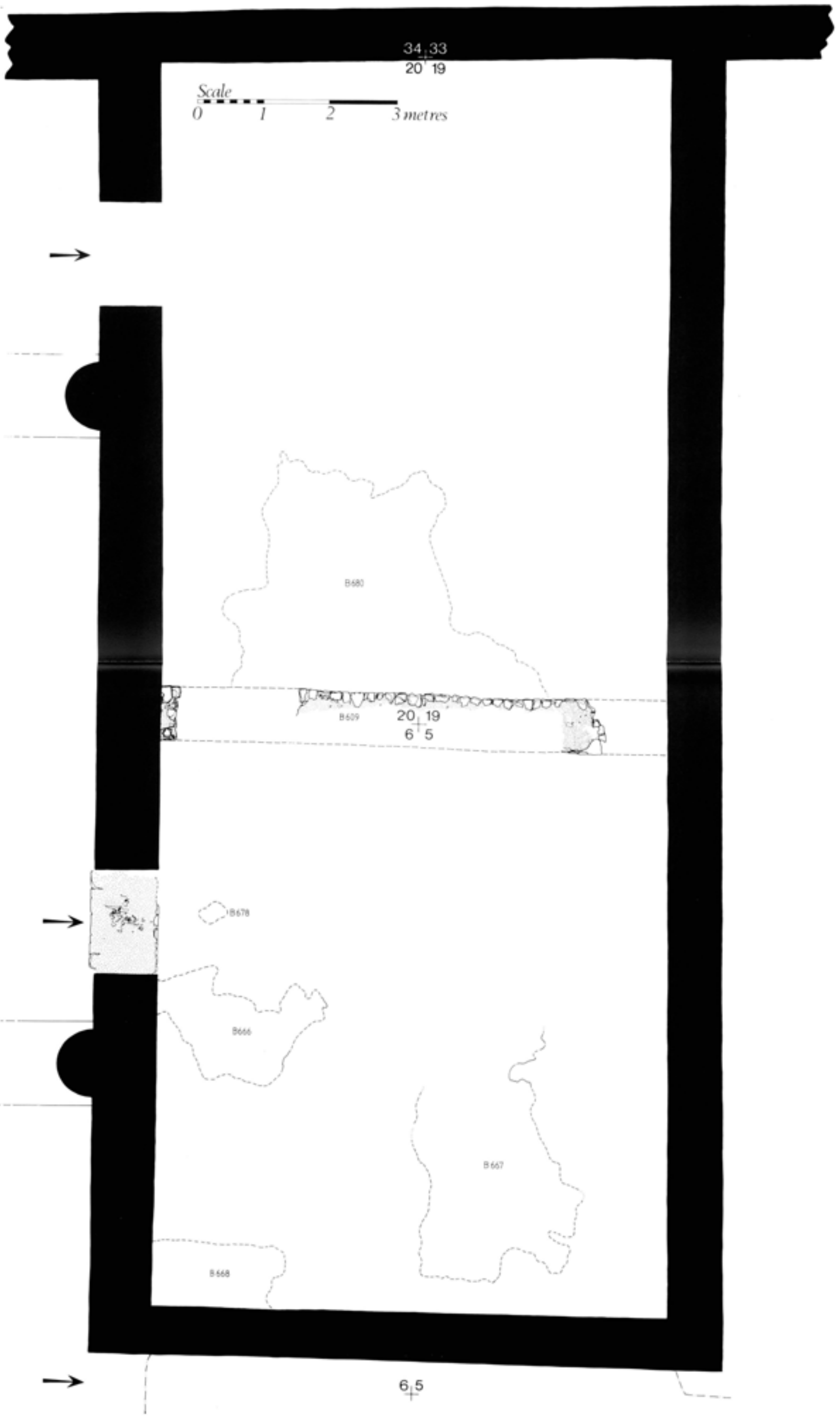

C140
34 33
20 19
Scale
0 1 2 3 metres
Mortar floor
B607
B 265
B 298
71
B609
20 19
6 5
B676
B679
B670
Mortar floor
B671
B670
B669
B671
B 298
6 5

South Aisle - Interpretation Phase T

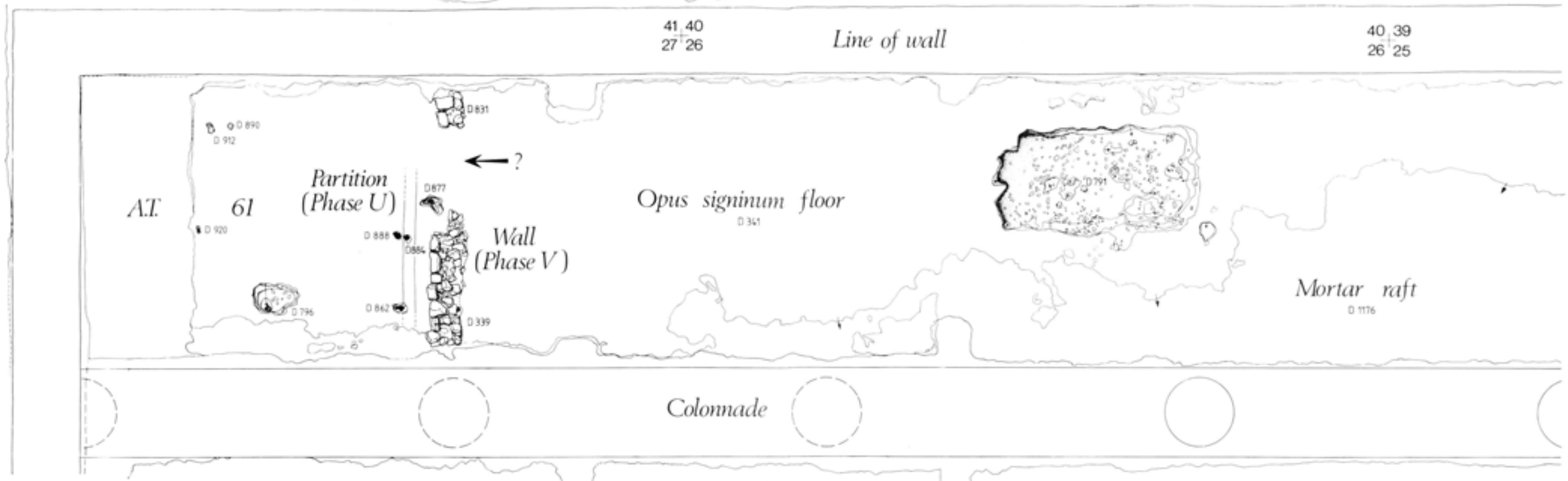


South Aisle - Interpretation Phase U

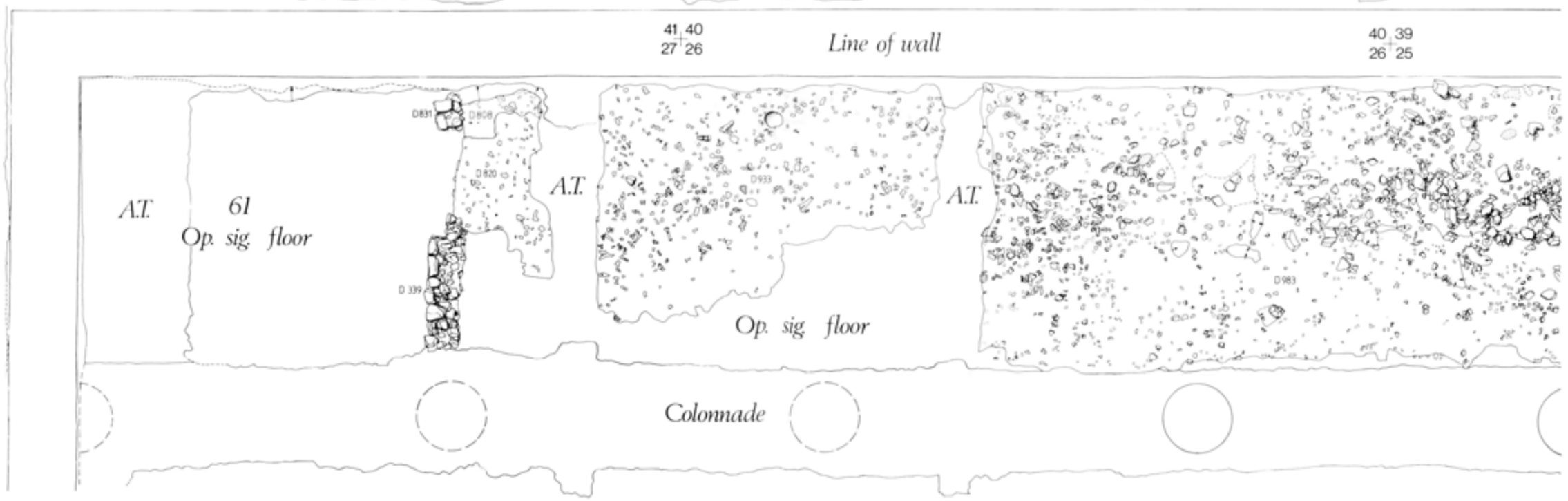



34 33
20 19
Scale
0 1 2 3 metres
B680
B609
20 19
6 5
B678
B666
B667
B668
6 5

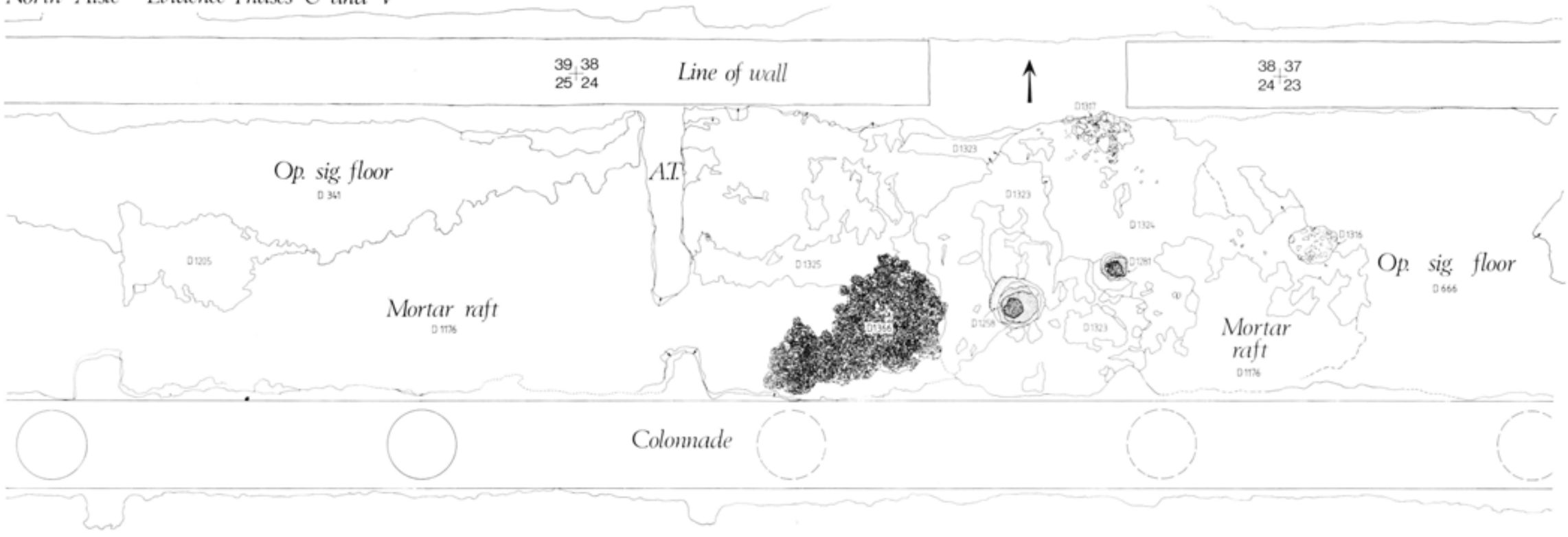
North Aisle - Evidence Phases U and V



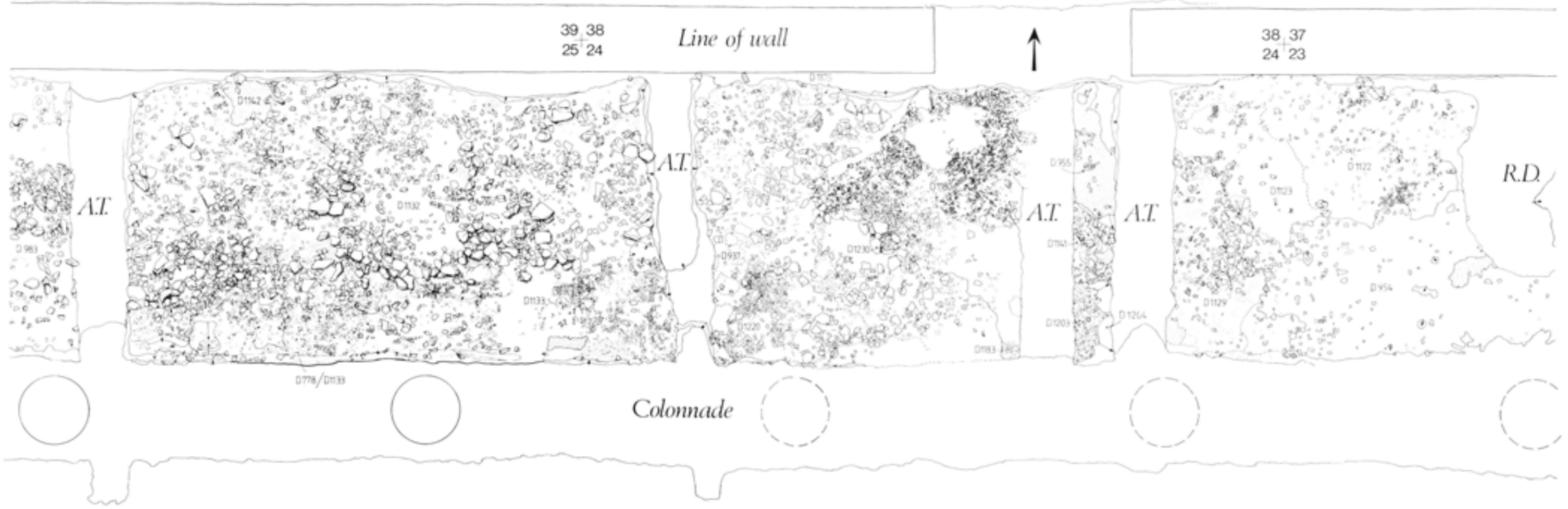
North Aisle - Evidence Phase W



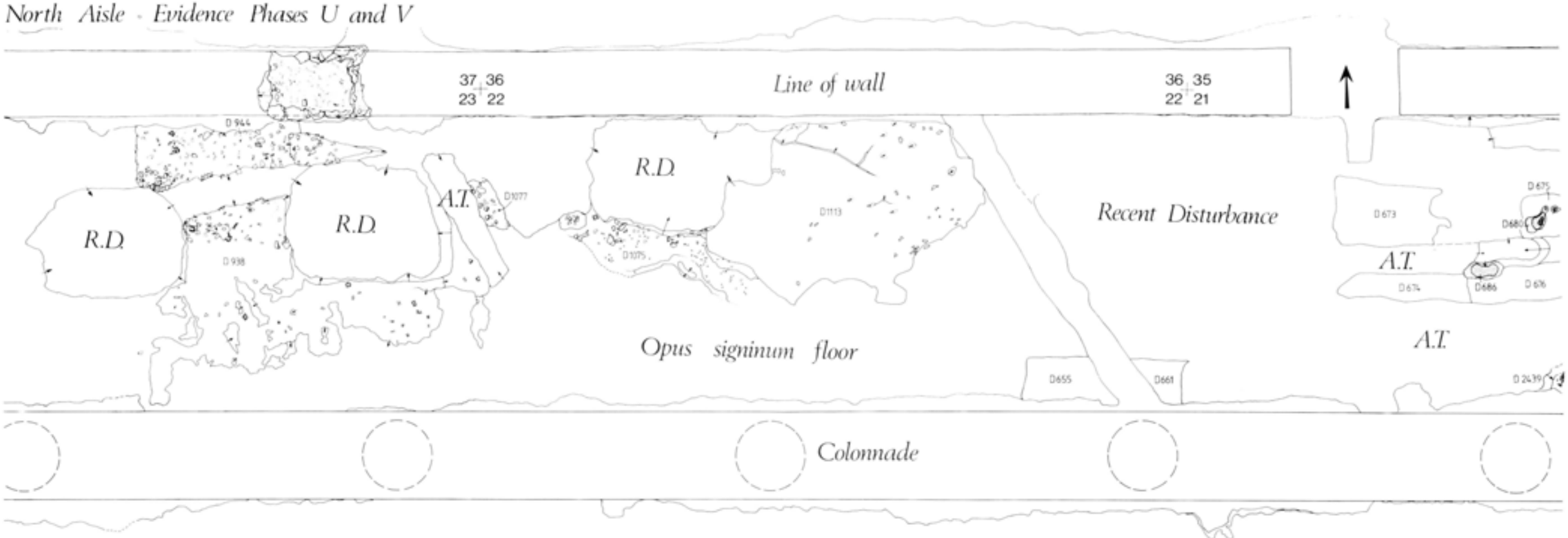
North Aisle · Evidence Phases U and V



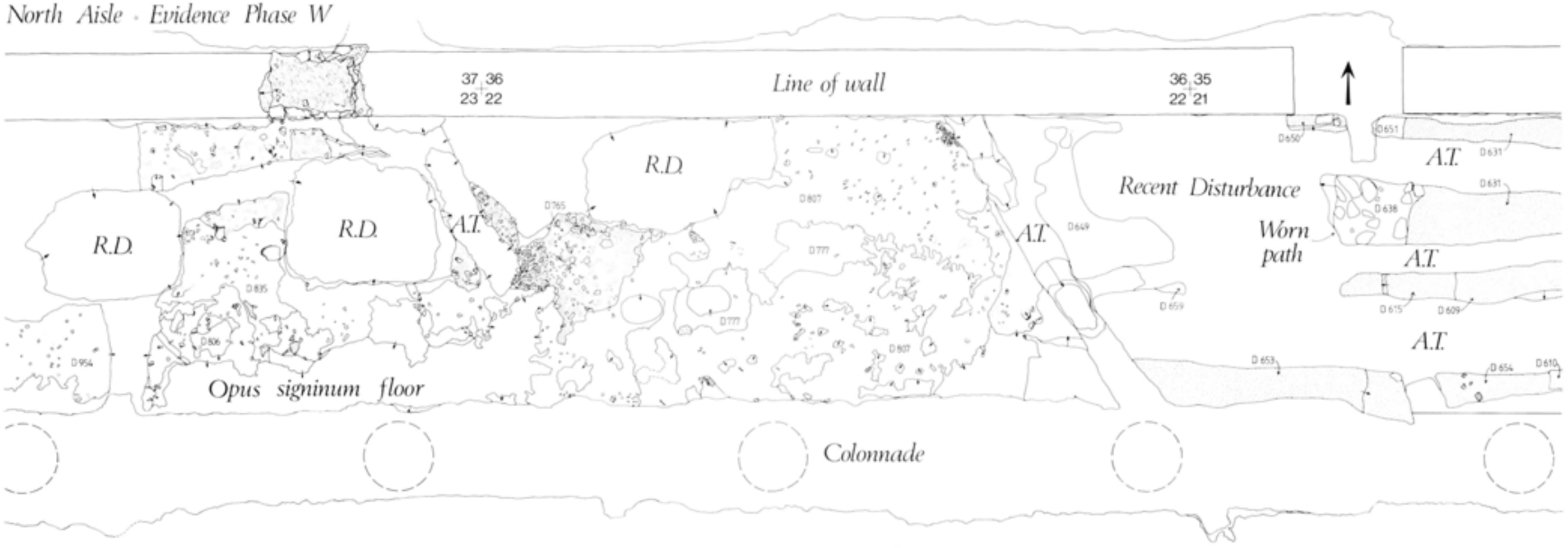
North Aisle · Evidence Phase W



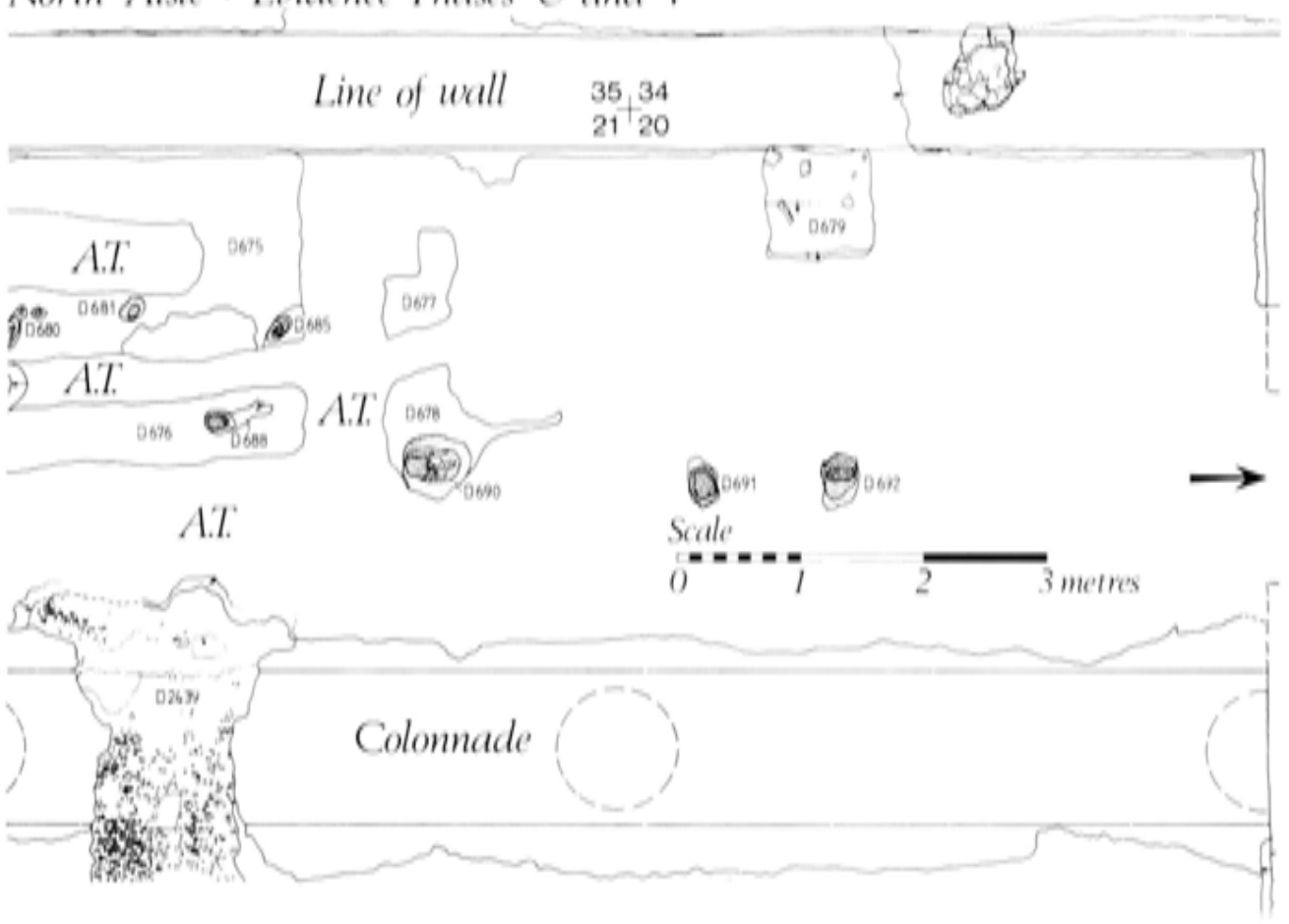
North Aisle - Evidence Phases U and V



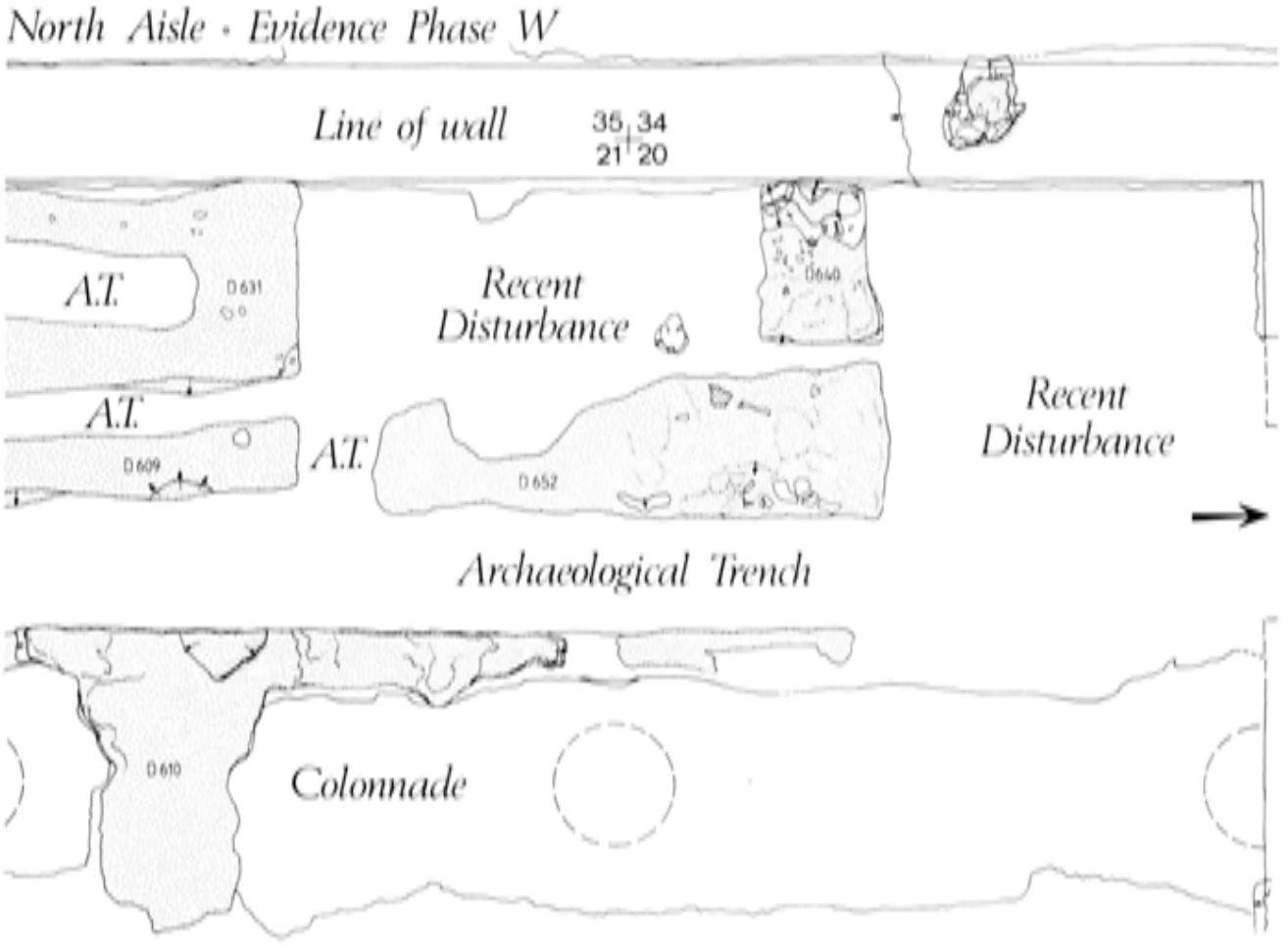
North Aisle - Evidence Phase W

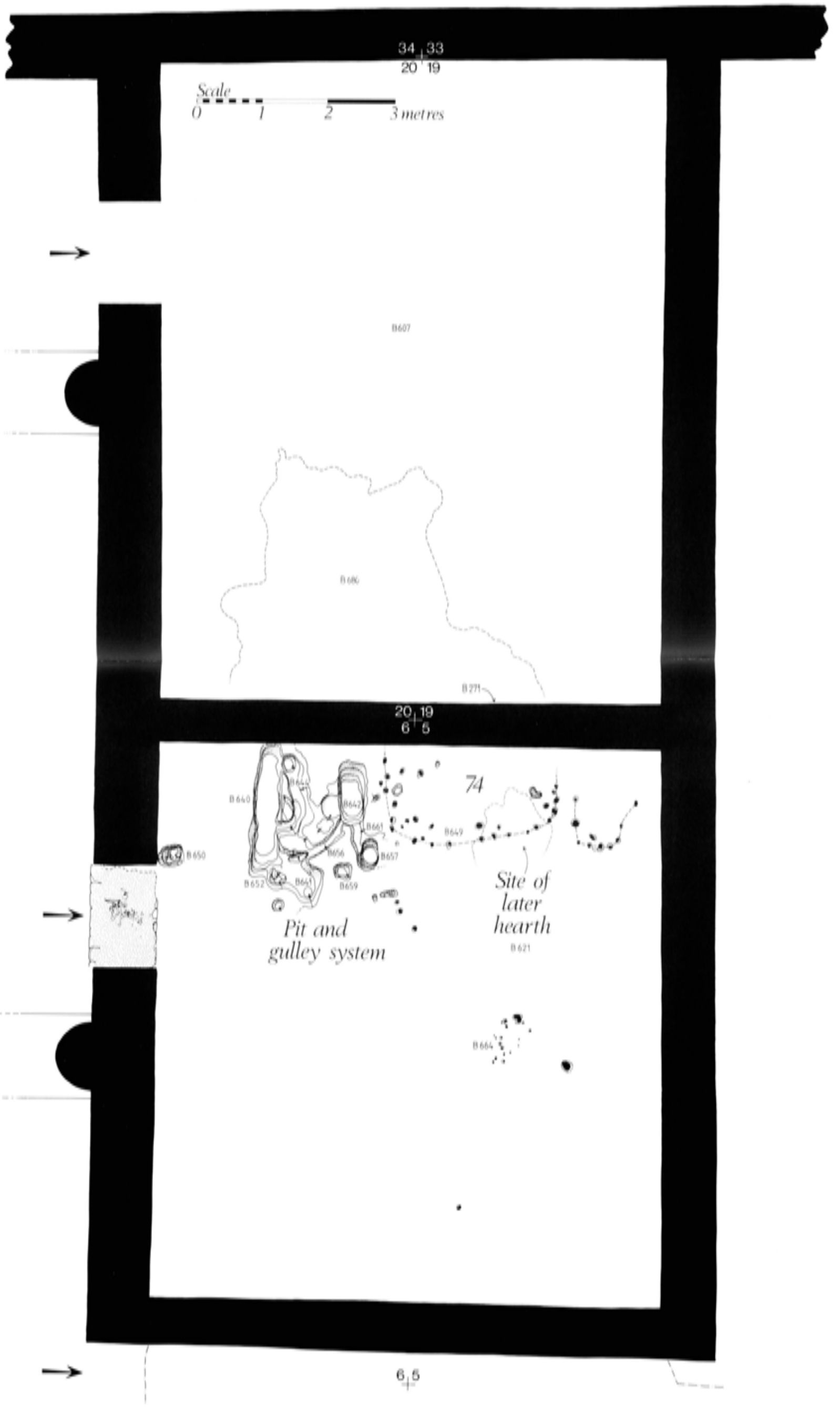


North Aisle · Evidence Phases U and V



North Aisle · Evidence Phase W




34
33
20
19
Scale
0
1
2
3 metres
B607
B686
B271
20
19
6
5
74
B644
B640
B642
B661
B649
B656
B657
B650
B652
B645
B659
Pit and gulley system
Site of later hearth
B621
B664
6
5

South Aisle · Evidence Phase V

Robber Trench

A.T.

A.T.

A.T.

13 | 12

12 | 11

Scale

0 1 2 3 metres

Key

Unworn posthole

Worn posthole

South Aisle · Interpretation Phase V

Colonnade

Silt

D 1005

D 1060

D 904

D 903

D 1020

D 1021

D 1087

D 1074

D 1012

D 1013

D 1014

Herringbone floor

Pebble patch

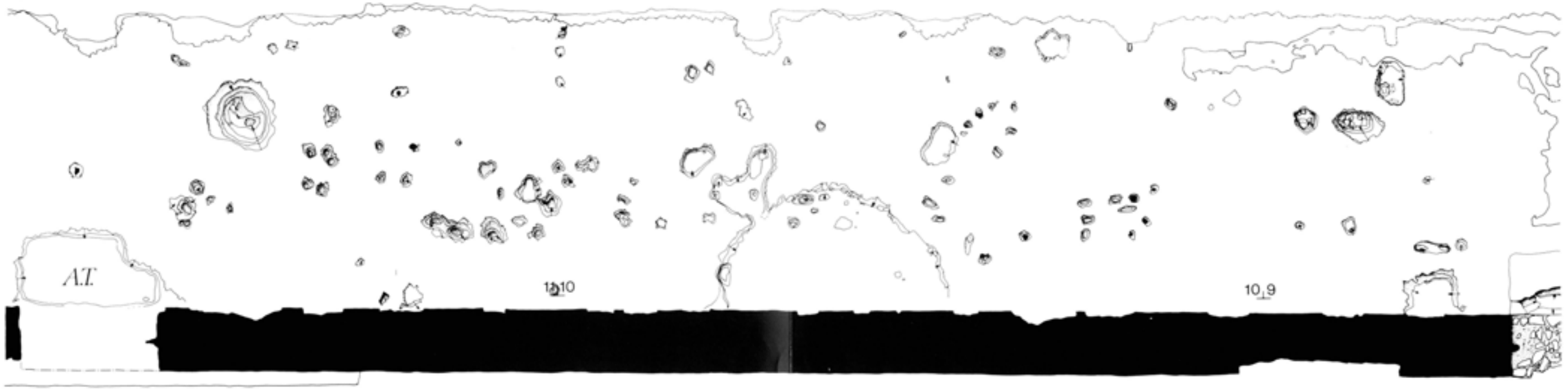
D 2306

13 | 12

12 | 11

South Aisle · Evidence Phase V

Robber Trench

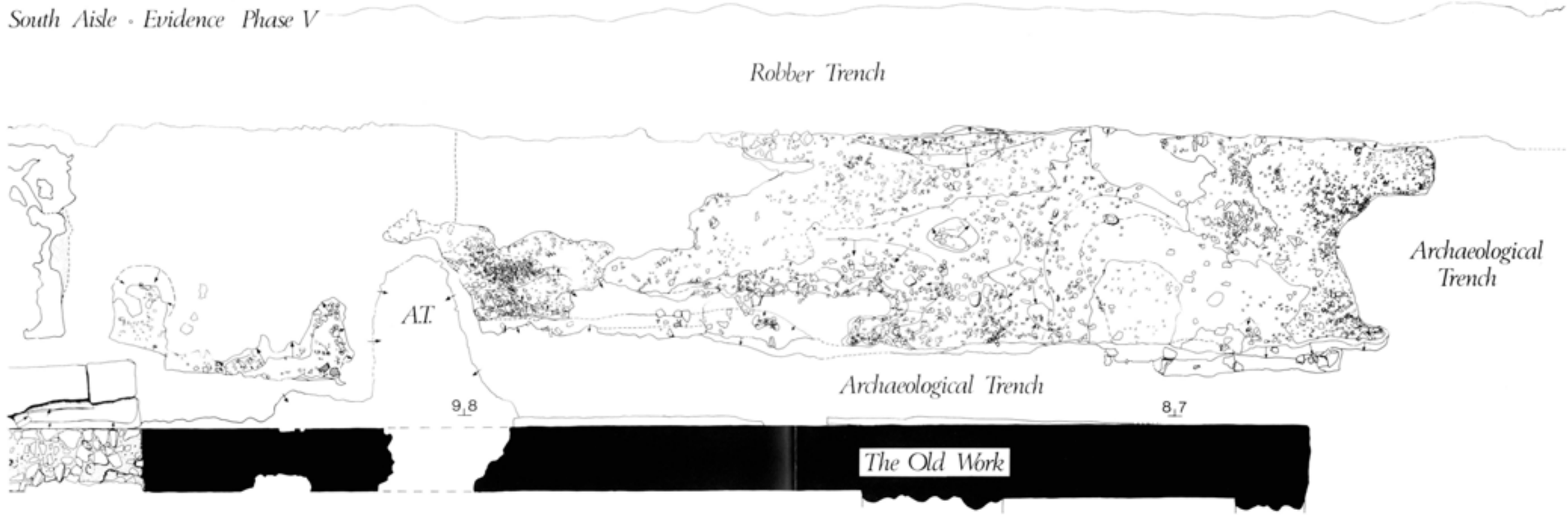


South Aisle · Interpretation Phase V

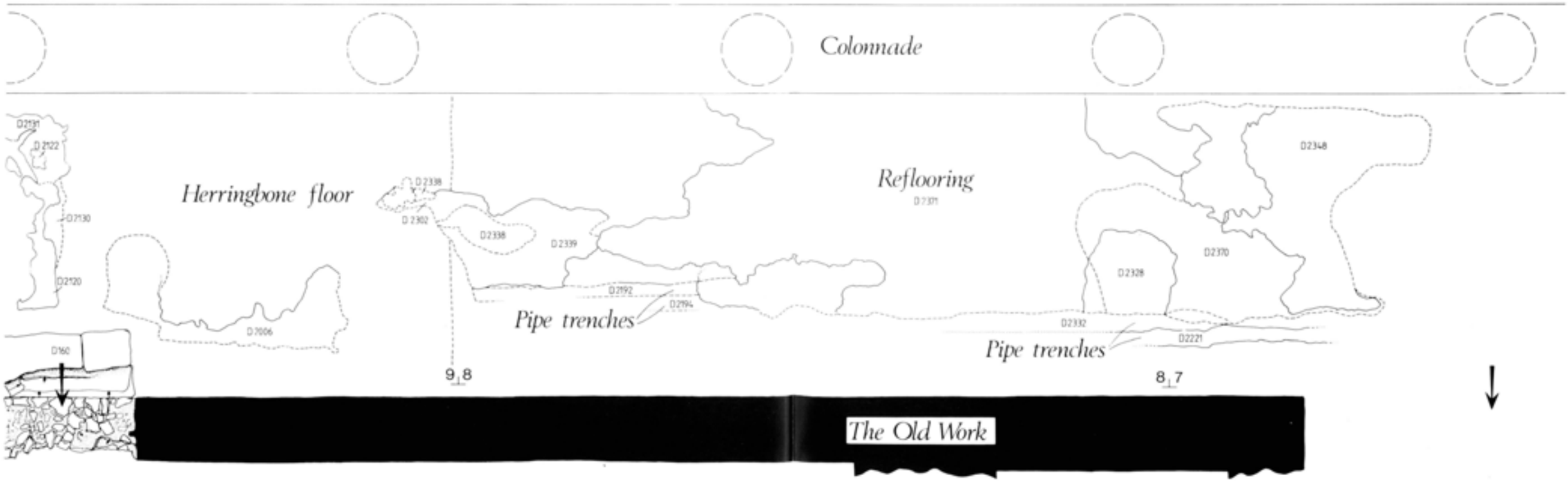
Colonnade



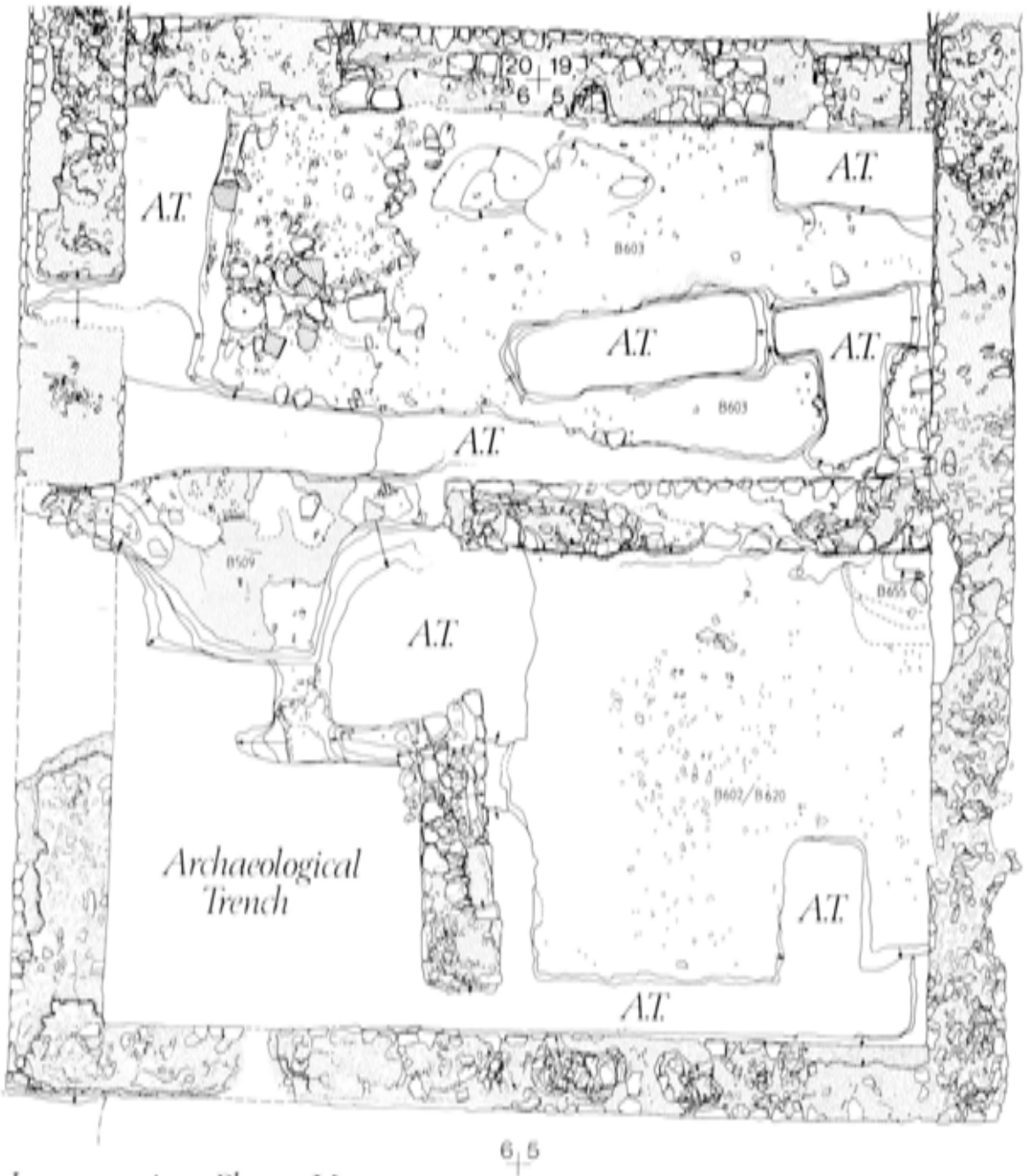
South Aisle - Evidence Phase V



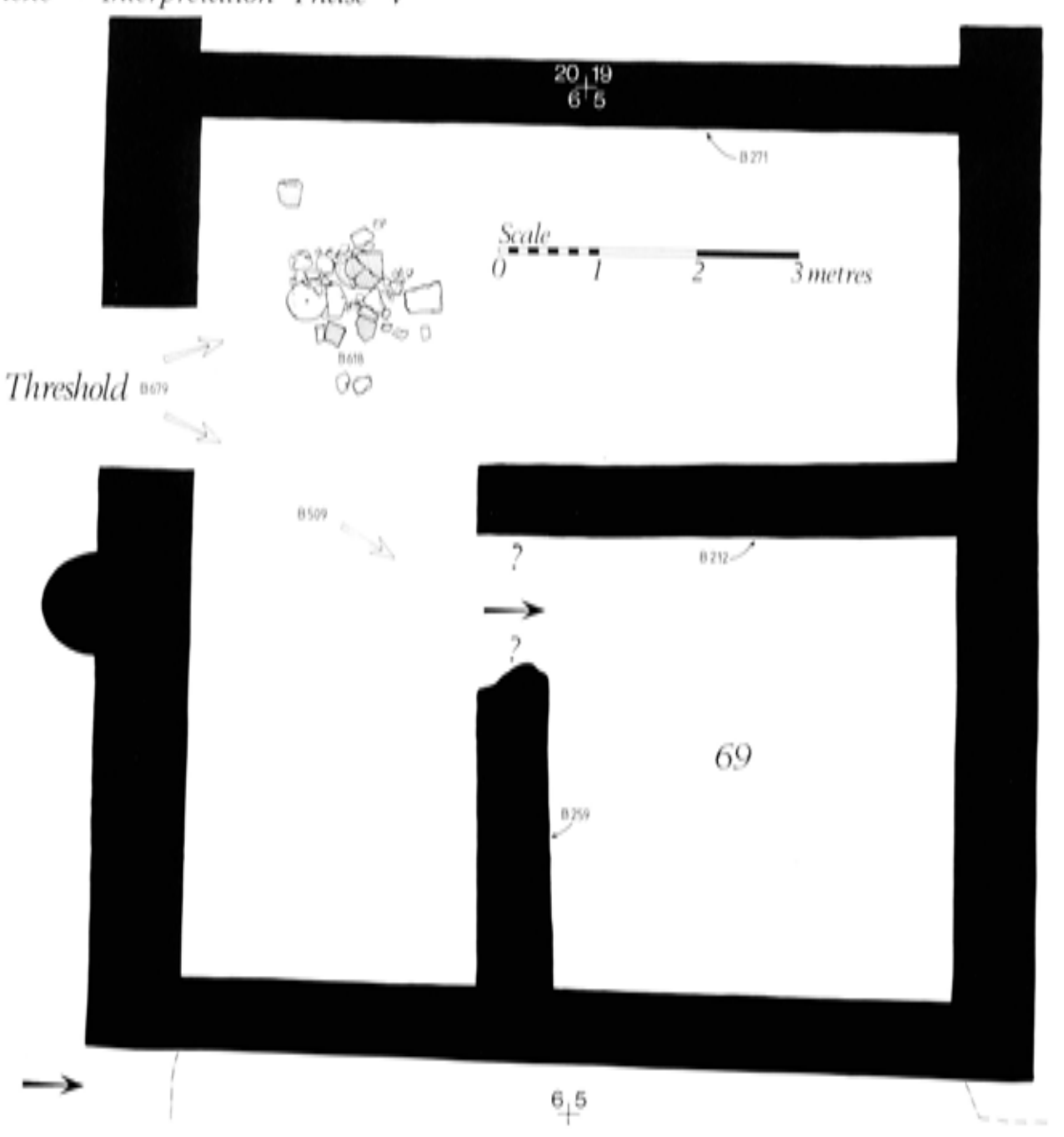
South Aisle - Interpretation Phase V



Annexe · Evidence Phase V



Annexe · Interpretation Phase V



South Aisle · Evidence Phase W1



South Aisle · Evidence Phases W2-3



South Aisle - Evidence Phase W1

Colonnade

Key

Column position, inferred

Column position, known

Herringbone floor

Silt
D810

Silt
D809

Silt
D859

D905

D1059

D991

D1078

11_10

10_9

South Aisle - Evidence Phases W2-3

Colonnade

Herringbone floor

Silt
D787

D758

Silt
D757

Silt
D756

D822

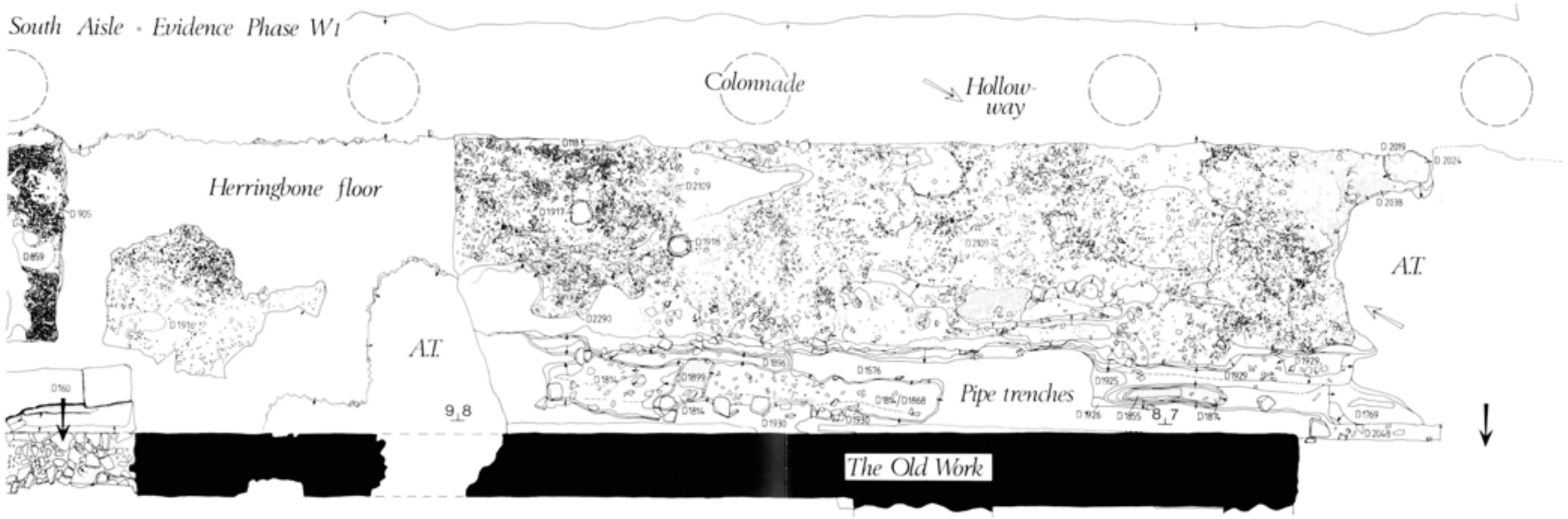
D822

D822

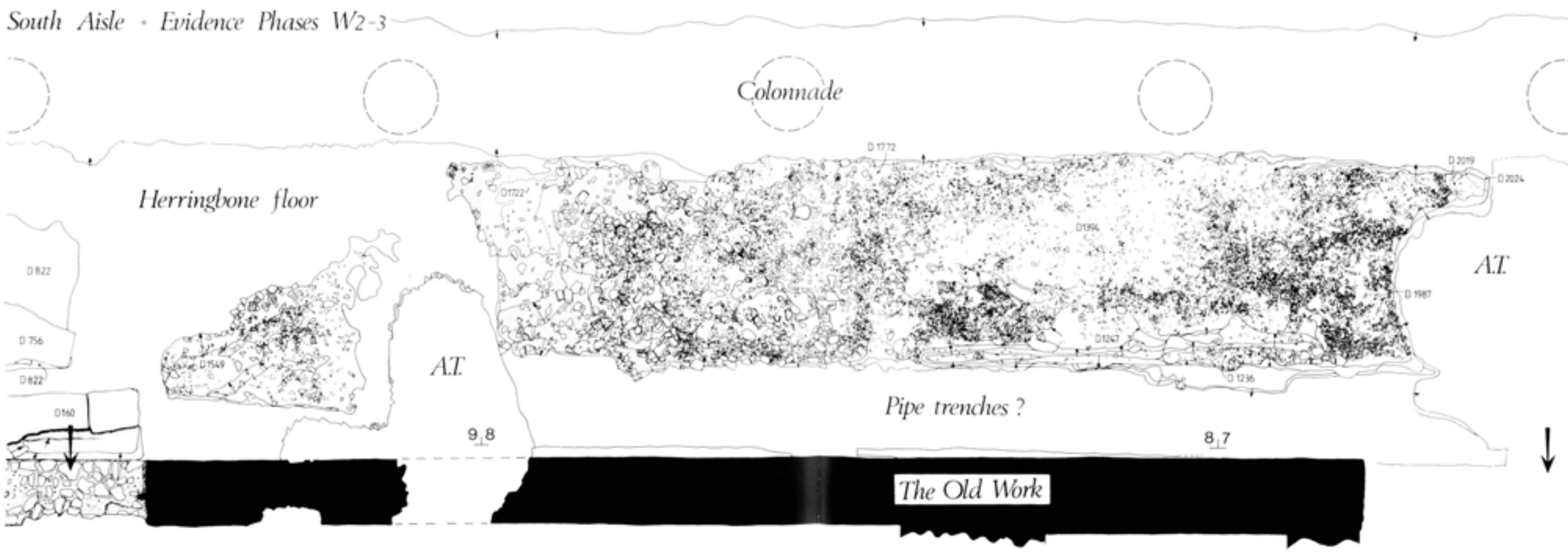
11_10

10_9

South Aisle - Evidence Phase W1



South Aisle - Evidence Phases W2-3



Line of wall

Colonnade

Herringbone floor exposed

27 26
13 12

26 25
12 11

Pebble floor lost in Archaeological Trench

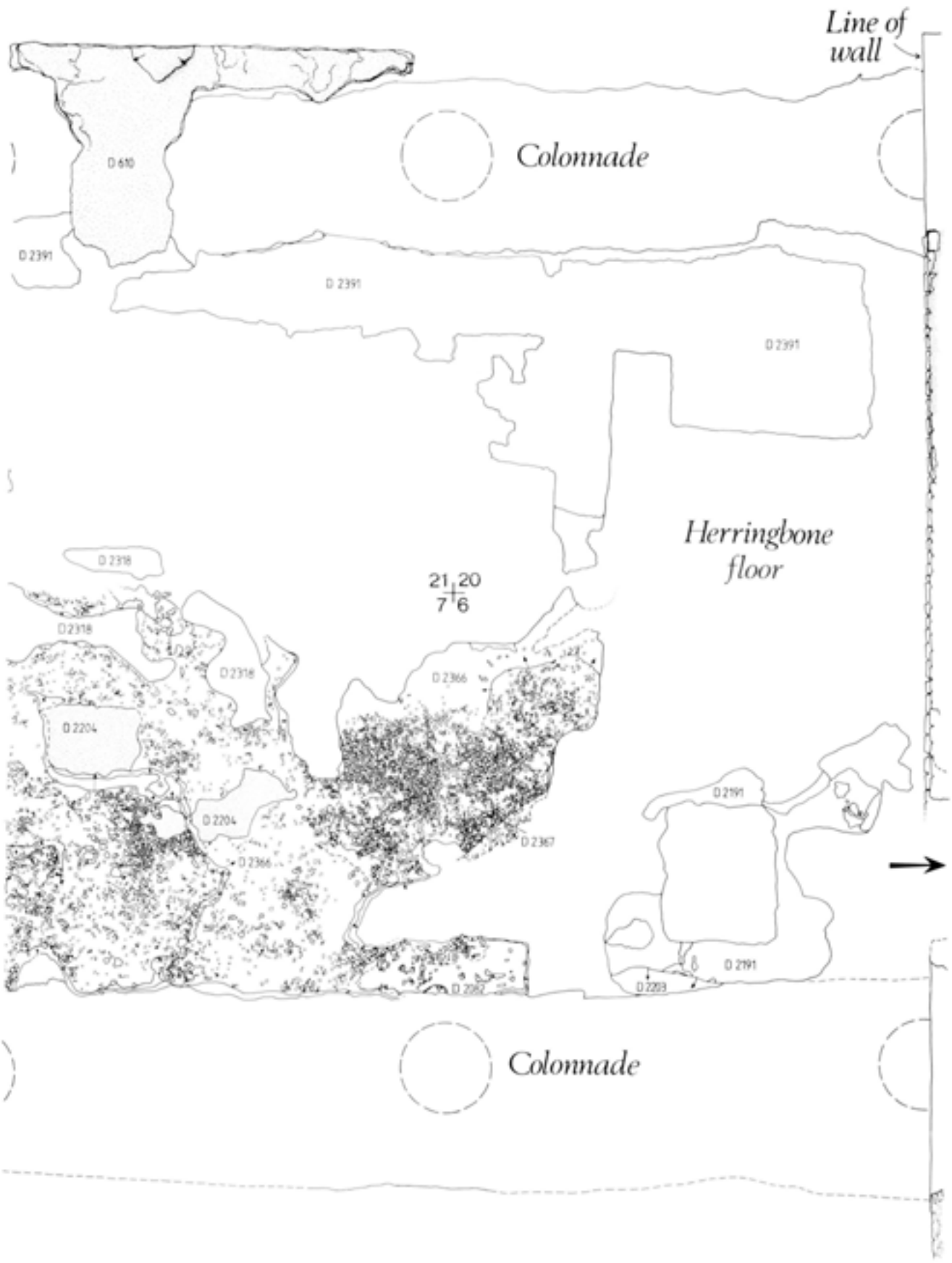
30 ?

A.T.

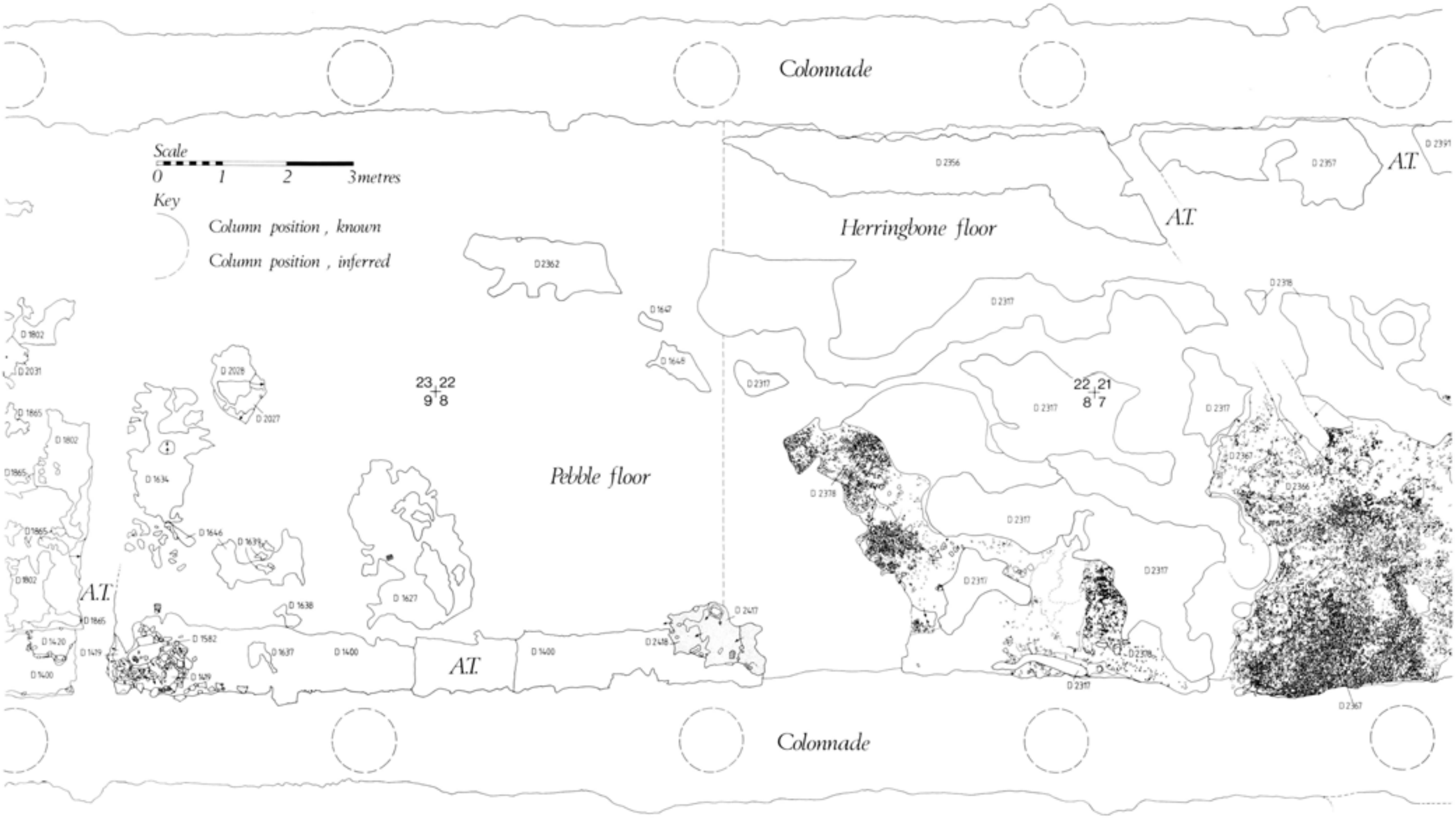
Colonnade


Colonnade
A.T.
A.T.
A.T.
25 24
11 10
24 23
10 9
Pebble floor lost in Archaeological Trench
30 ?
Pebble floor
Pebble floor
Colonnade

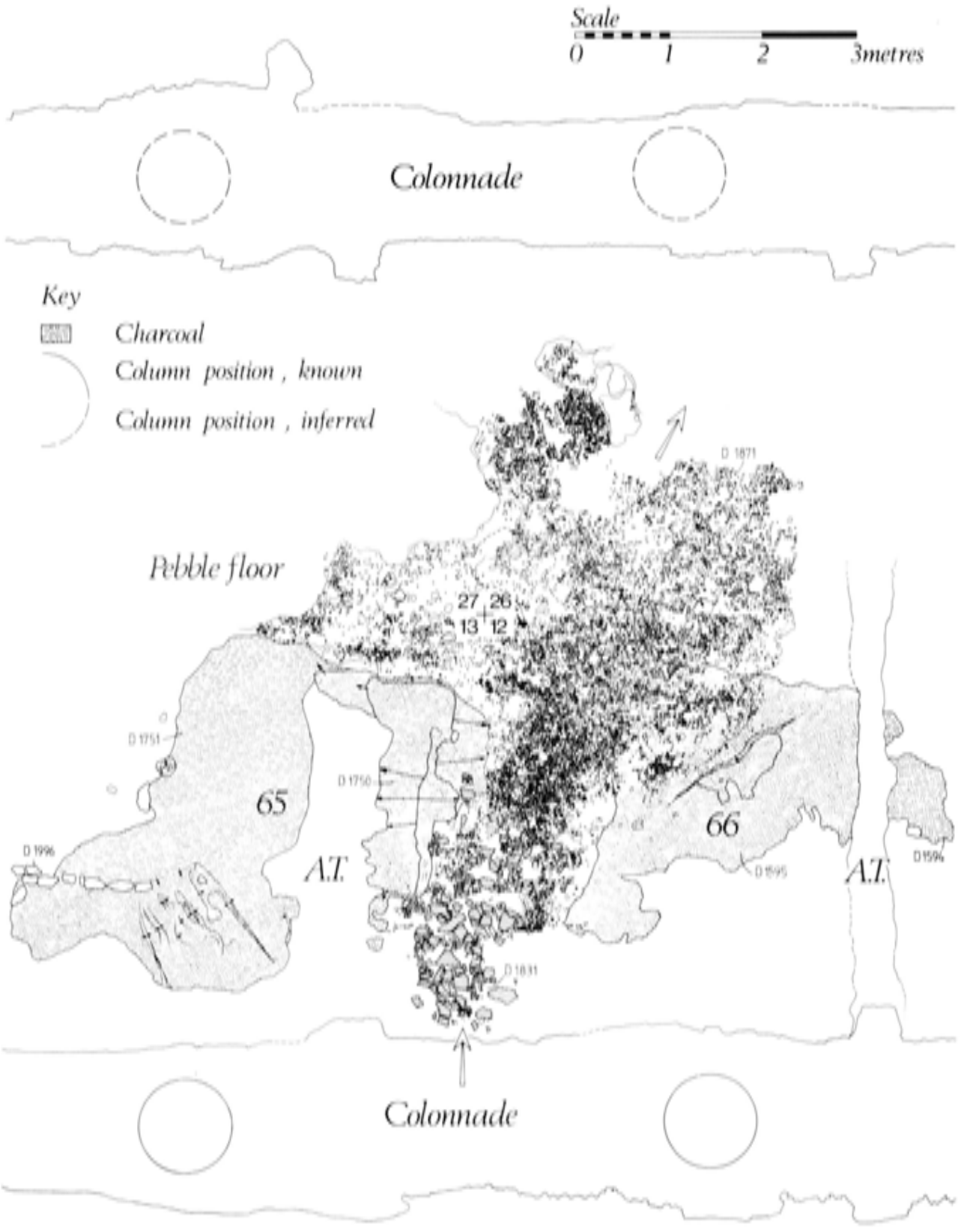
Nave · Evidence Phase W1

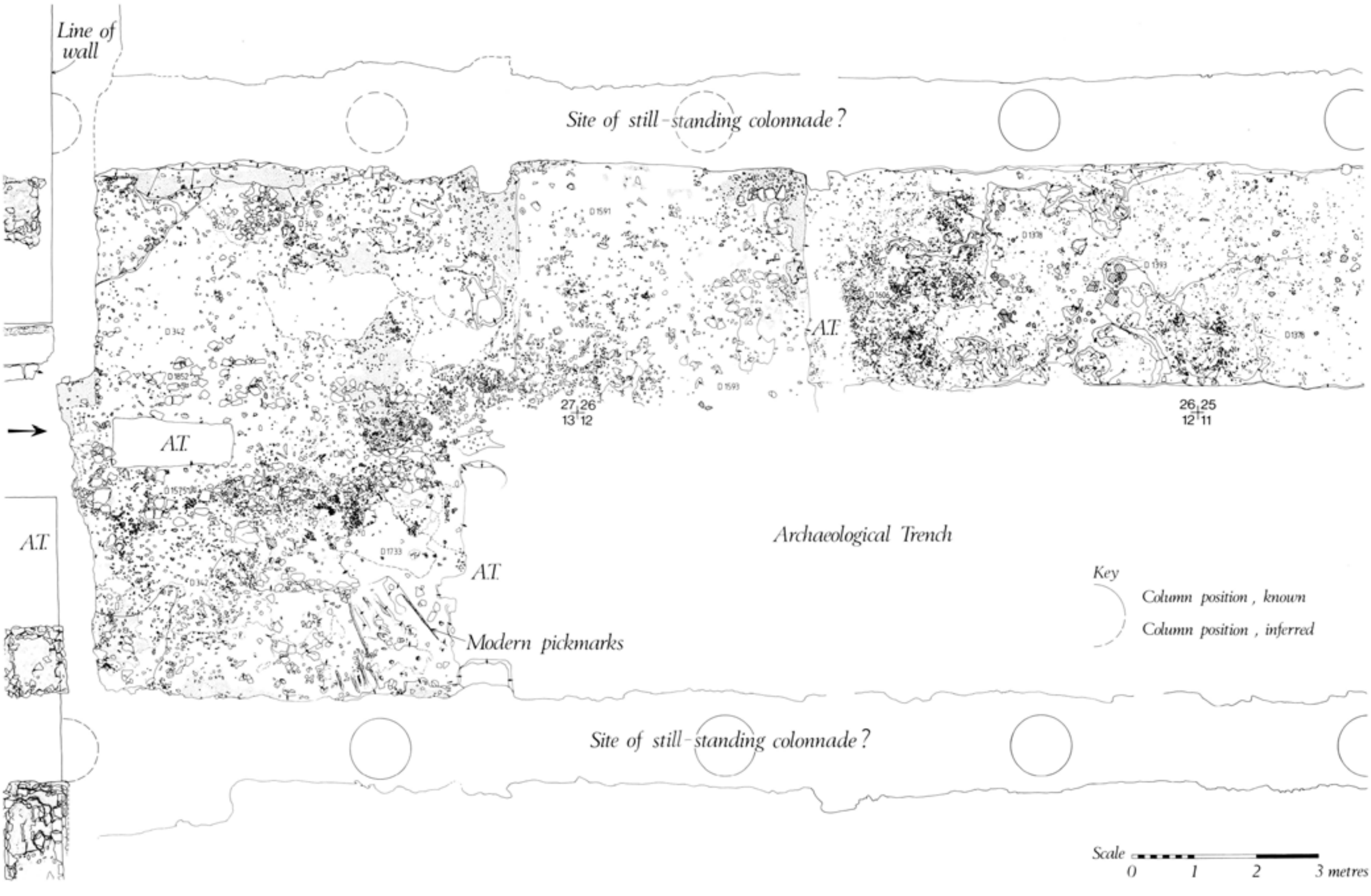


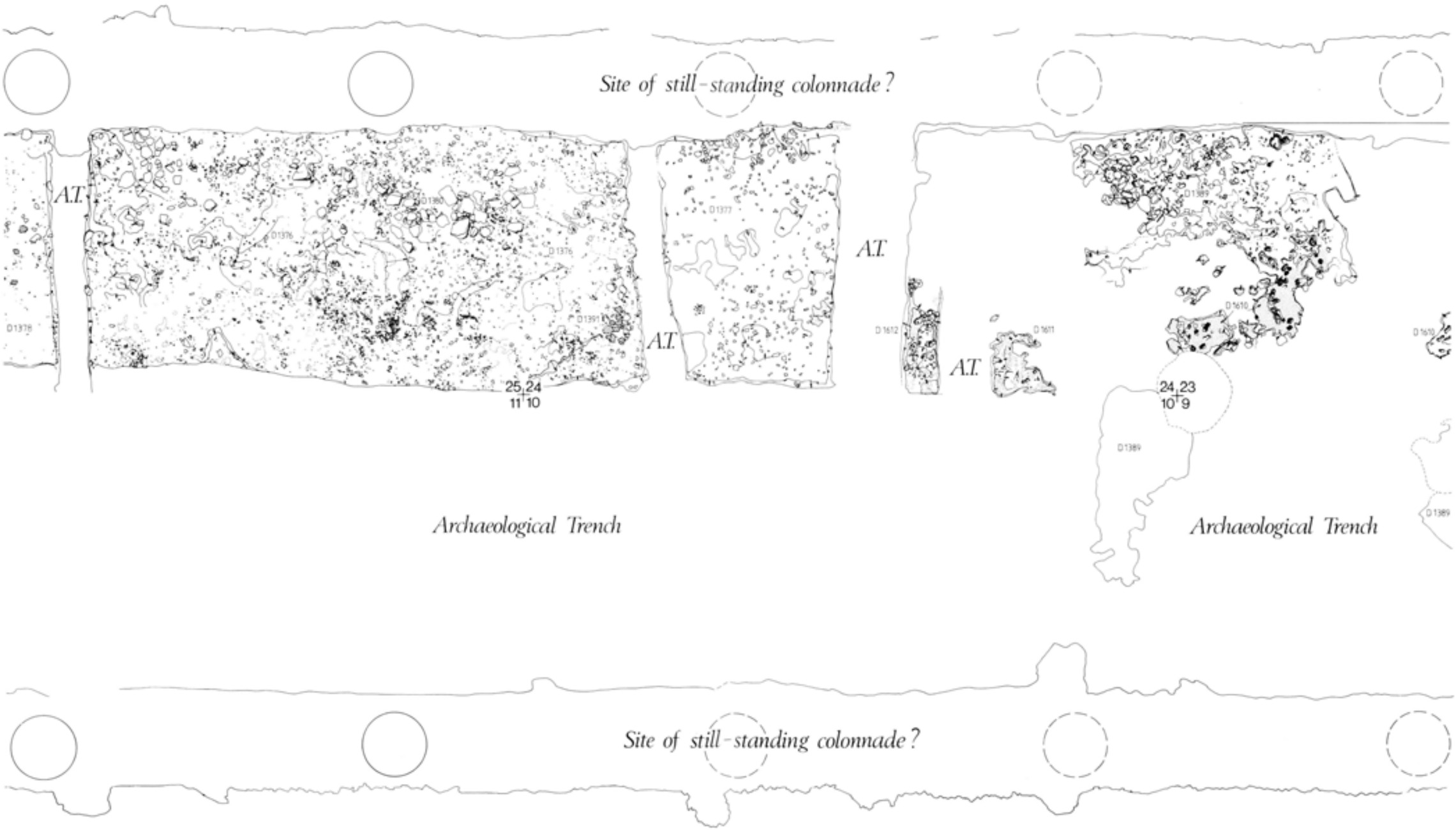
Nave · Evidence Phase W1



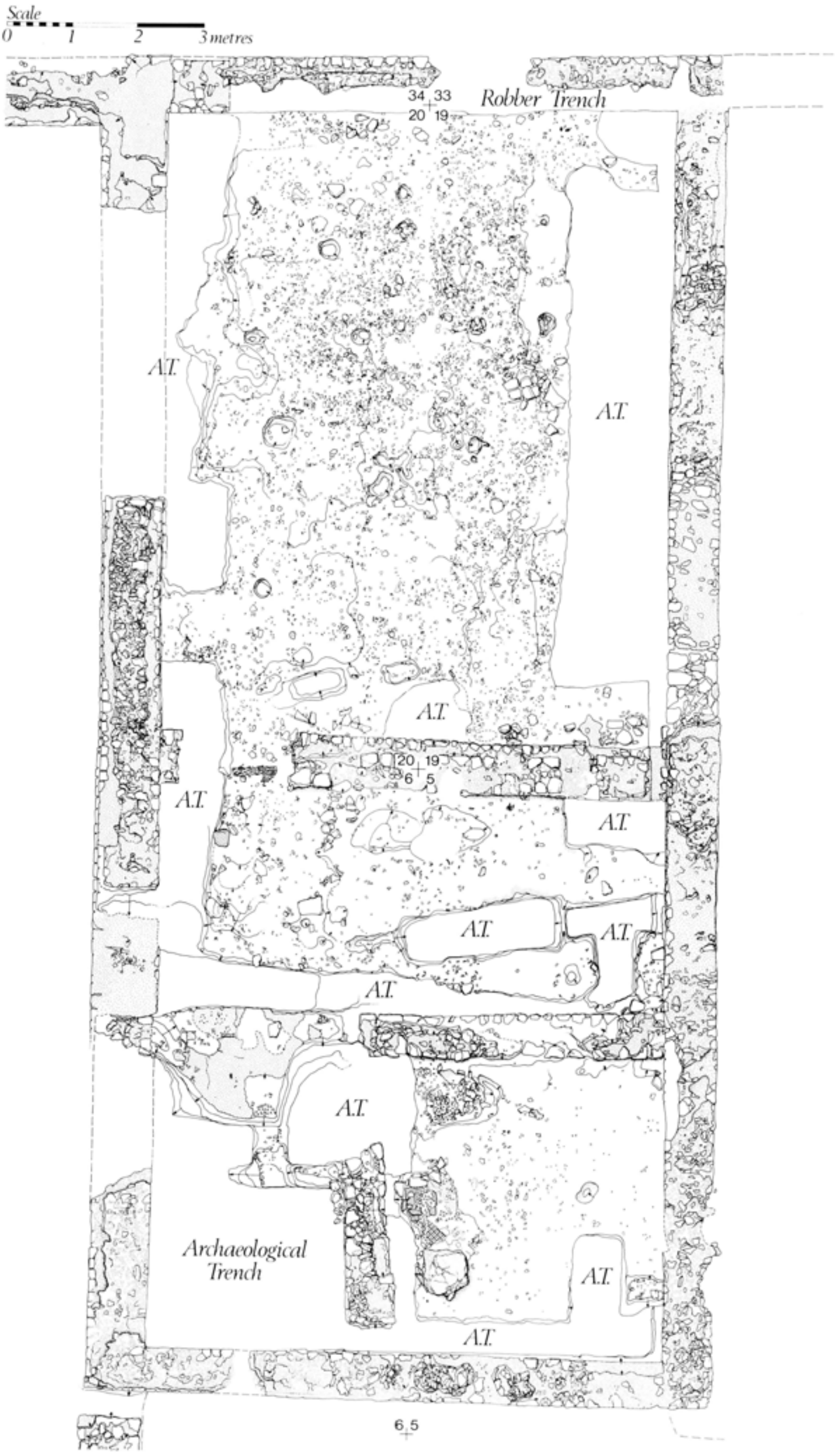
Nave · Evidence Phase W2?

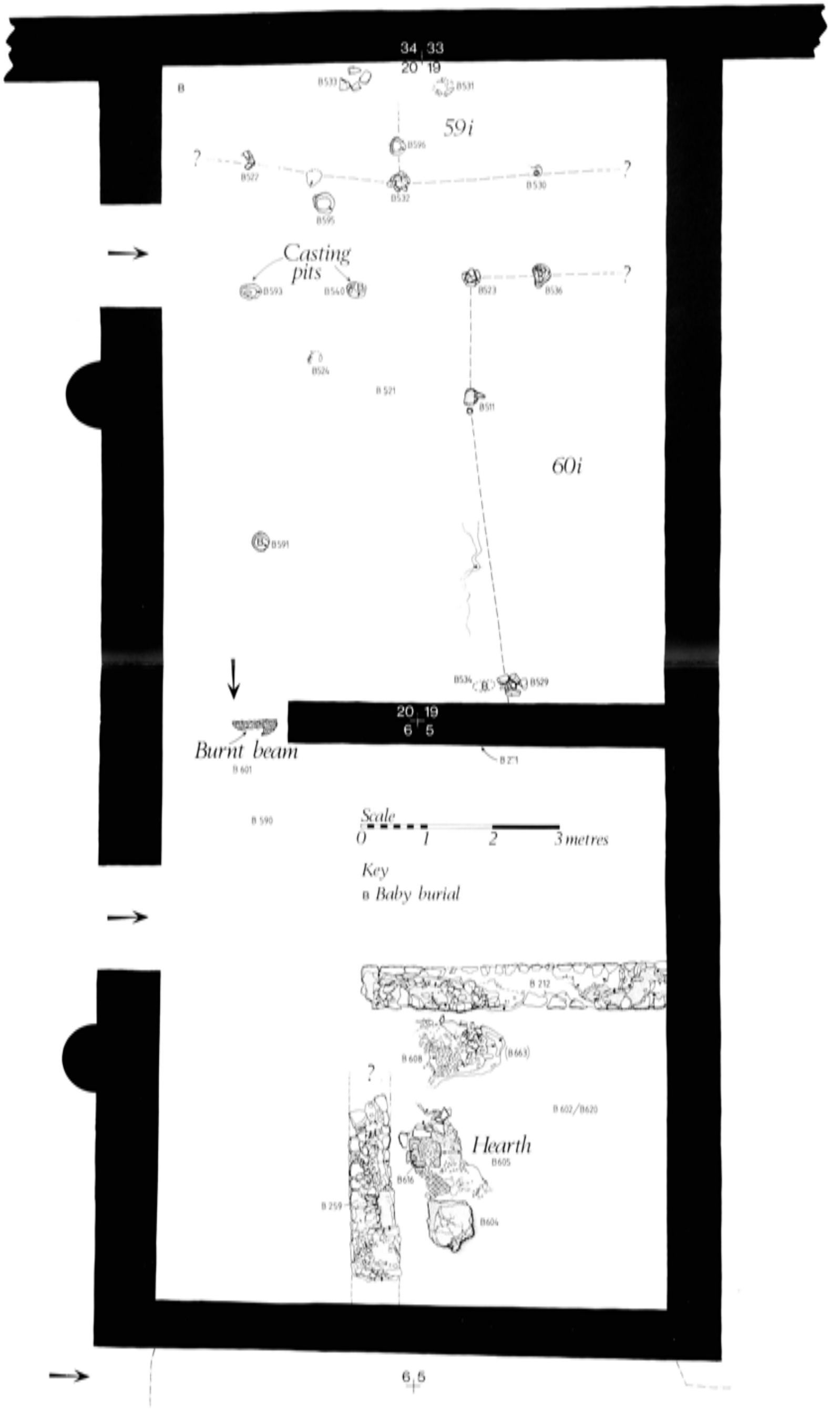



Line of wall
Site of still-standing colonnade?
A.T.
A.T.
A.T.
A.T.
A.T.
27 26
13 12
26 25
12 11
Modern pickmarks
Site of still-standing colonnade?
Archaeological Trench
Key
Column position, known
Column position, inferred
Scale
0 1 2 3 metres


Site of still-standing colonnade?
A.T.
D1378
D1376
D1390
D1391
A.T.
D1377
A.T.
25 24
11 10
D1612
A.T.
D1611
D1610
D1389
24 23
10 9
D1610
D1389
Archaeological Trench
Archaeological Trench
Site of still-standing colonnade?

Annexe · Evidence Phase W1



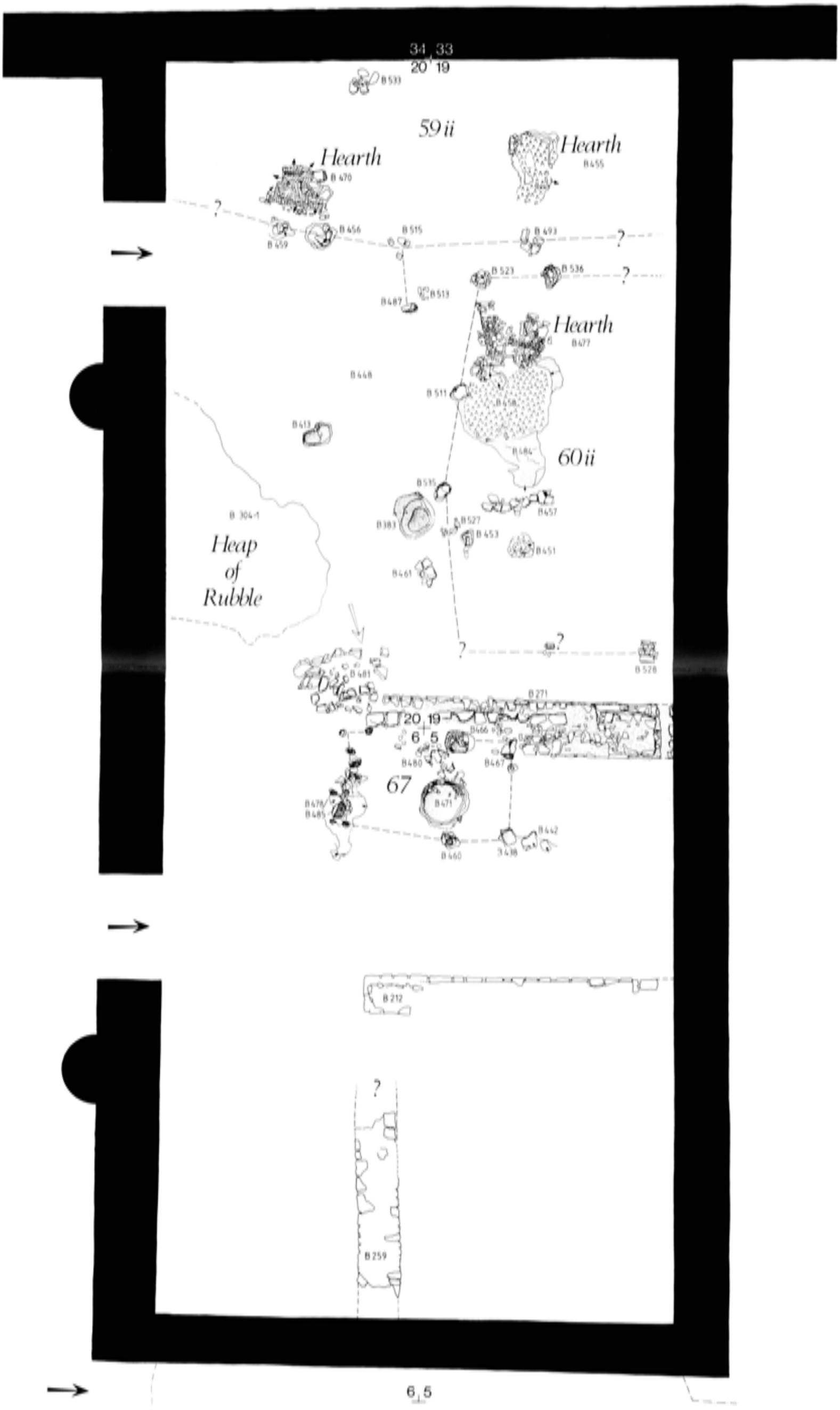

34 33
20 19
B
B533
B531
59i
B596
?
B522
B532
B530
?
B595
Casting pits
B593
B540
B523
B536
?
B524
B 521
B511
60i
B591
B536
B529
20 19
6 5
Burnt beam
B 601
B 271
B 590
Scale
0 1 2 3 metres
Key
B Baby burial
B 212
B608
(B663)
?
B 602/B620
Hearth
B605
B616
B 259
B604
6 5

Annexe • Evidence Phase W2



Annexe • Interpretation Phase W2

Scale
0 1 2 3 metres



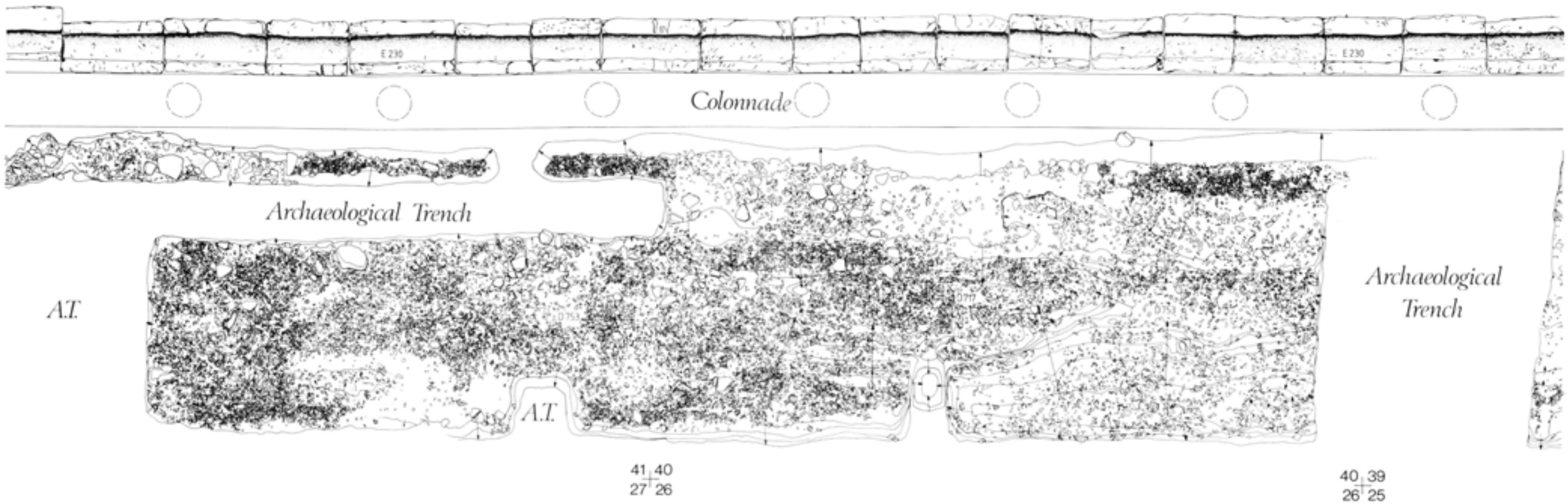
West Portico - Evidence Phase W



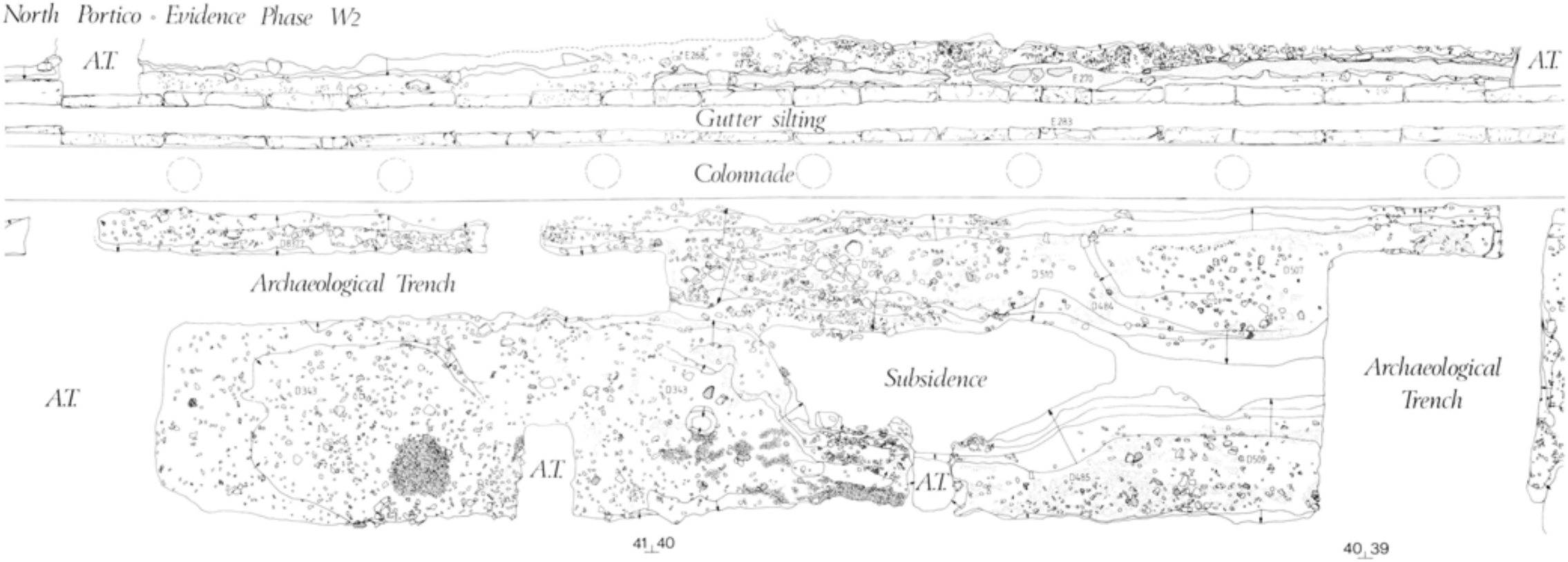
West Portico - Evidence Phase W



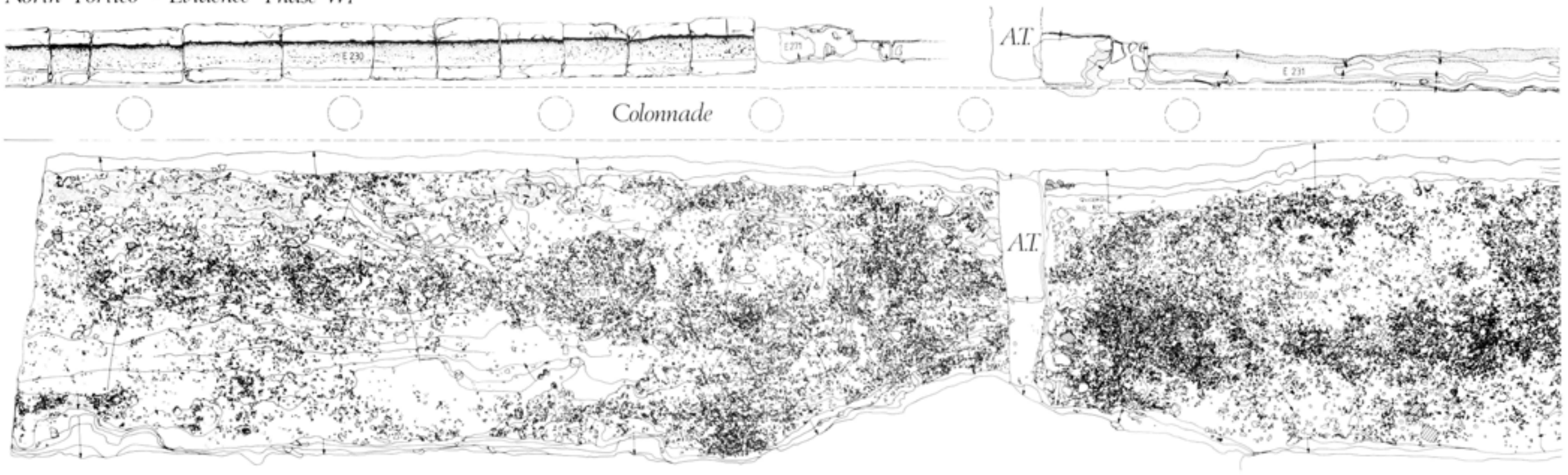
North Portico - Evidence Phase W1



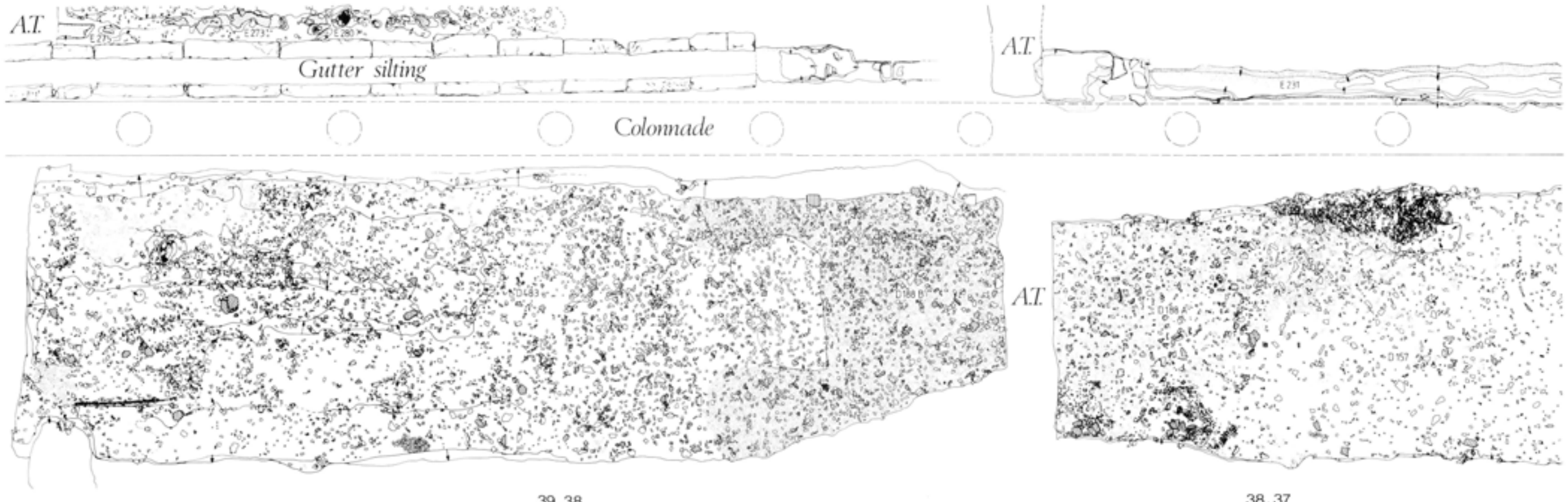
North Portico - Evidence Phase W2



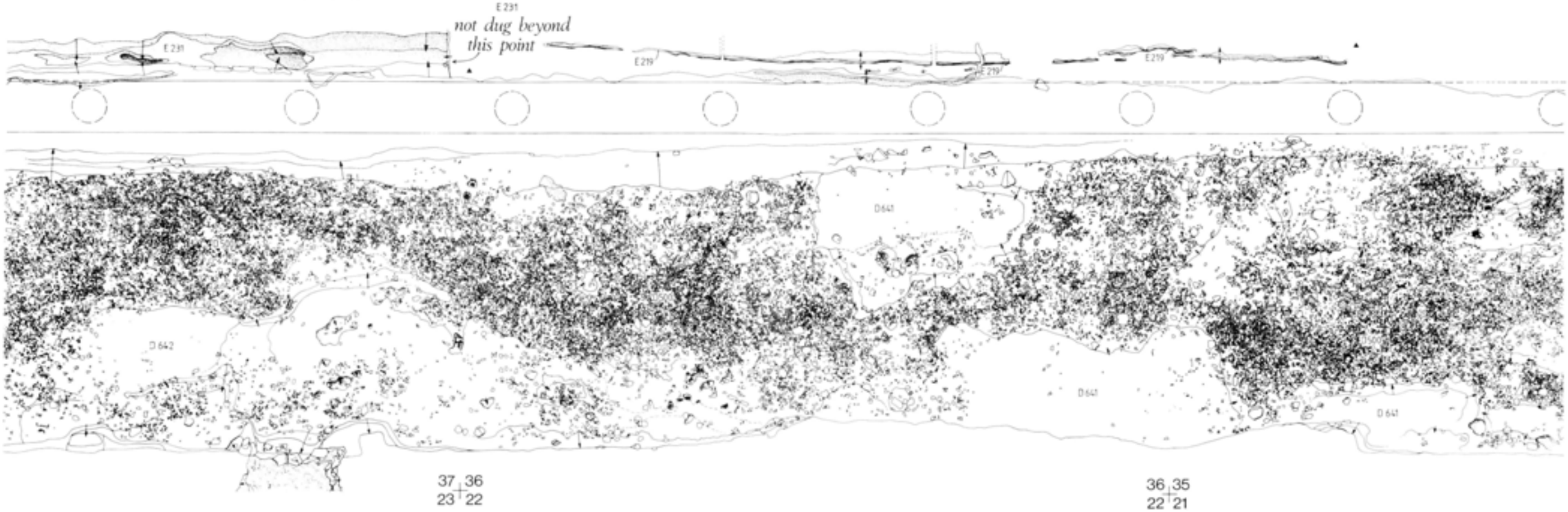
North Portico - Evidence Phase W1



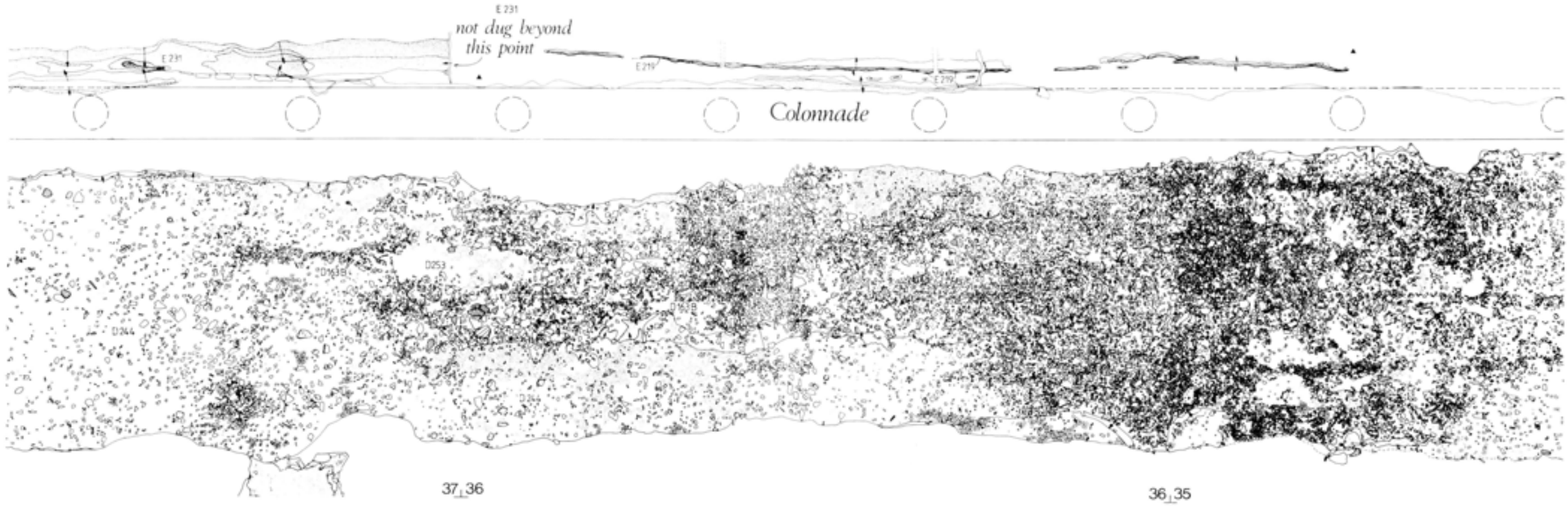
North Portico - Evidence Phase W2



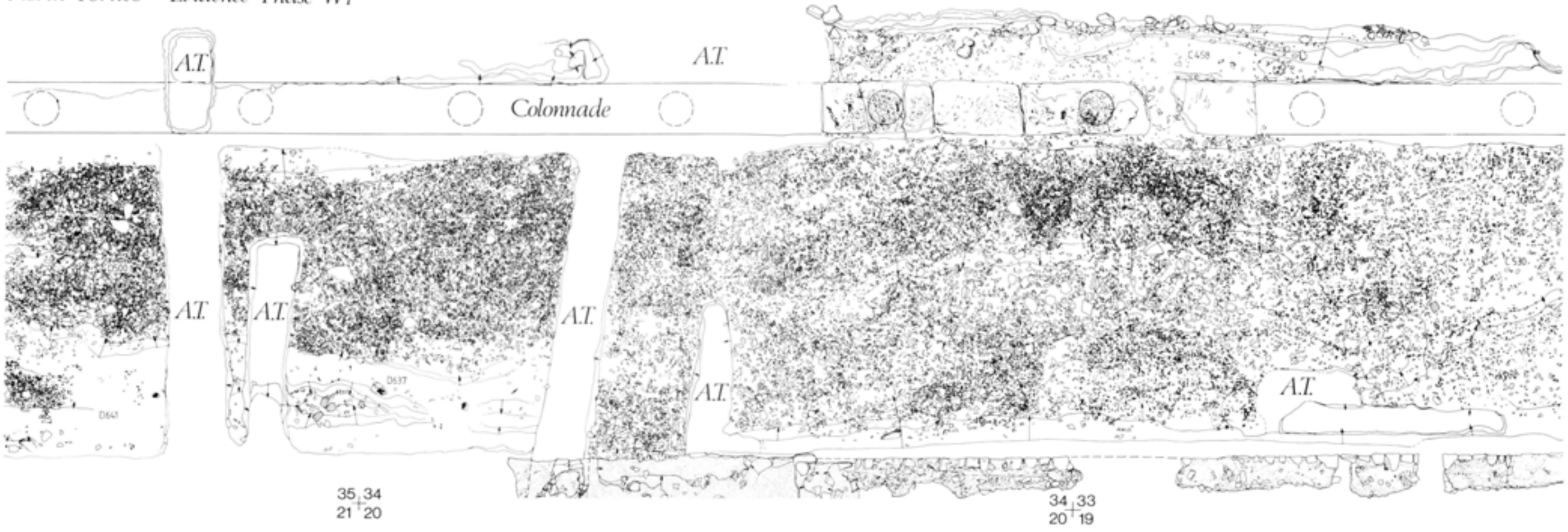
North Portico - Evidence Phase W1



North Portico - Evidence Phase W2



North Portico - Evidence Phase W1



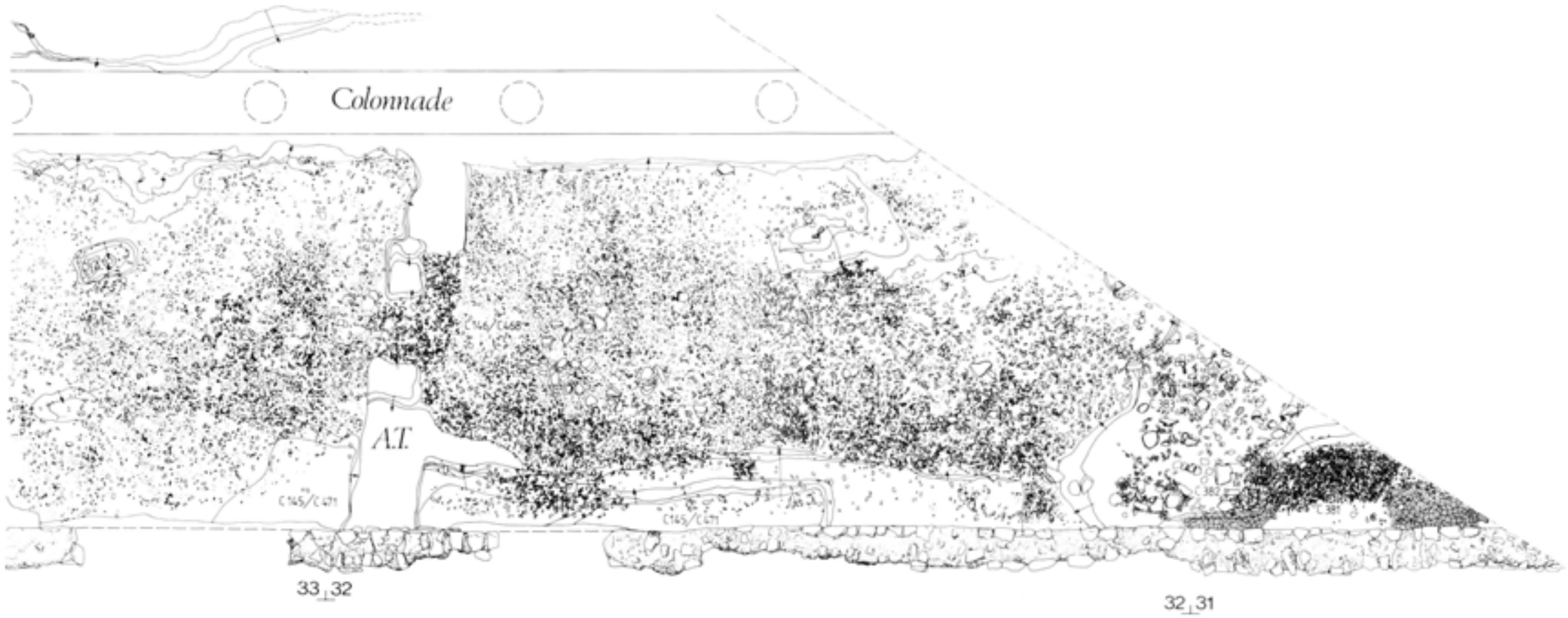
North Portico - Evidence Phase W2



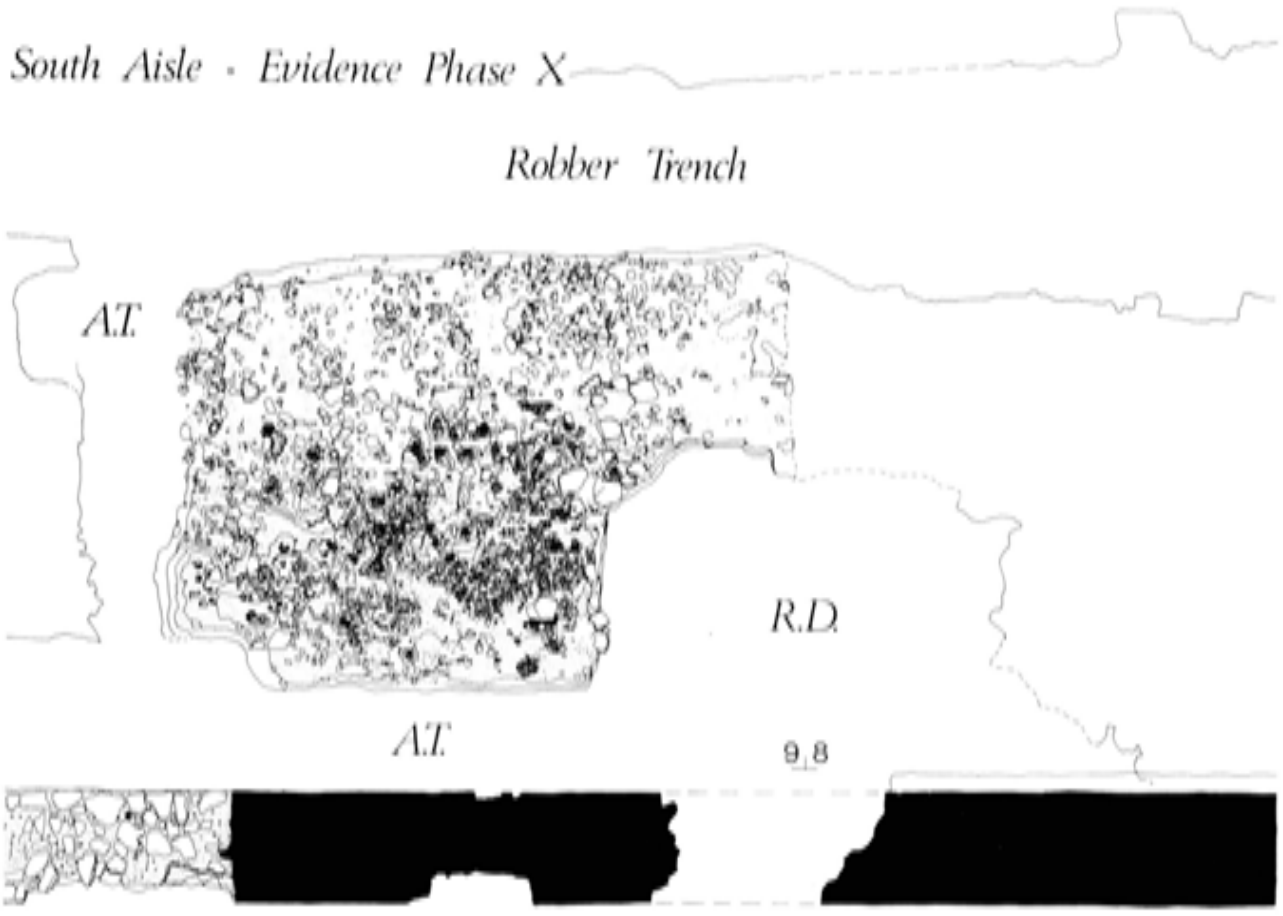
North Portico - Evidence Phase W1



North Portico - Evidence Phase W2

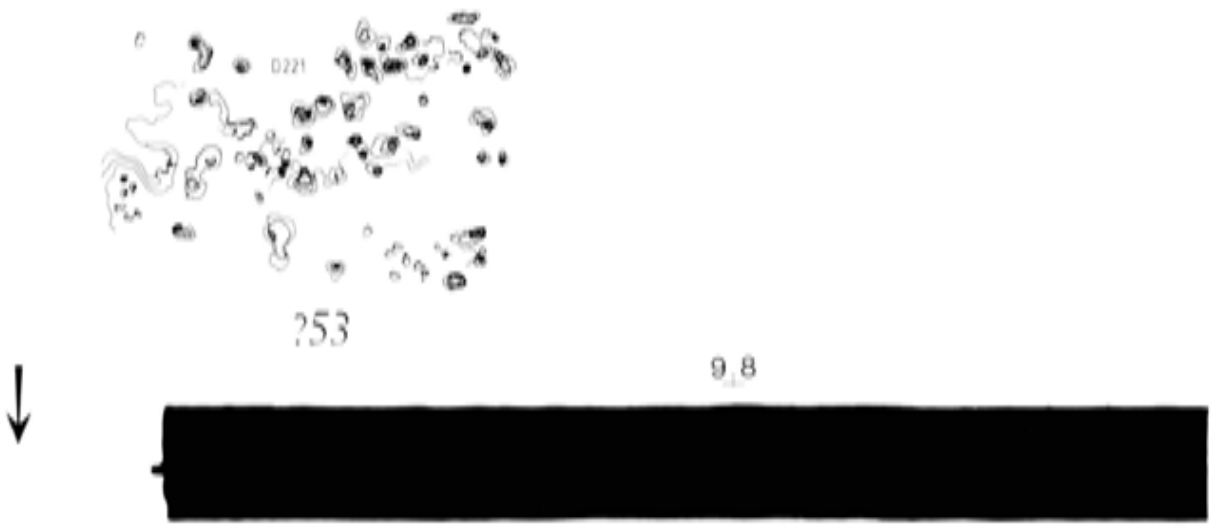


South Aisle · Evidence Phase X



South Aisle · Interpretation Phase X

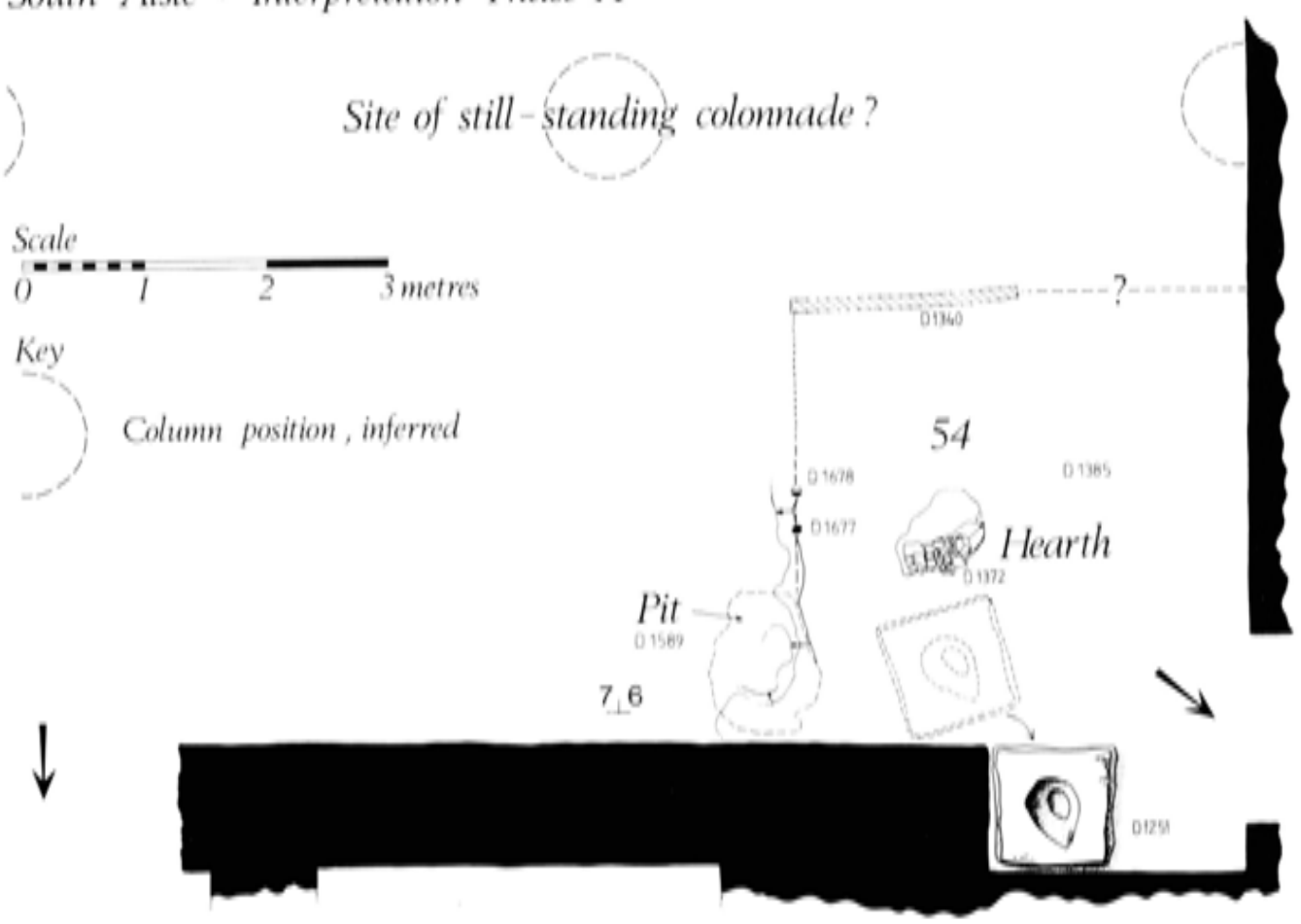
Site of still-standing colonnade?



South Aisle · Evidence Phase X



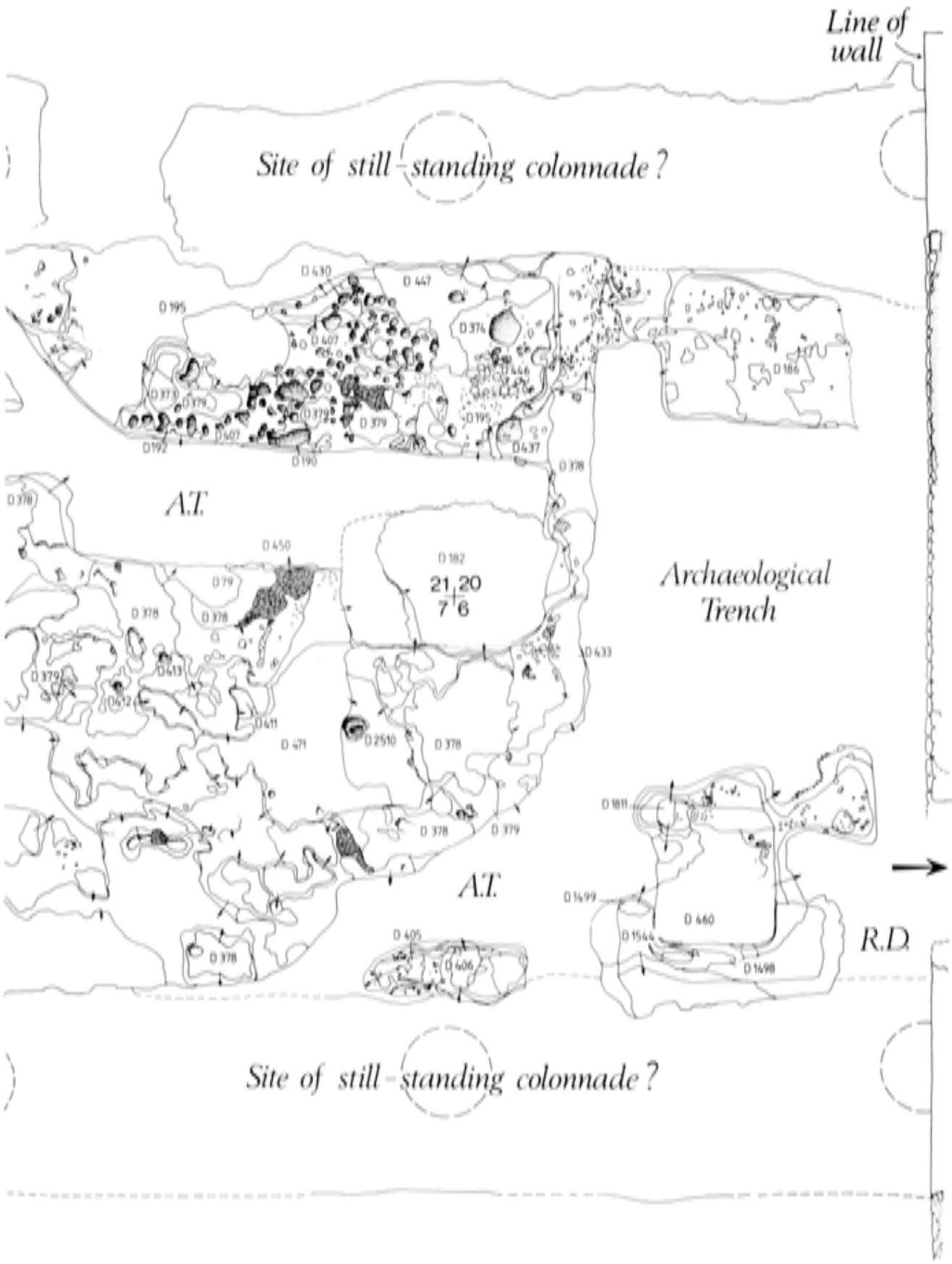
South Aisle · Interpretation Phase X



Nave · Evidence Phases W3 - X



Nave · Evidence Phases W3 – X



Nave · Interpretation Phase X

Colonnade ?

55

D 430

D 514

D 446

D 192

D 190

D 437

Pit
D 182
21 20
7 6

D 413

D 379

D 412

D 411

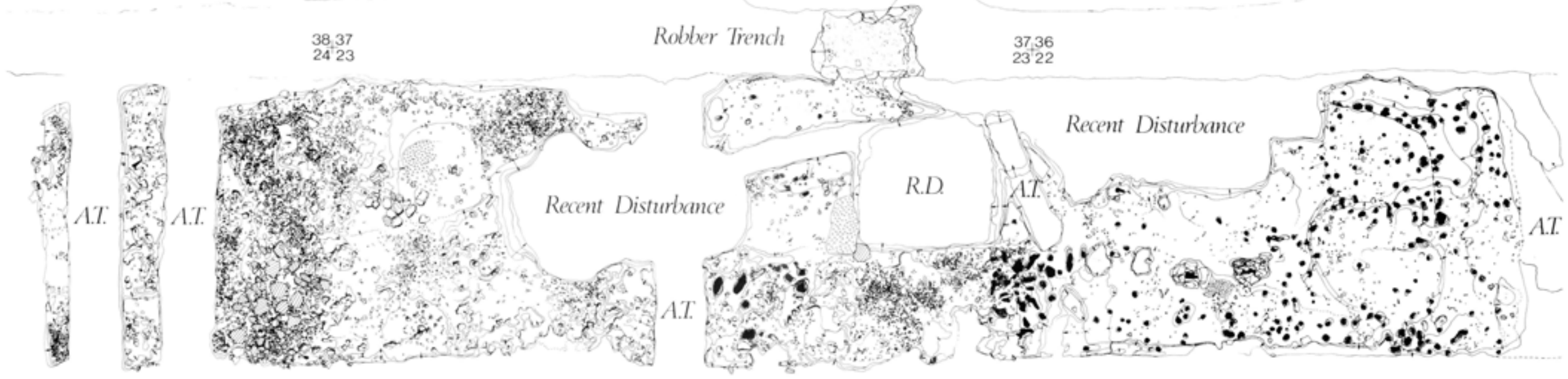
D 2510

D 460

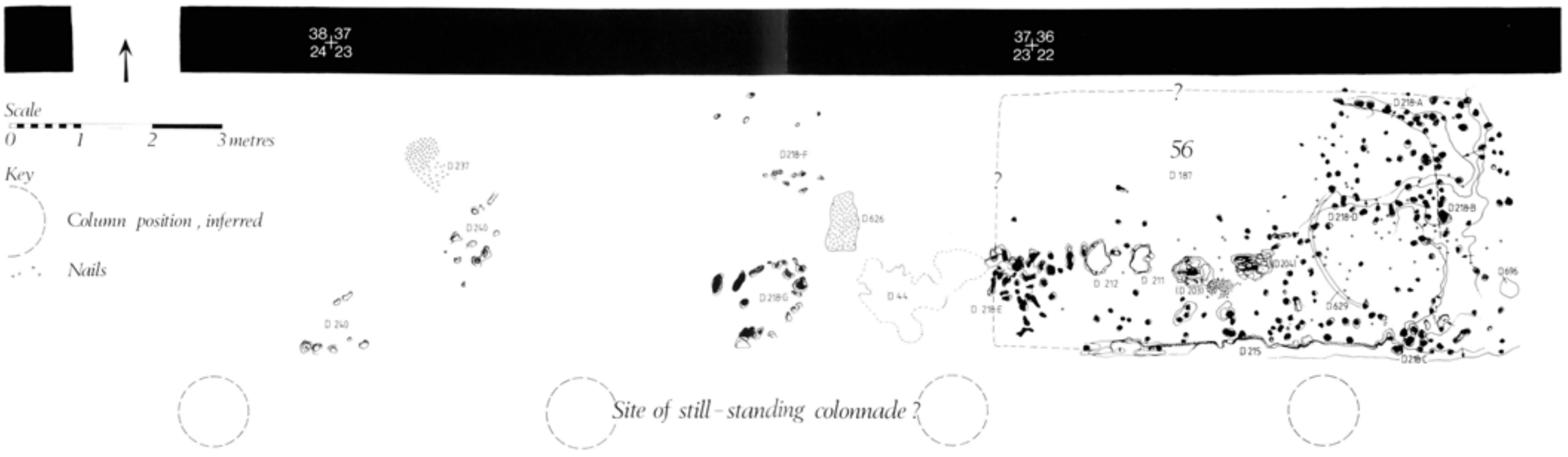
Lime pit

Colonnade ?

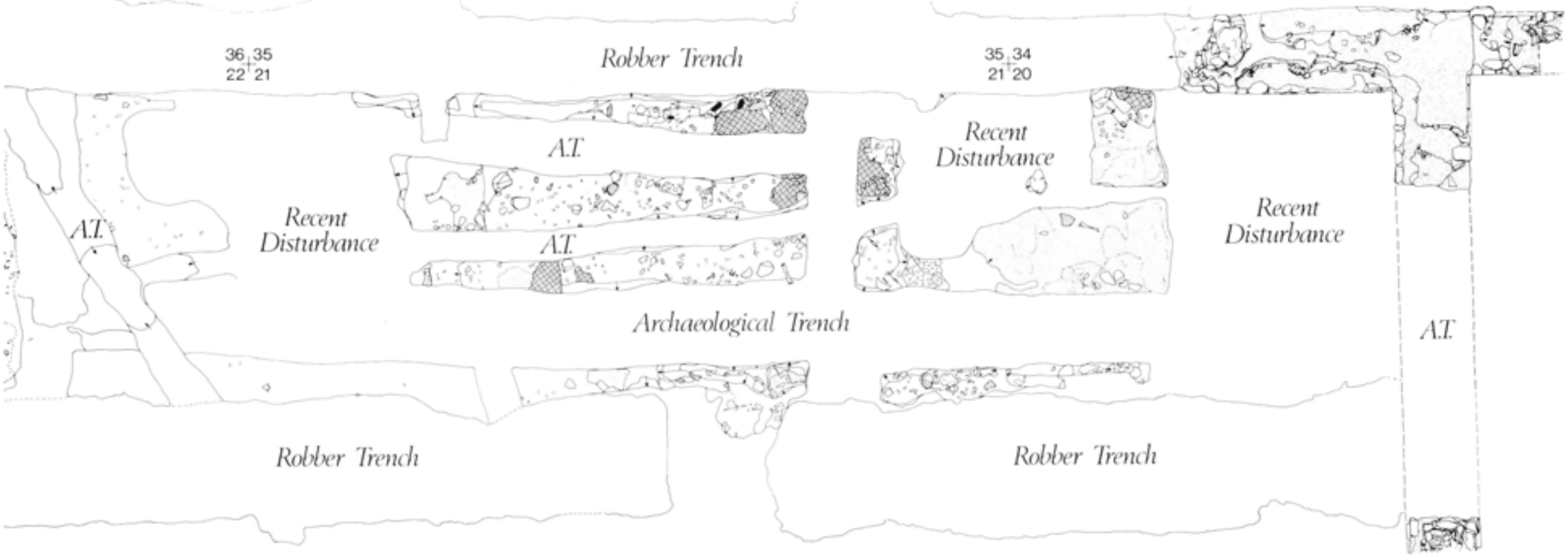
North Aisle - Evidence Phase X



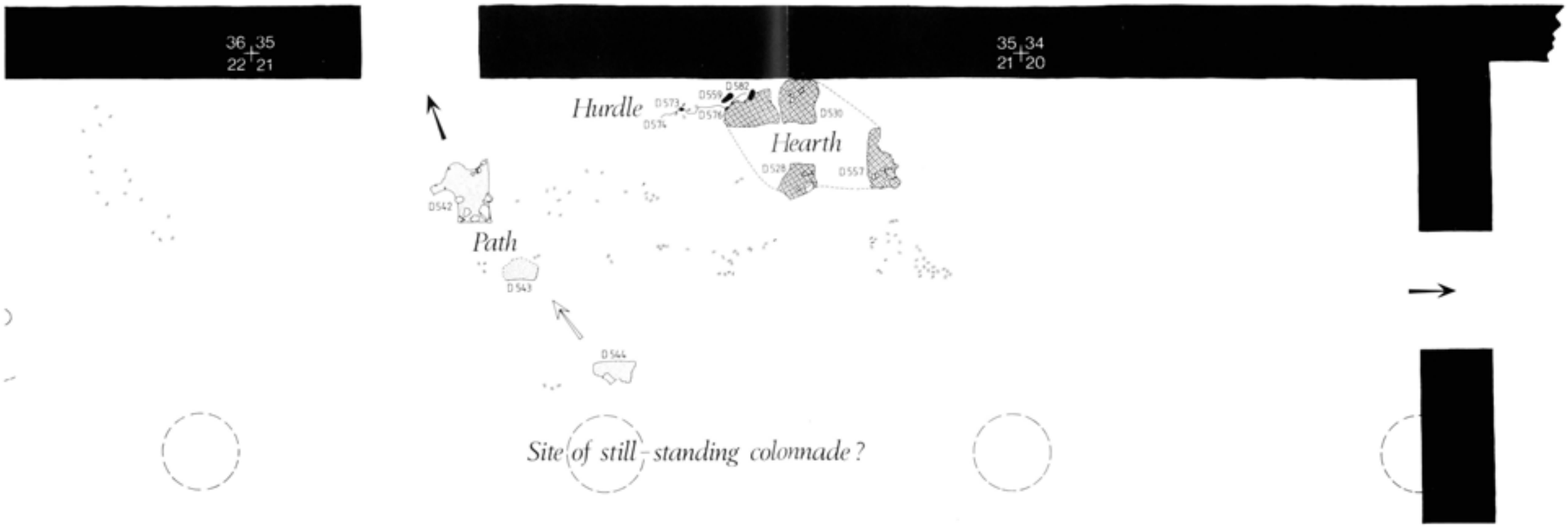
North Aisle - Interpretation Phase X



North Aisle · Evidence Phase X



North Aisle · Interpretation Phase X



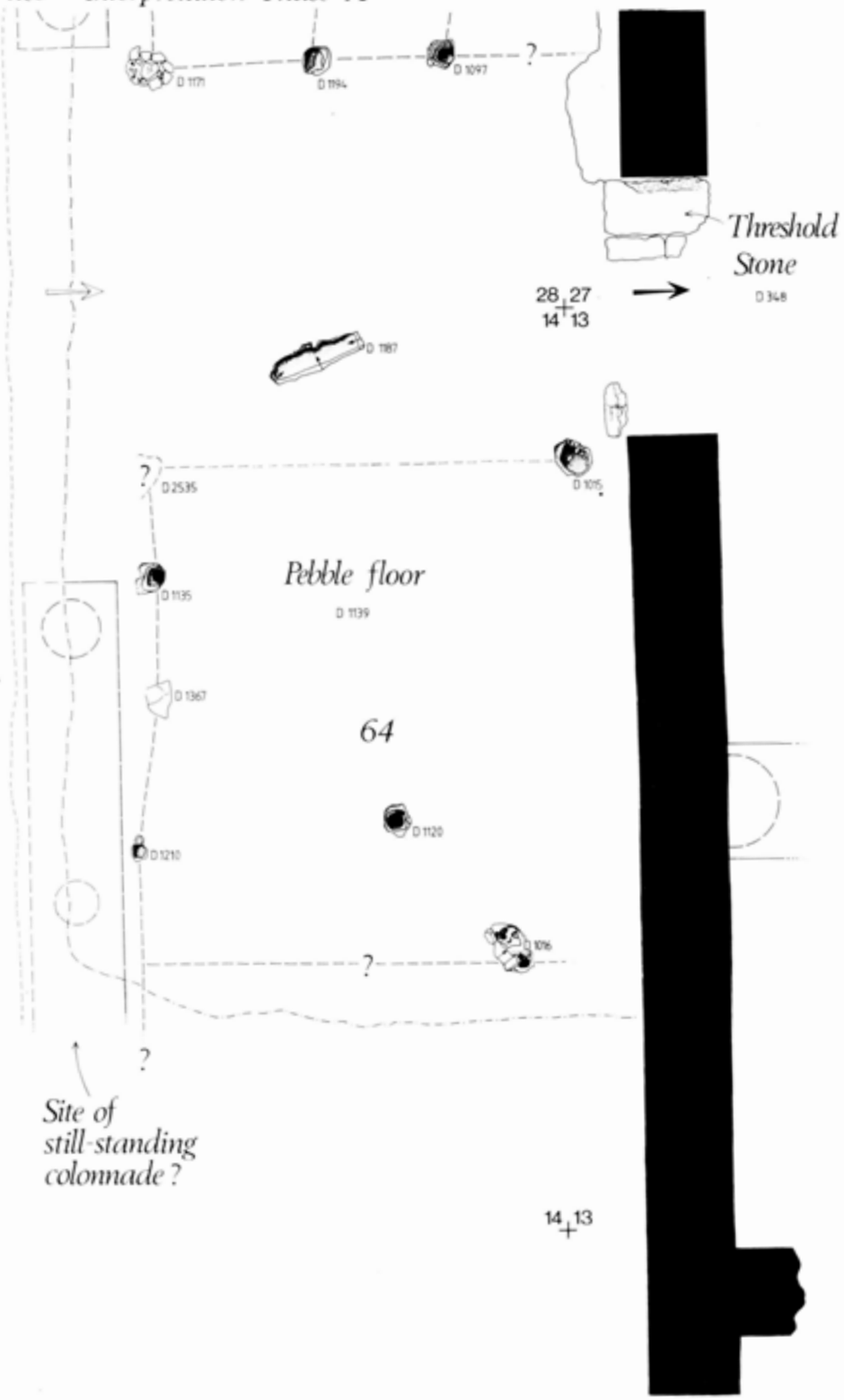
Annexe - Evidence Phase X



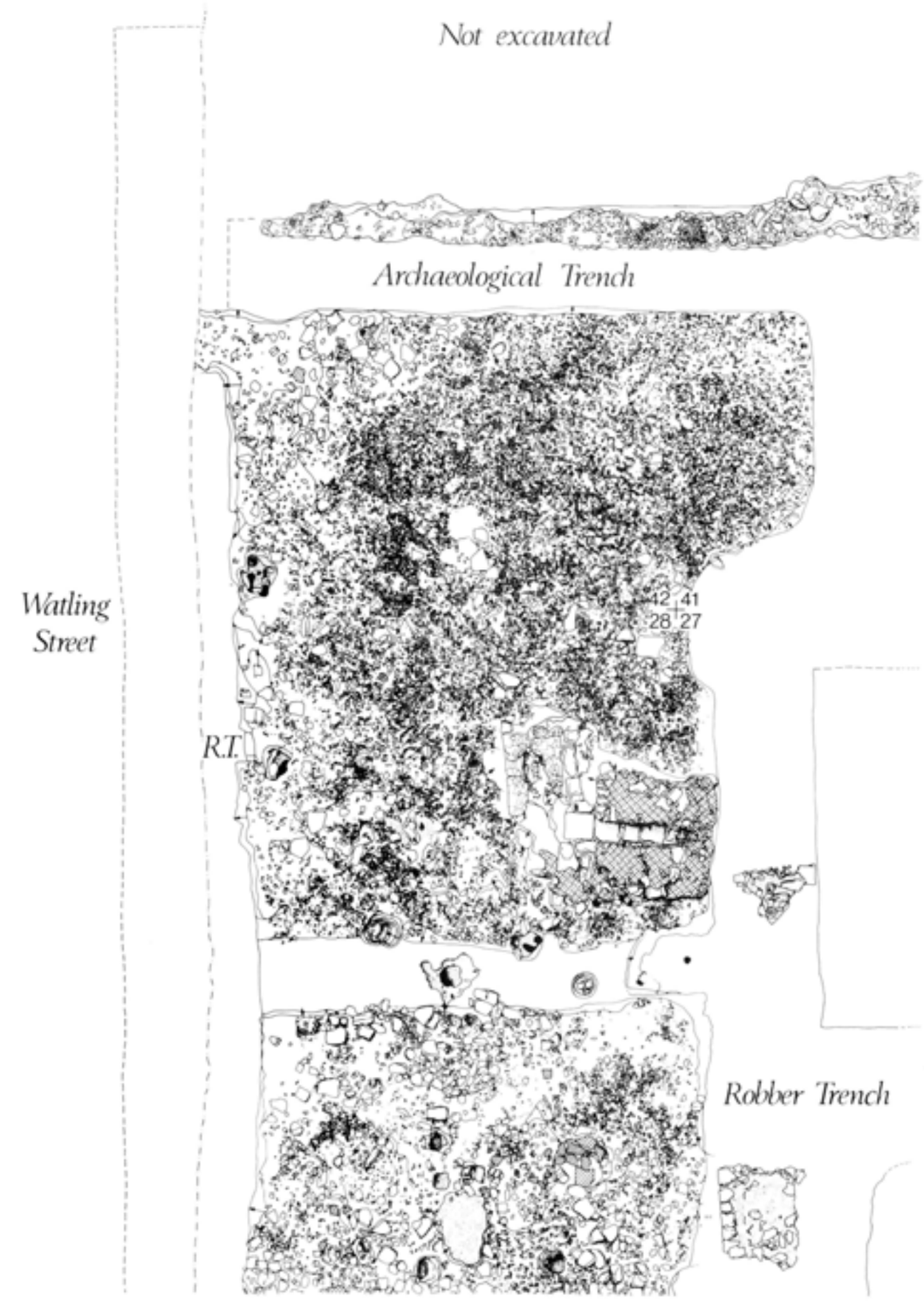
West Portico · Evidence Phase X



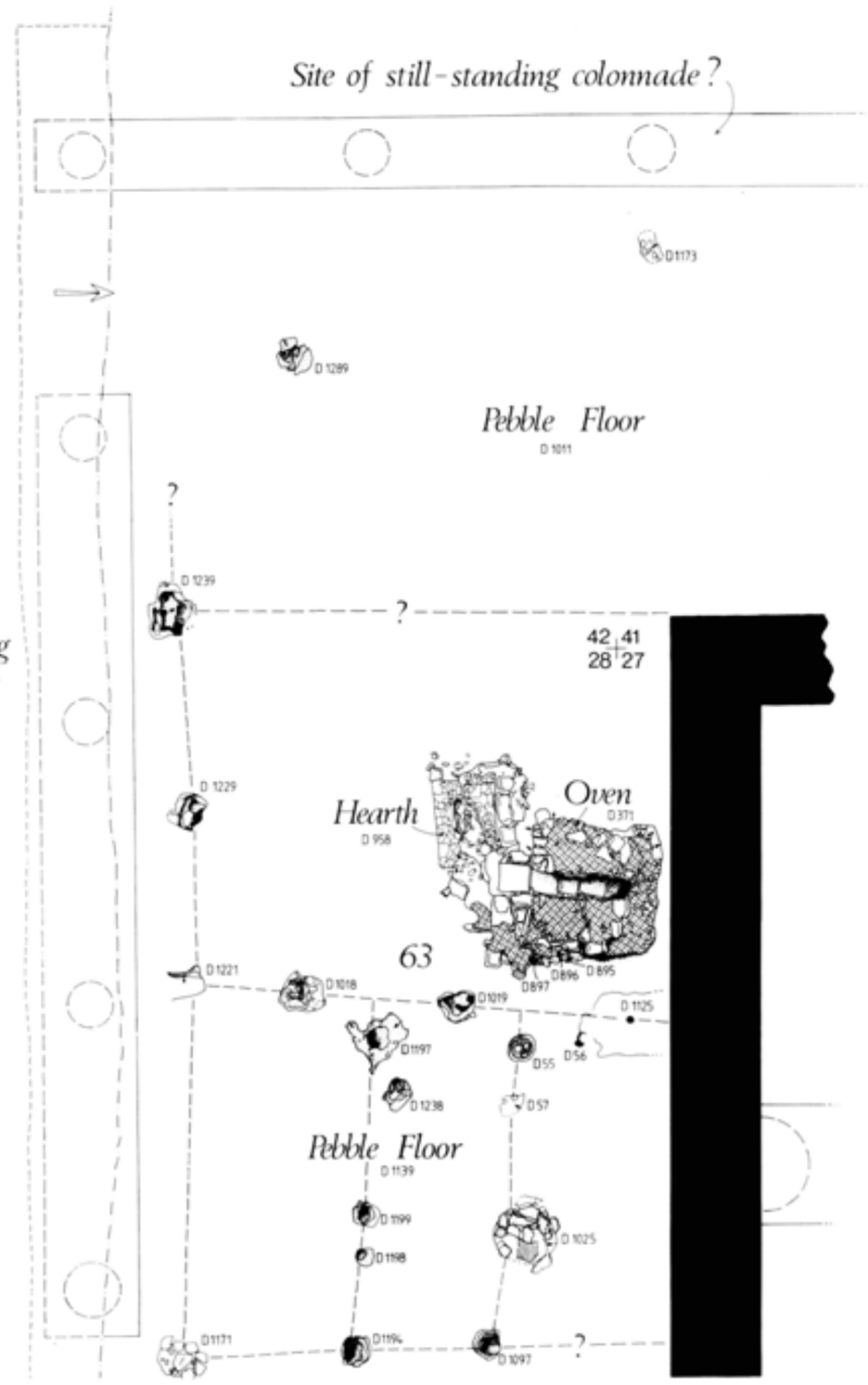
West Portico · Interpretation Phase X



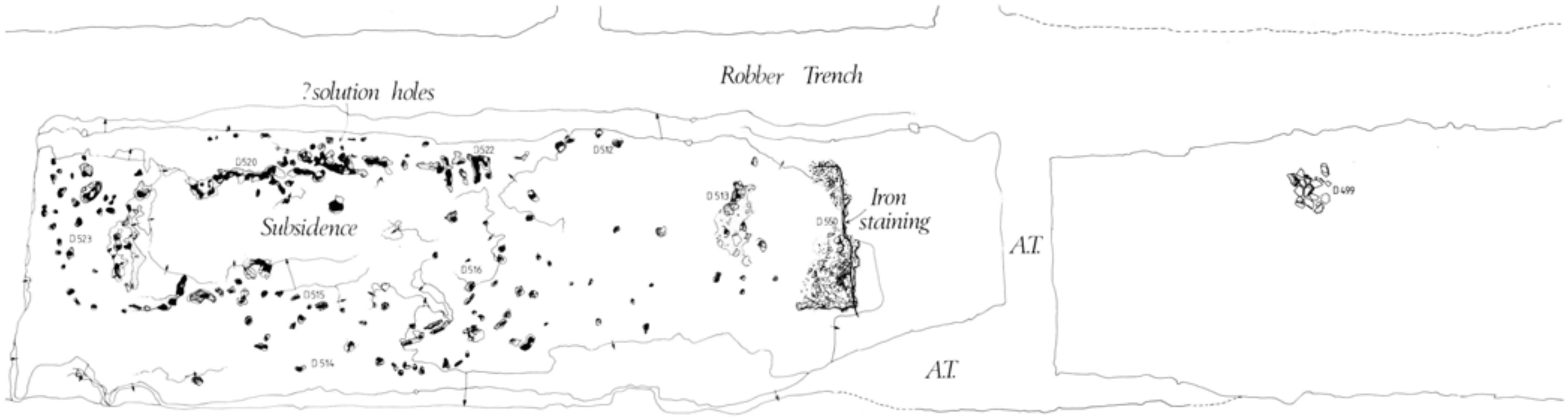
West Portico · Evidence Phase X



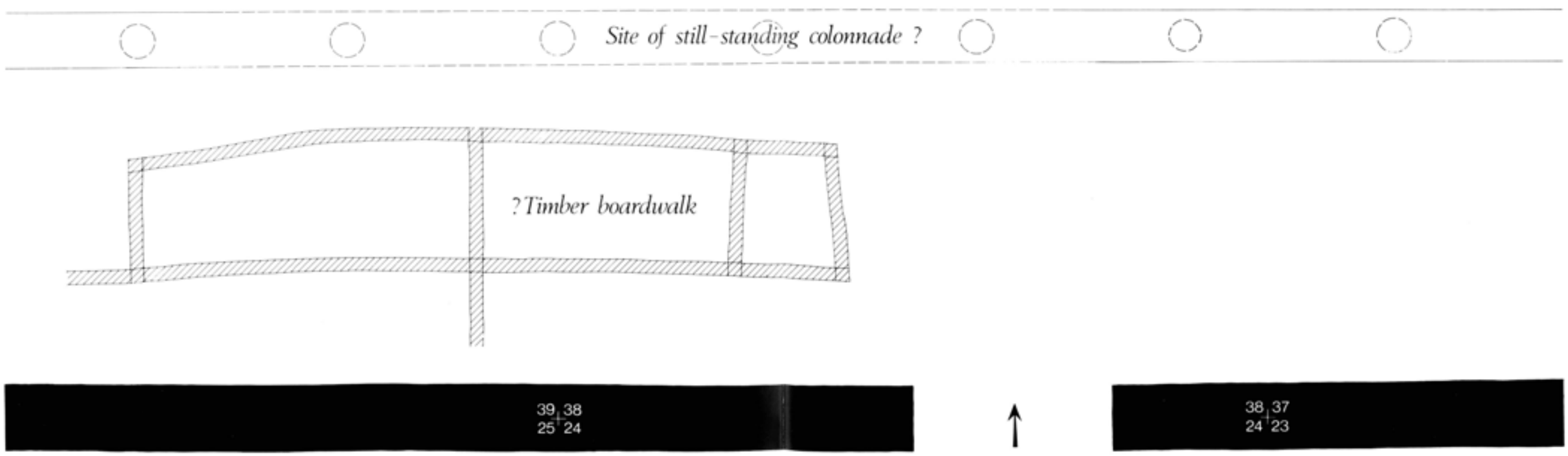
West Portico · Interpretation Phase X



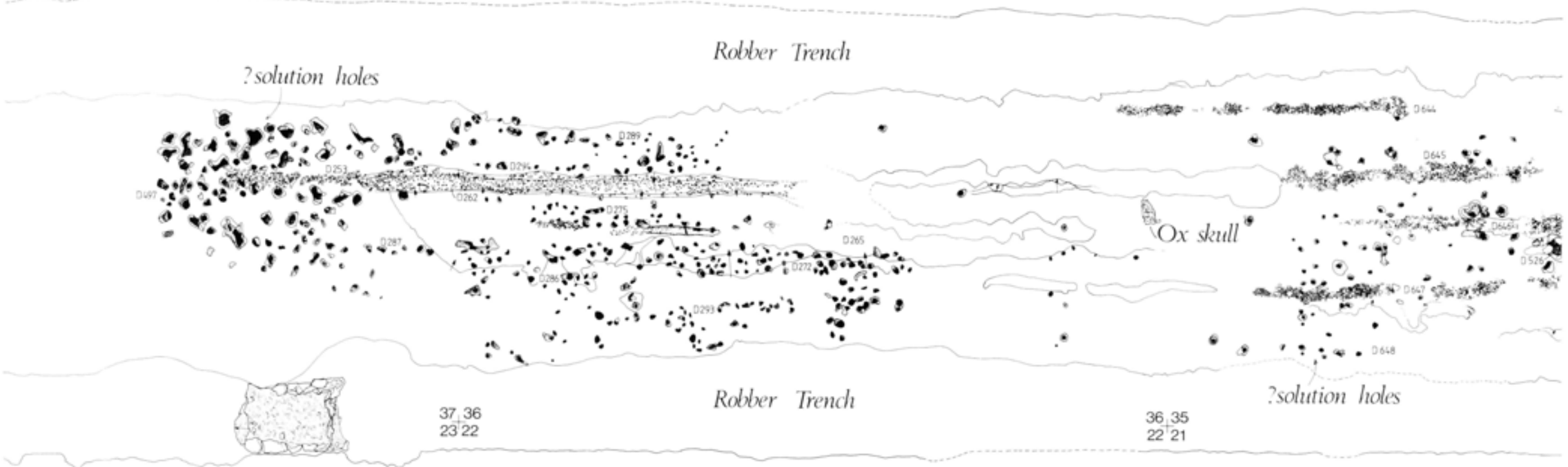
North Portico - Evidence Phase X



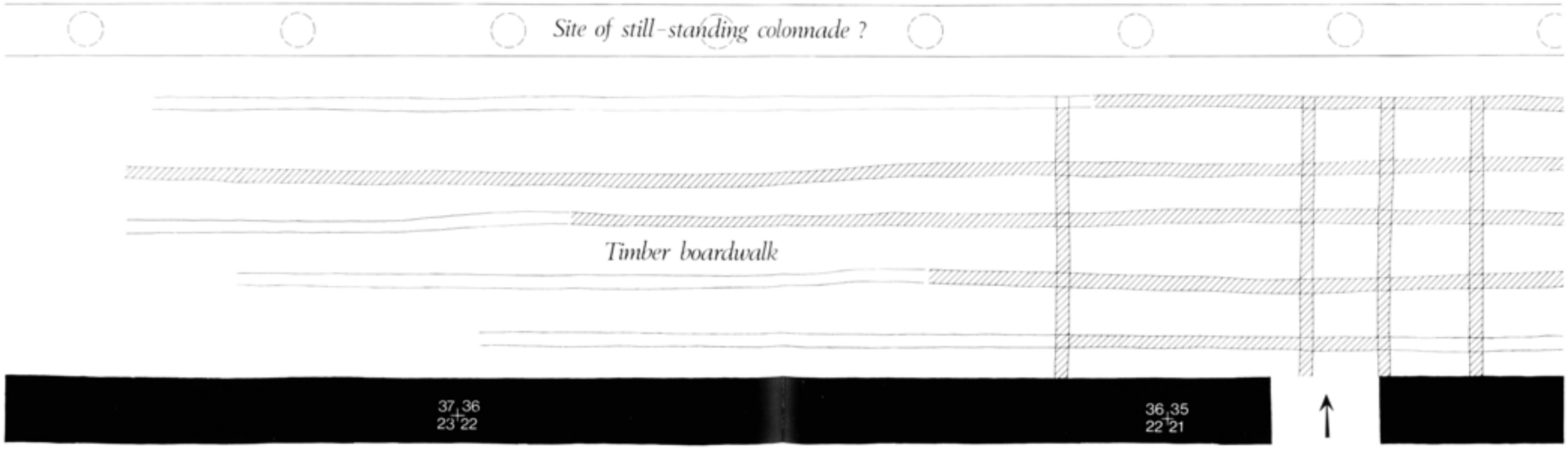
North Portico - Interpretation Phase X



North Portico Evidence Phase X



North Portico - Interpretation Phase X



North Portico - Evidence Phase X

Robber Trench

A.T.

?solution holes

D644

D645

D646

D526

D647

D536

D537

D538

D583

D539

D584

D540

C449

C306

C308

C309

C386

C93

35 34
21 20

34 33
20 19

North Portico - Interpretation Phase X

Site of still-standing colonnade ?

Timber boardwalk

D1343

D501

Ovens

D502

C454

C453

C452

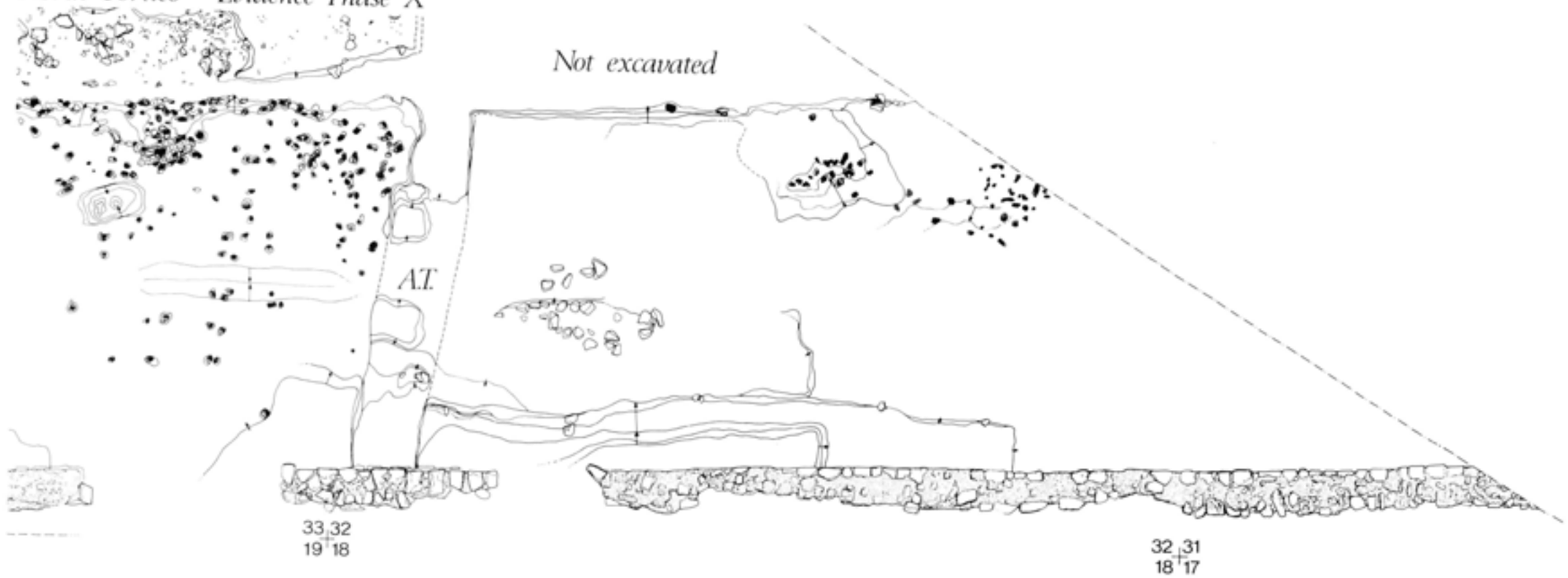
C451

C450

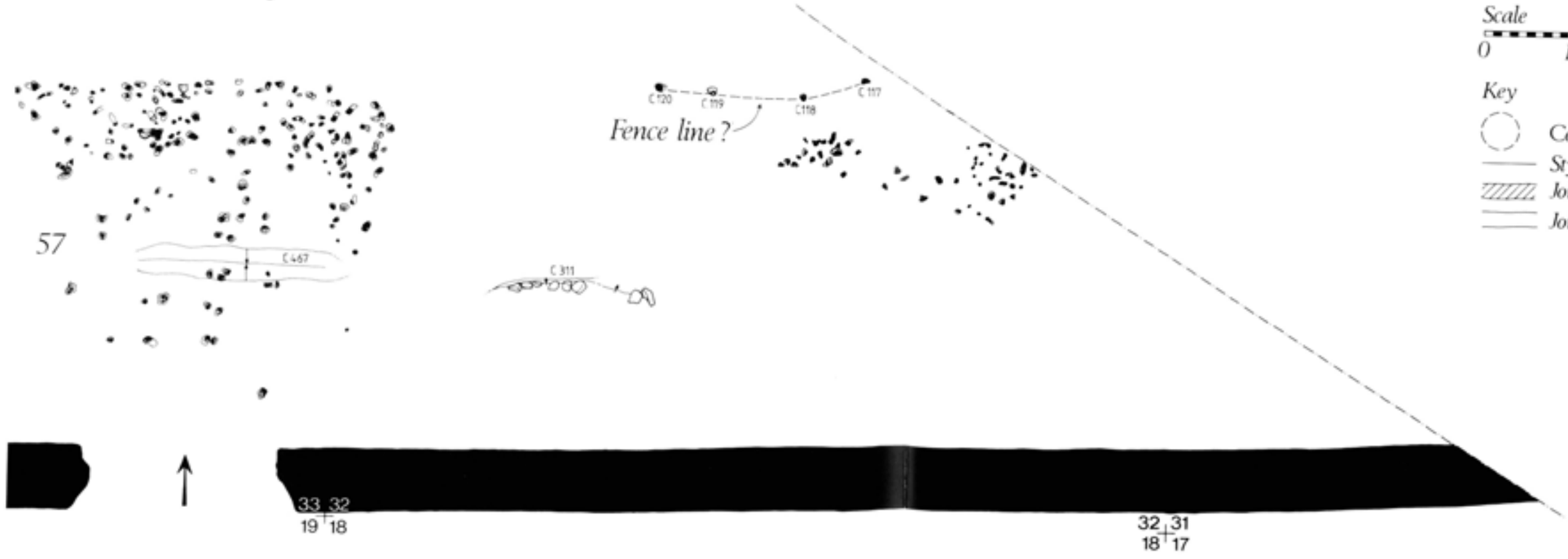
58

57

North Portico - Evidence Phase X



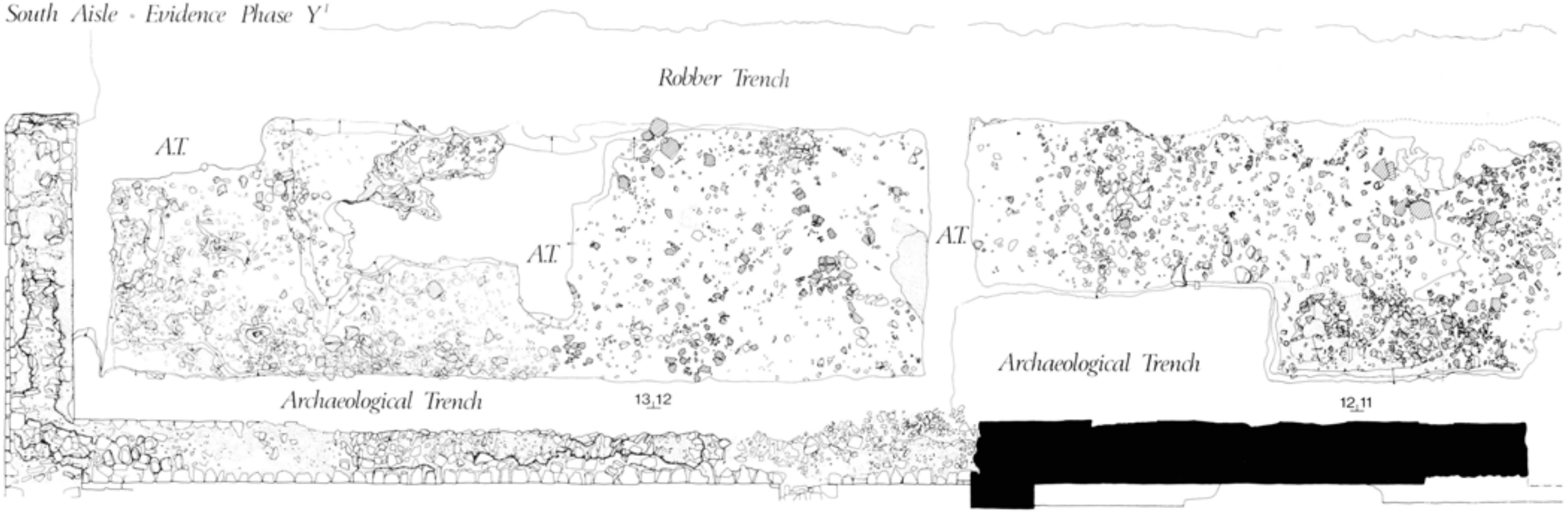
North Portico - Interpretation Phase X



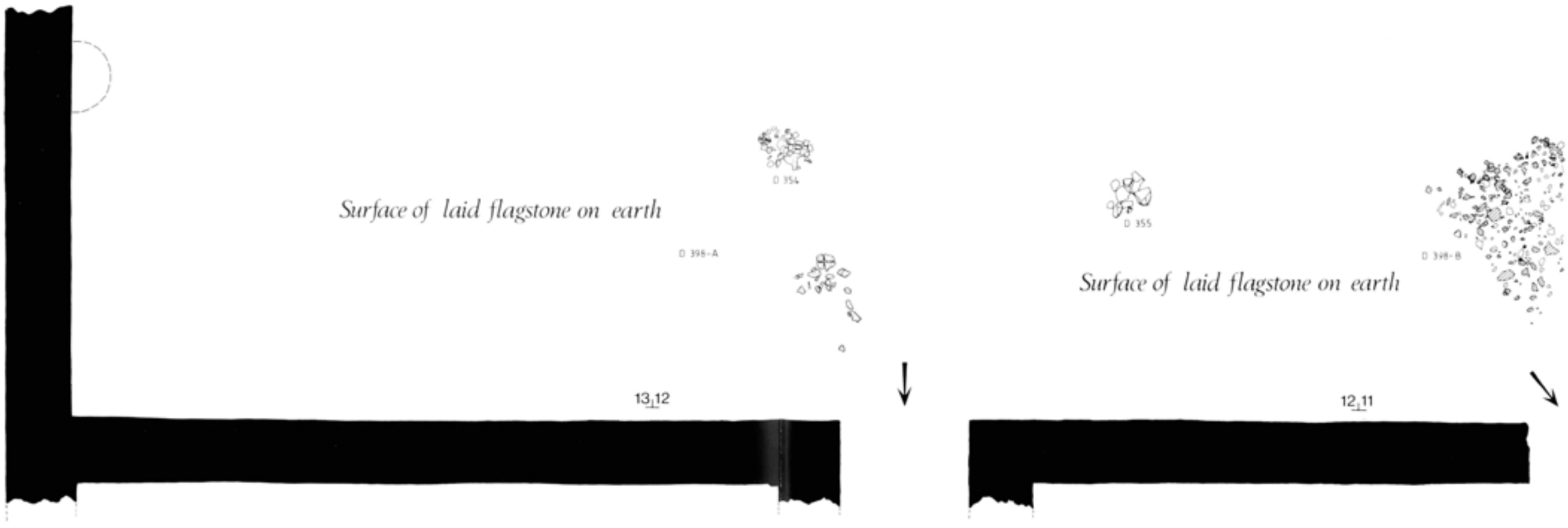
Scale
0 1 2 3 metres

Key
- Column position , inferred
- Stylobate edge
- Joist position , known
- Joist position , inferred

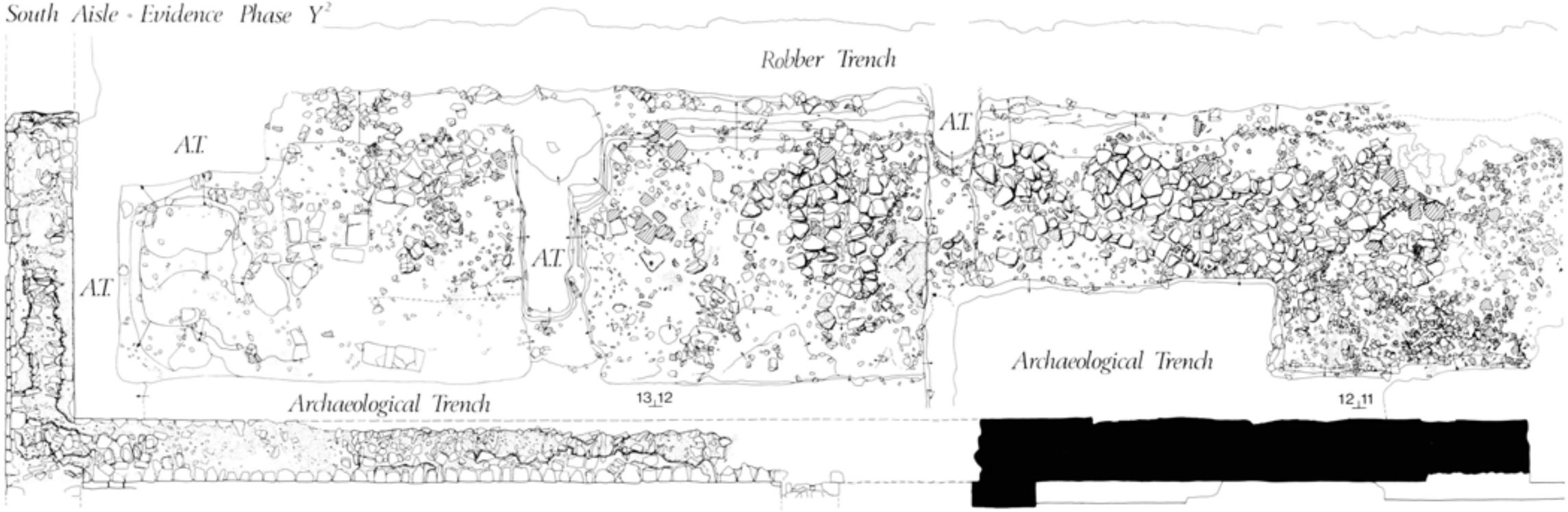
South Aisle - Evidence Phase Y¹



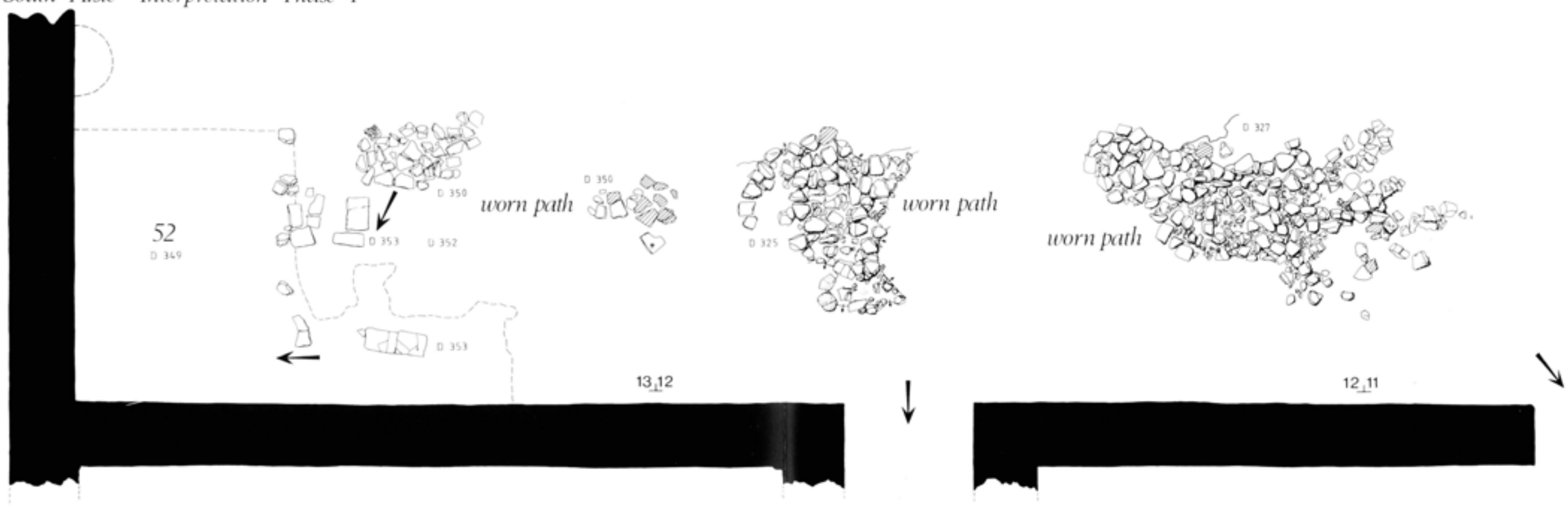
South Aisle - Interpretation Phase Y¹



South Aisle - Evidence Phase Y^2



South Aisle - Interpretation Phase Y^2



South Aisle - Evidence Phase Y

Robber Trench

A.T.

11 10

A.T.

Archaeological Trench

A.T.

10 9

South Aisle - Interpretation Phase Y

Surface of laid lias on earth

D 398-8

D 224

D 219

D 214

11 10

10 9

South Aisle · Evidence Phase Y

Robber Trench

A.T.

R.D.

Archaeological Trench

9⊥8

8⊥7

The Old Work

South Aisle · Interpretation Phase Y

Scale
0 1 2 3 metres

Key
Column position inferred

D 214

Surface of laid flagstone and rubble on earth

D 146

D 146

9⊥8

8⊥7

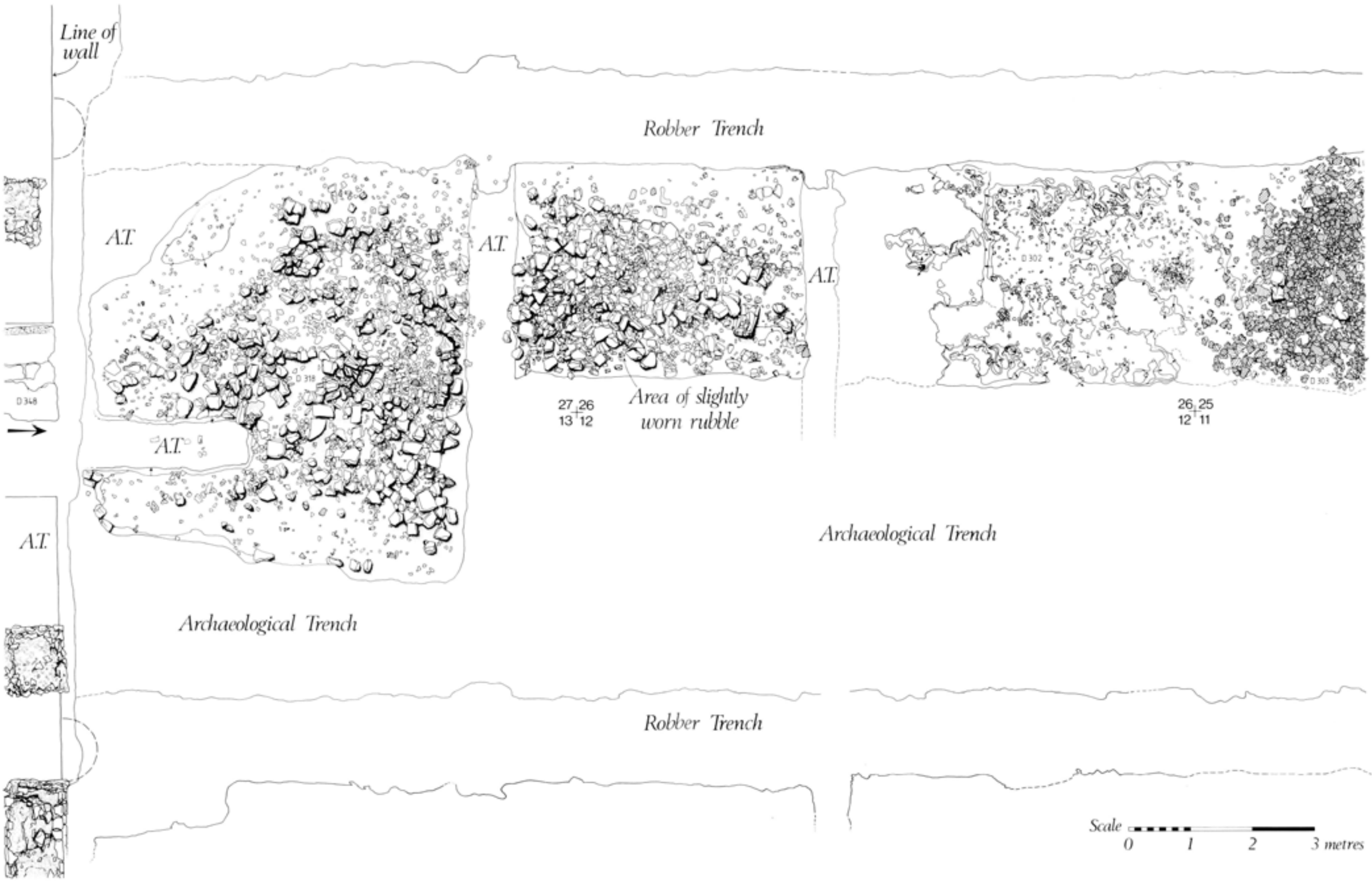
The Old Work

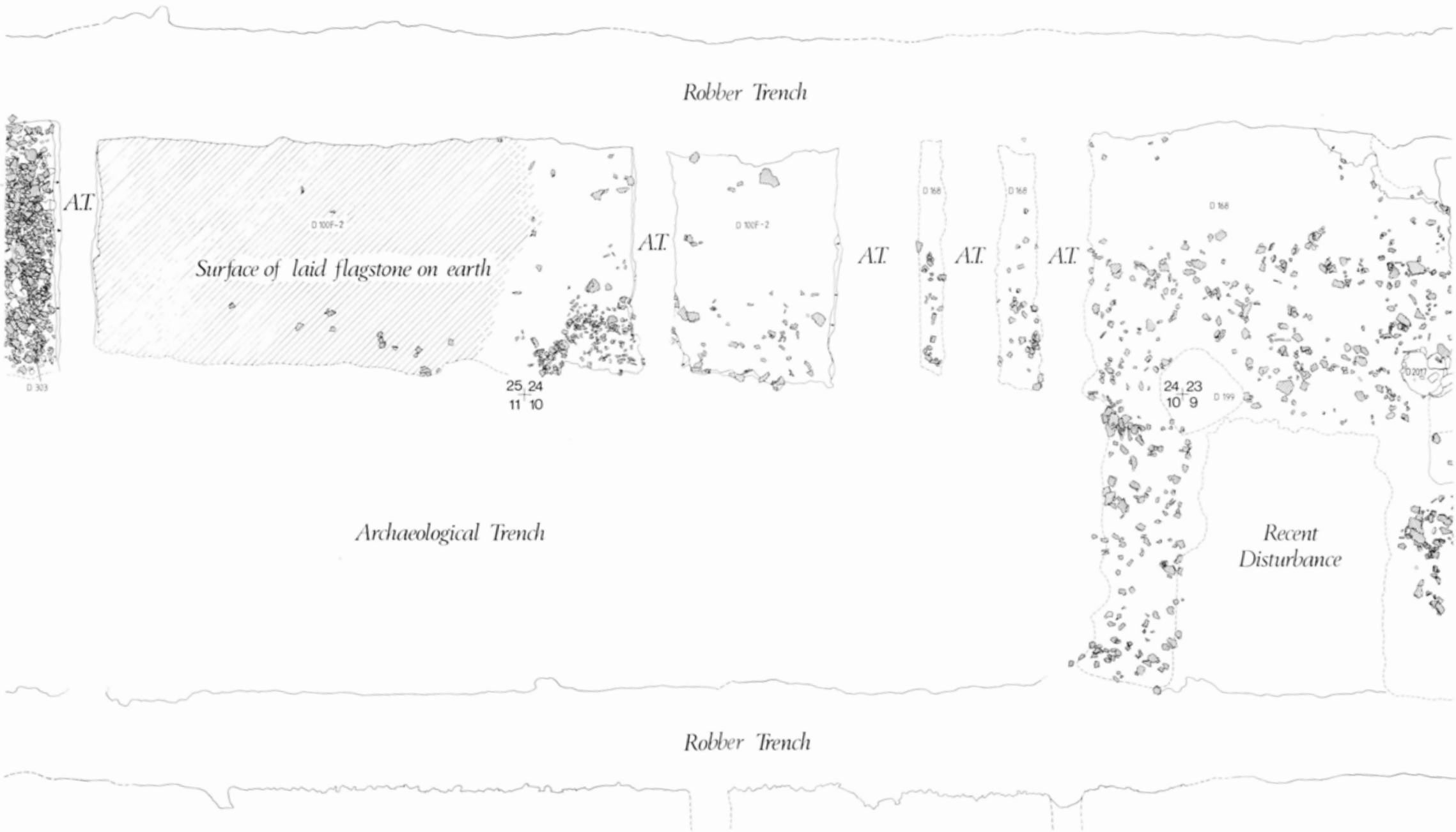
South Aisle · Evidence Phase Y



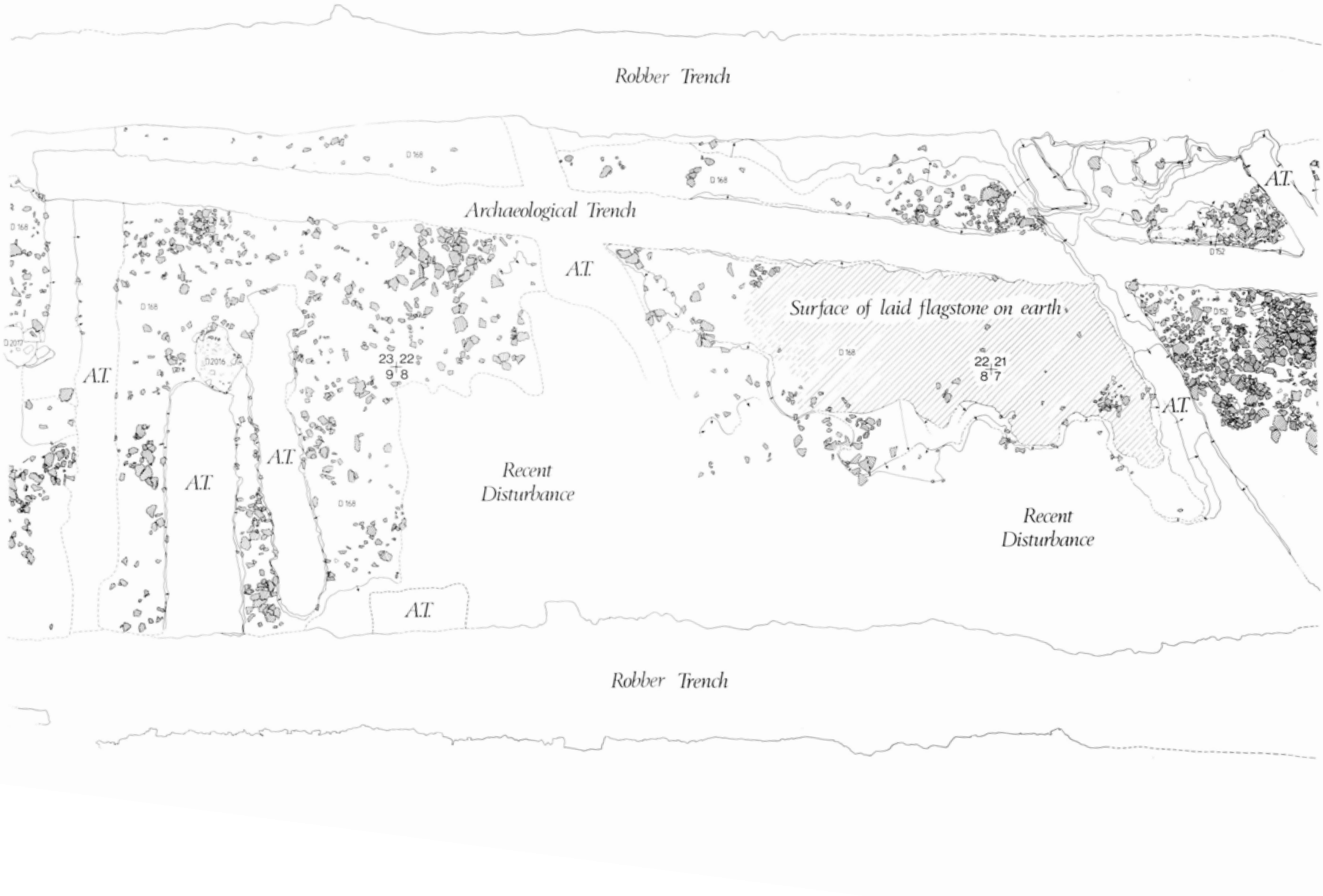
South Aisle · Interpretation Phase Y



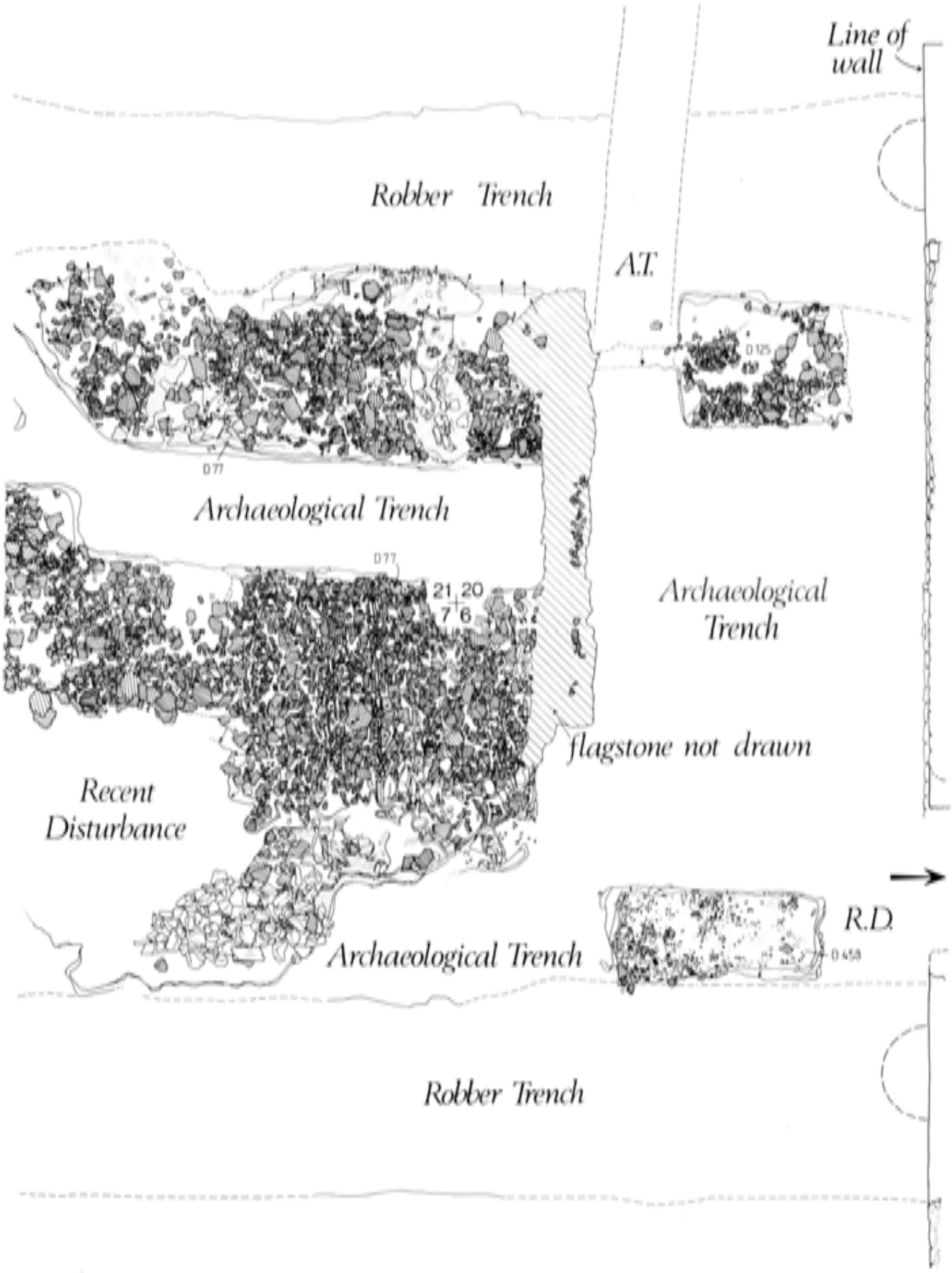

Line of wall
Robber Trench
A.T.
A.T.
A.T.
A.T.
A.T.
D 348
D 318
D 312
D 302
D 303
27 26
13 12
Area of slightly worn rubble
26 25
12 11
Archaeological Trench
Archaeological Trench
Robber Trench
Scale
0
1
2
3 metres


Robber Trench
A.T.
D 303
D 100F-2
Surface of laid flagstone on earth
25 24
11 10
A.T.
D 100F-2
A.T.
A.T.
D 168
D 168
A.T.
D 168
24 23
10 9
D 199
D 200
Archaeological Trench
Recent
Disturbance
Robber Trench

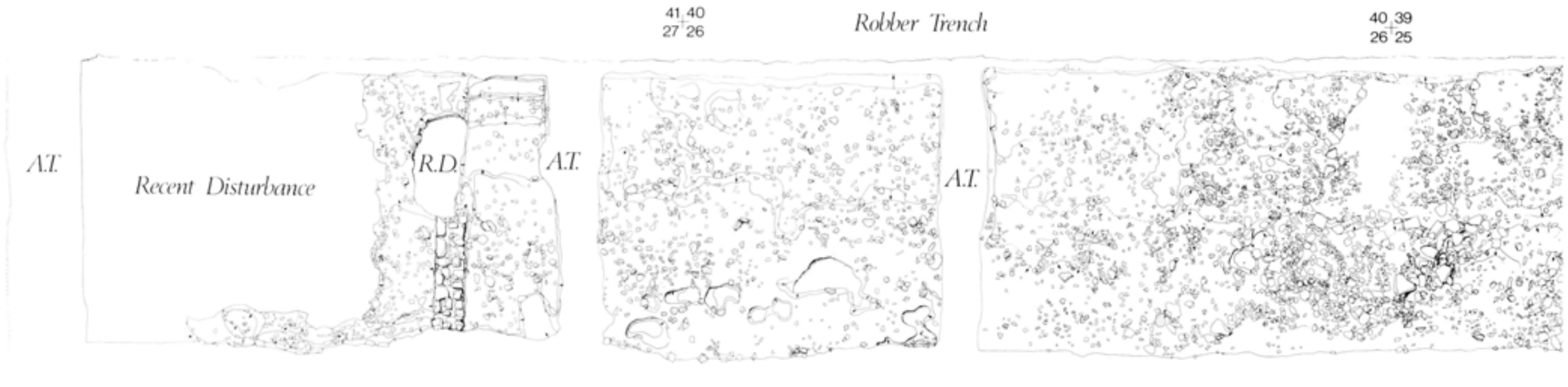
Nave - Evidence Phase Y



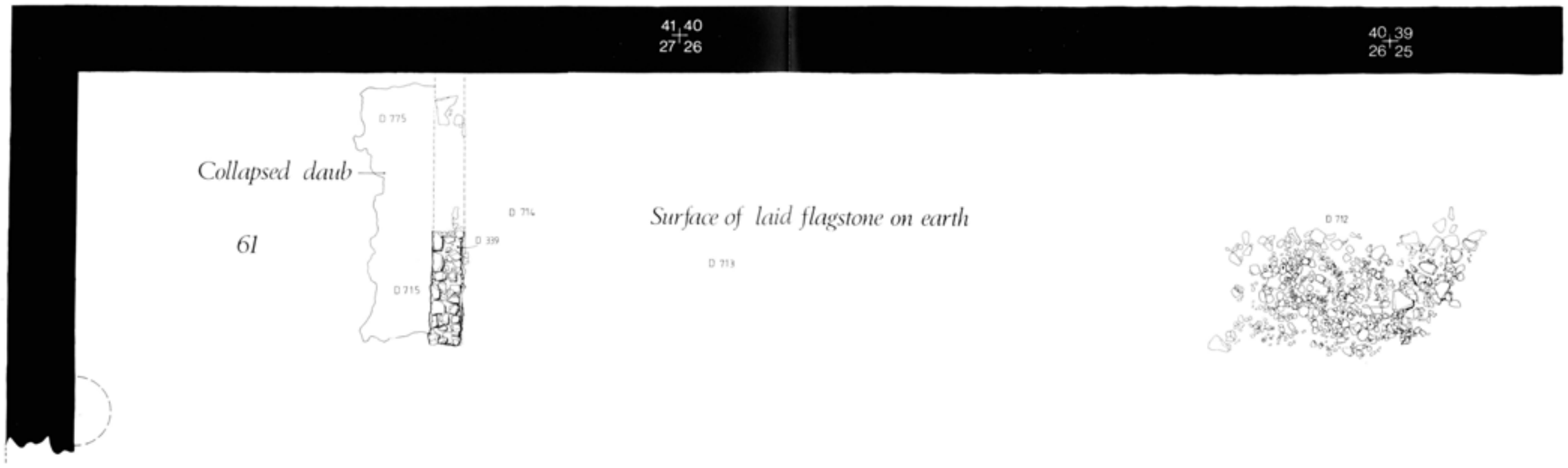
Nave · Evidence Phase Y



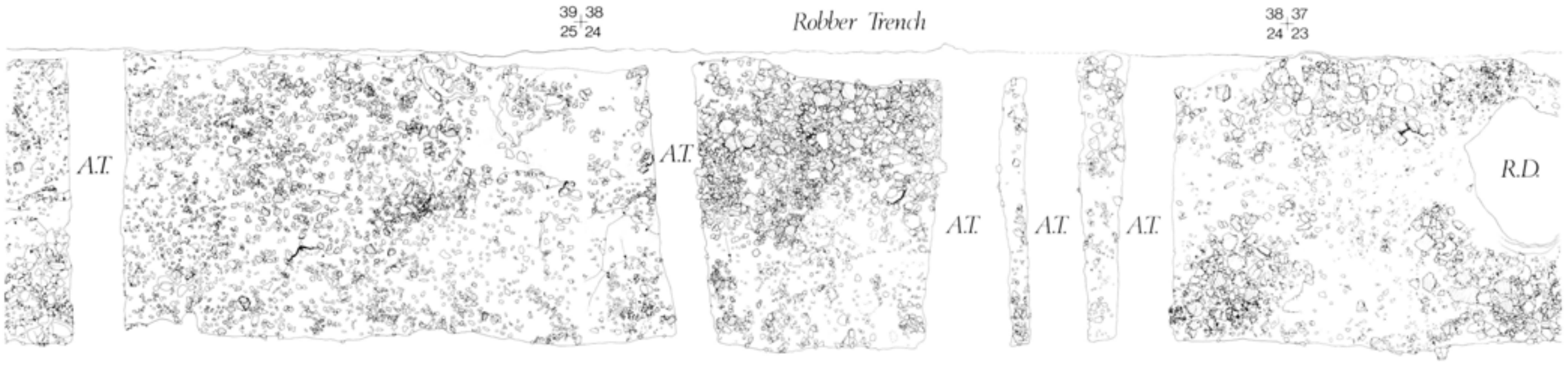
North Aisle - Evidence Phase Y



North Aisle - Interpretation Phase Y



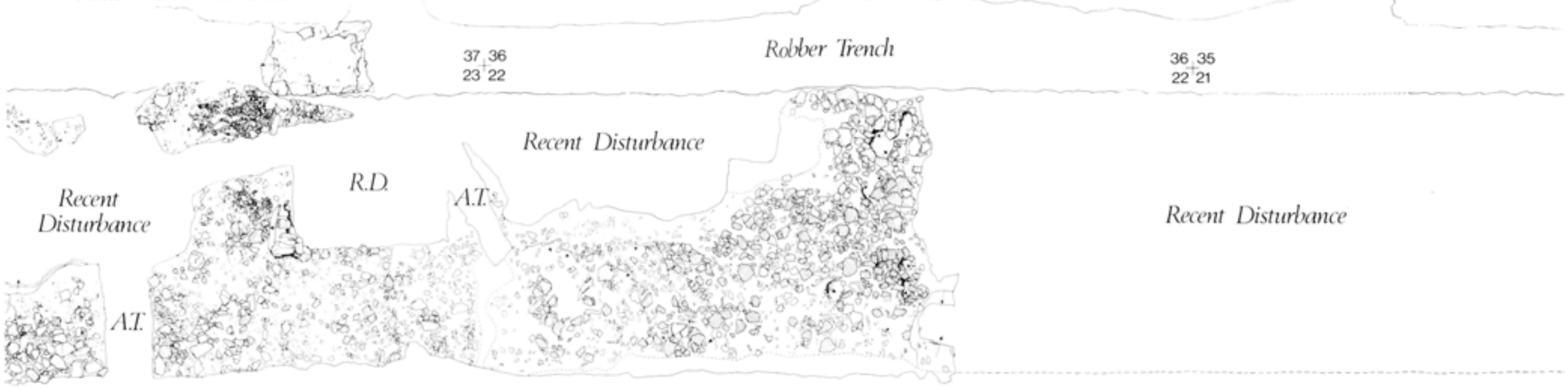
North Aisle · Evidence Phase Y



North Aisle · Interpretation Phase Y



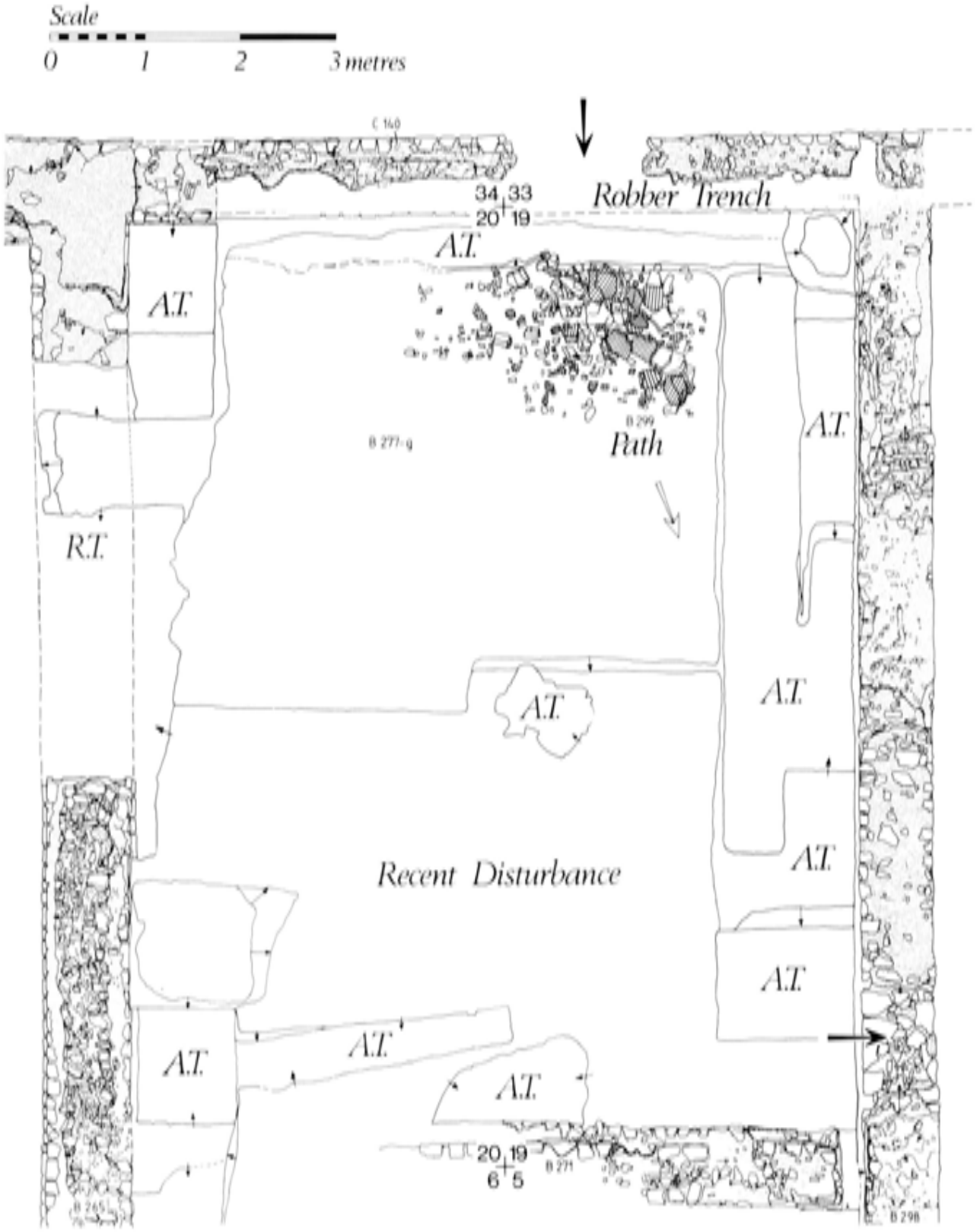
North Aisle · Evidence Phase Y



North Aisle · Interpretation Phase Y



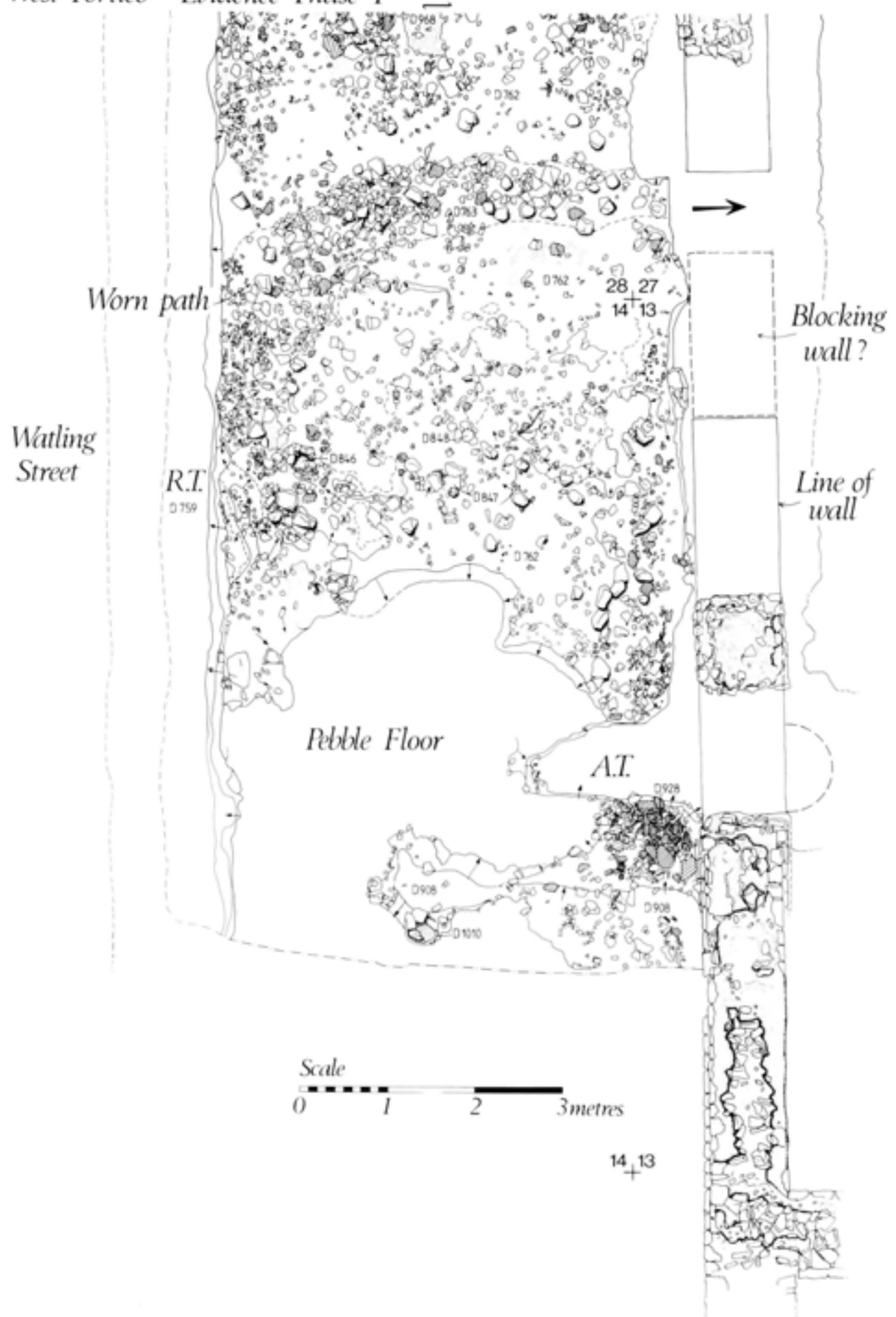
Annexe - Evidence Phase Y



West Portico - Evidence Phase Y



West Portico - Evidence Phase Y



North Portico - Evidence Phase Y

Robber Trench

40 36

Robber Trench

A.T.

A.T.

Pebble Floor

Line of wall

40
26

36
22

Line of wall

36 35
22 21

North Portico - Evidence Phase Y

Scale
0 1 2 3 metres

A.T.

Robber Trench

A.T. *A.T.* *A.T.* *A.T.*

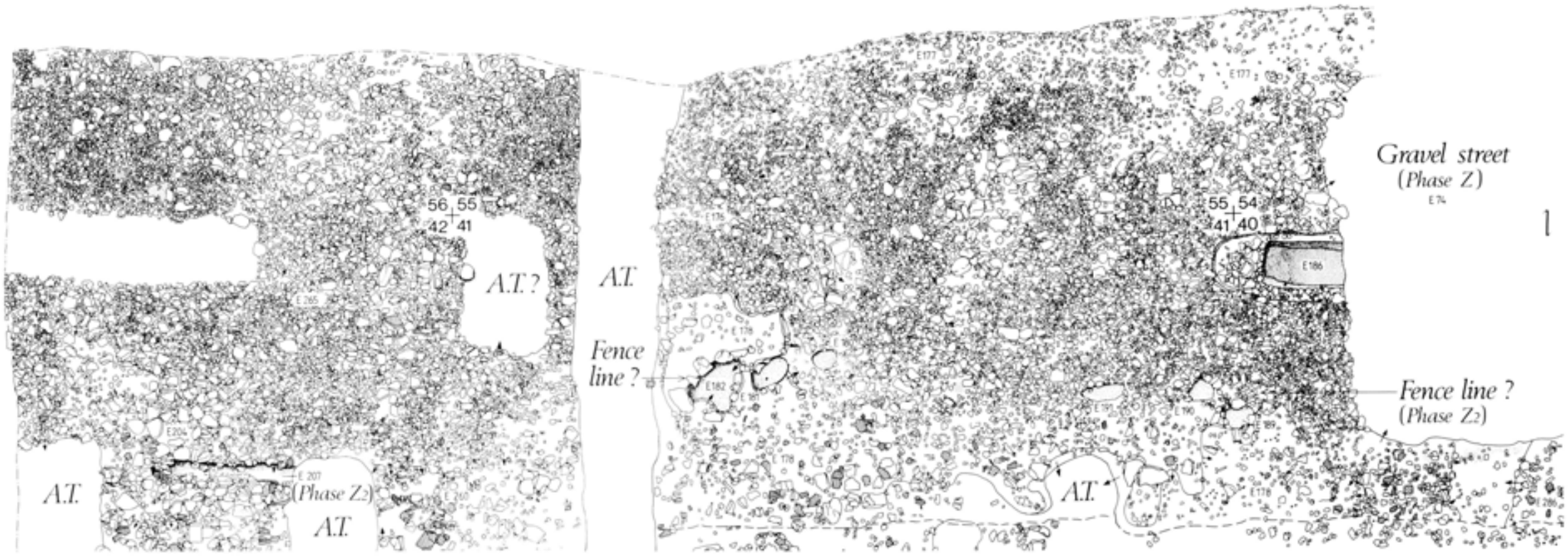
A.T.

Line of wall

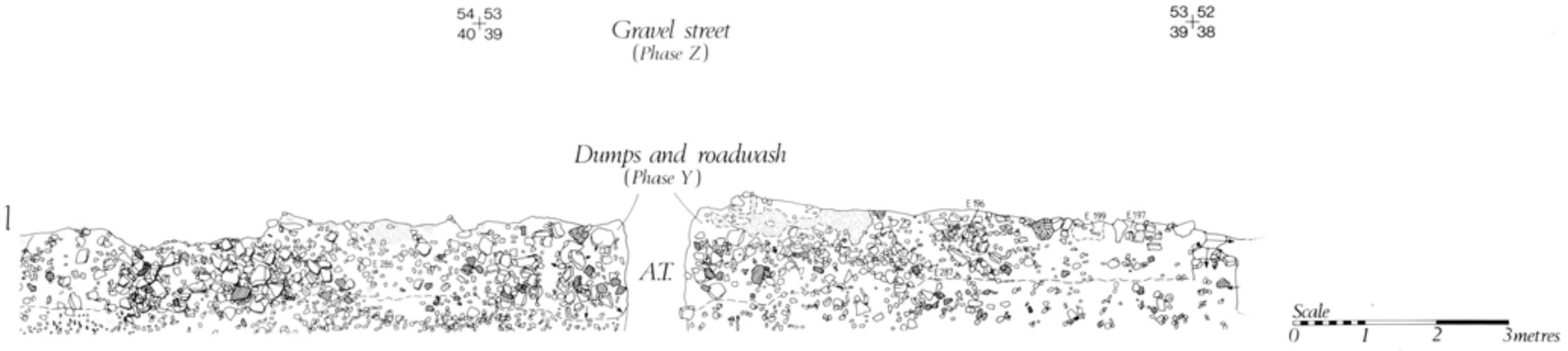
35 34
21 20

34 33
20 19

East–West Street · Evidence Phases X to Z2



East–West Street · Evidence Phases X to Z

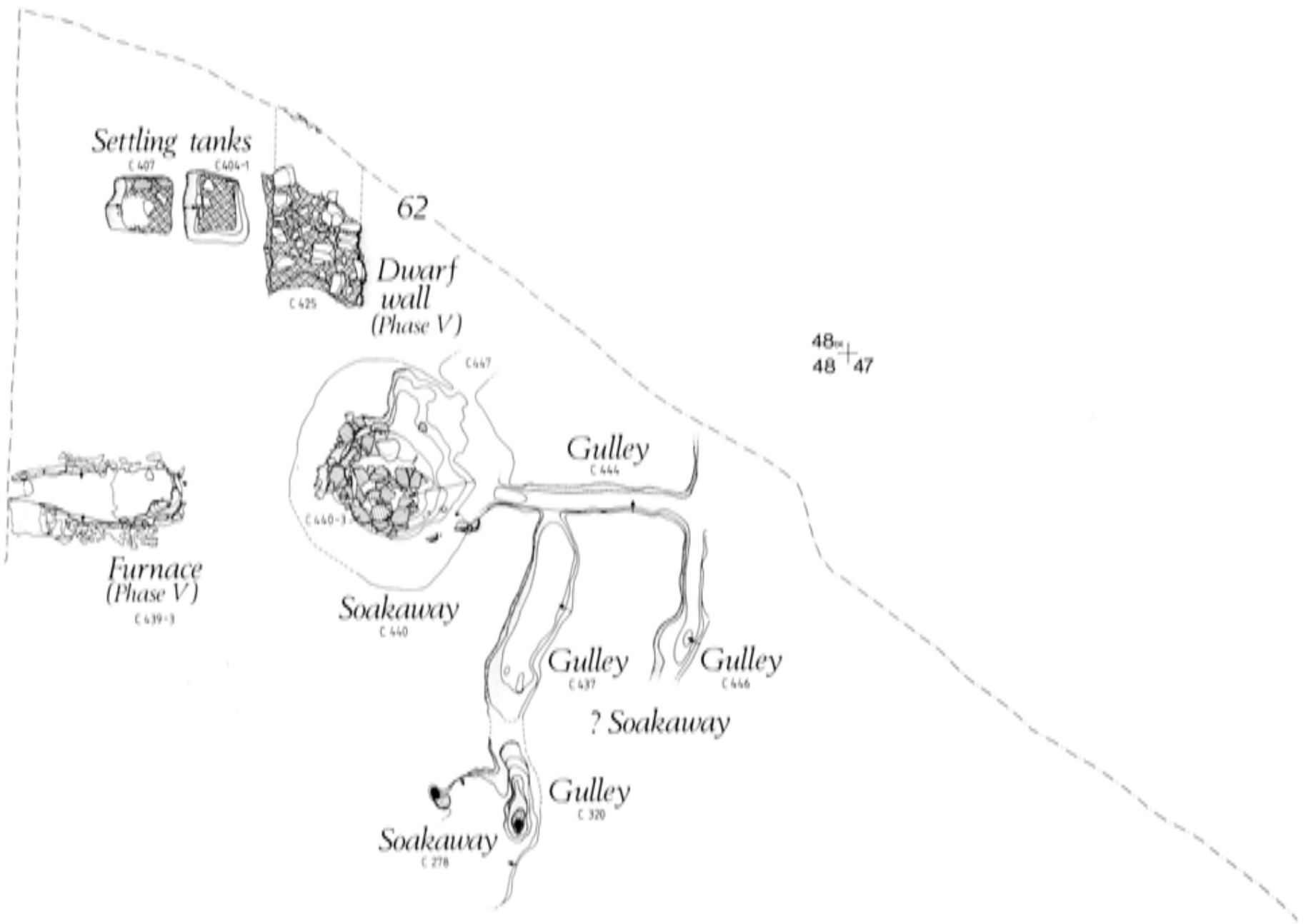


Insula 2 · Evidence Phases V & W



Not excavated in this phase

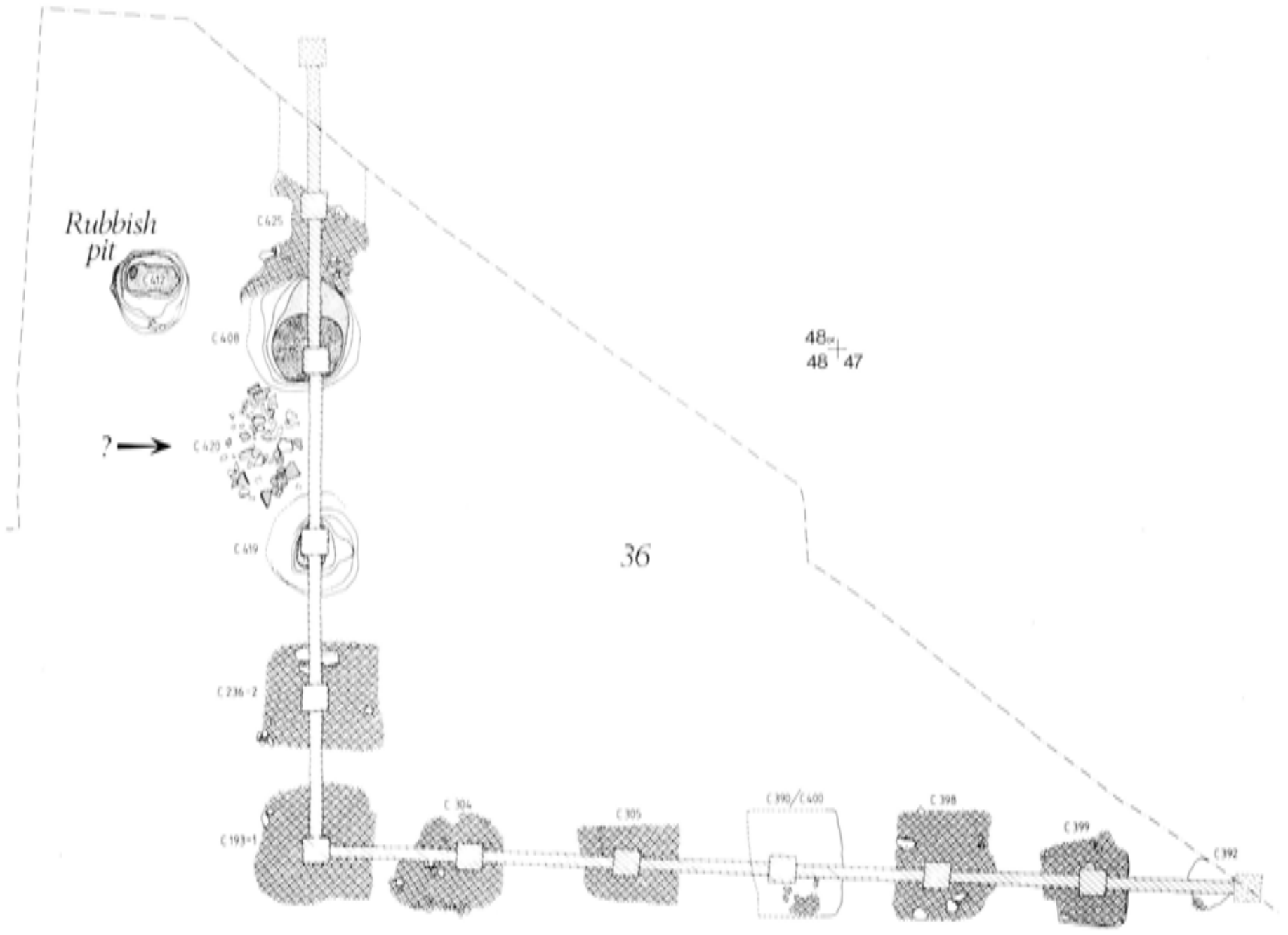
Insula 2 · Interpretation Phases V & W



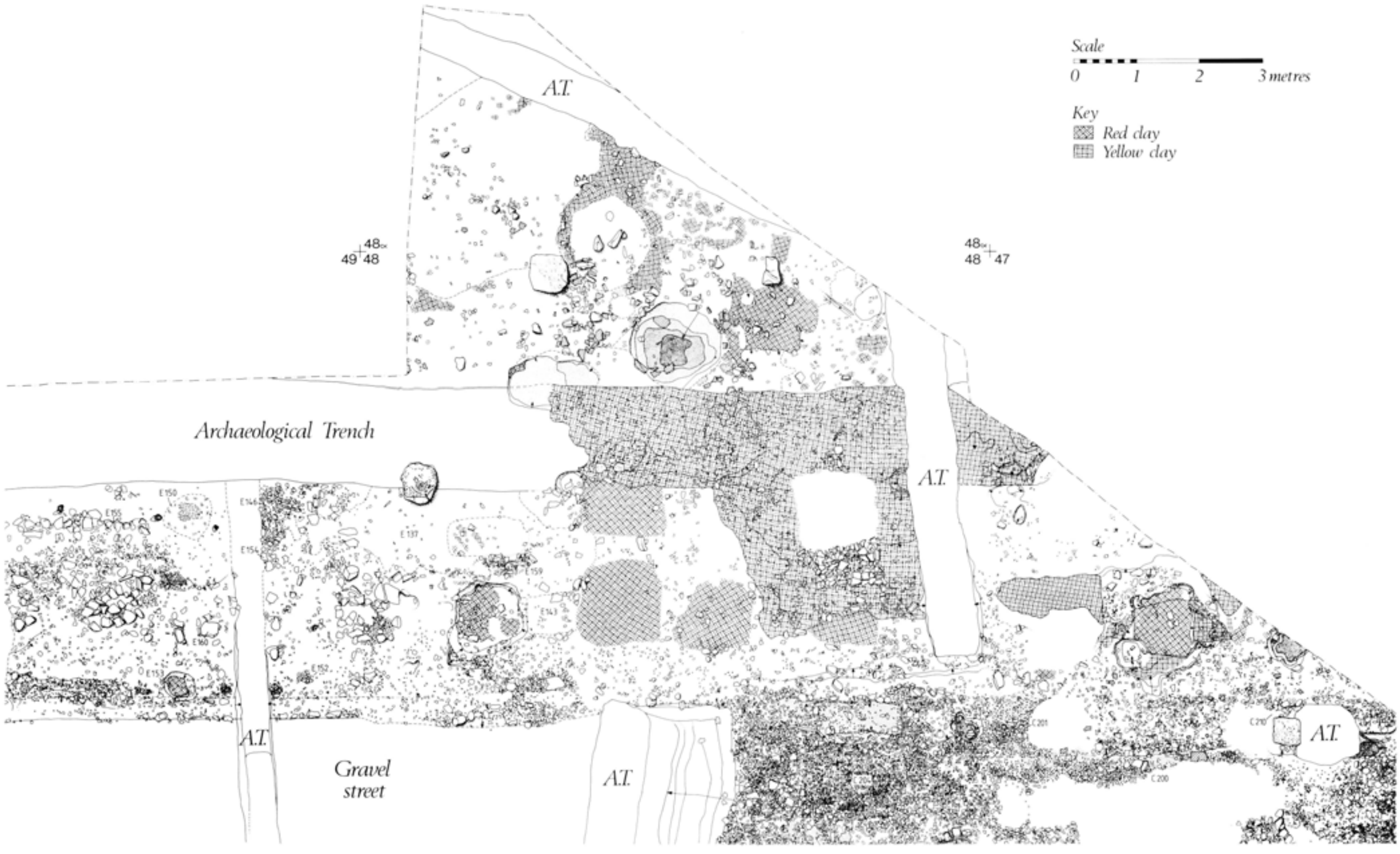
Insula 2 • Evidence Phase X



Insula 2 • Interpretation Phase X

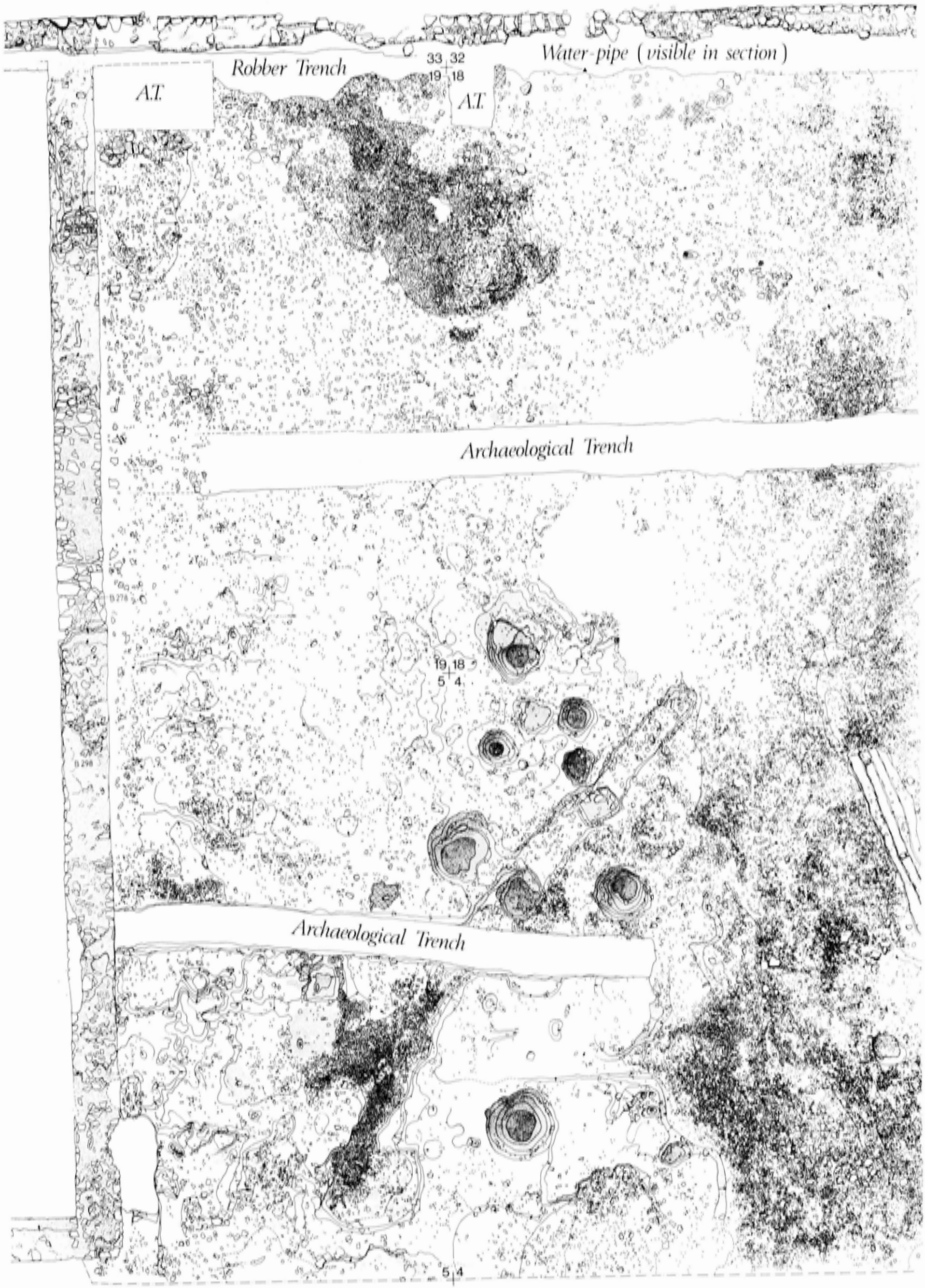


Insula 2 ◦ Evidence Phases Y and Z1



Insula 2 ◦ Interpretation Phases Y and Z1




Water-pipe (visible in section)
Robber Trench
33 32
19 18
A.T.
A.T.
Archaeological Trench
B 278
19 18
5 4
B 298
Archaeological Trench
5 4

Precinct · Evidence Phases X, Y and Z1



Precinct - Interpretation Phases X, Y and Z1



Precinct · Interpretation Phases X , Y and Z1

32 | 31
18 | 17

31
17 | 16

?

?68
(Phase Z1)

Pebble surface
(Phase X)
B 218

B 248

B178

B191

B 247

B 246

?

B 237

Worn surface
(Phase X ?)

18 | 17
4 | 3

17 | 16
3 | 2

Pebble surface
(Phase X)
B 84

Pebble surface
(Phase X)

Dumps
(Phase Y)

Underlying water-pipe
(Phase X)
B 86

B 251

B 76

4 | 3

3 | 2

Scale
0 1 2 3 metres

North-South Street and Frontages · Evidence Phases X and W



North – South Street and Frontages · Evidence Phase Y1



North - South Street and Frontages · Interpretation Phase Y1

Scale
0 1 2 3 metres

Key
B Baby burial

Pit and gulley system

Furnace

?2

3

Fence line

Cobble street

16 15
2 1

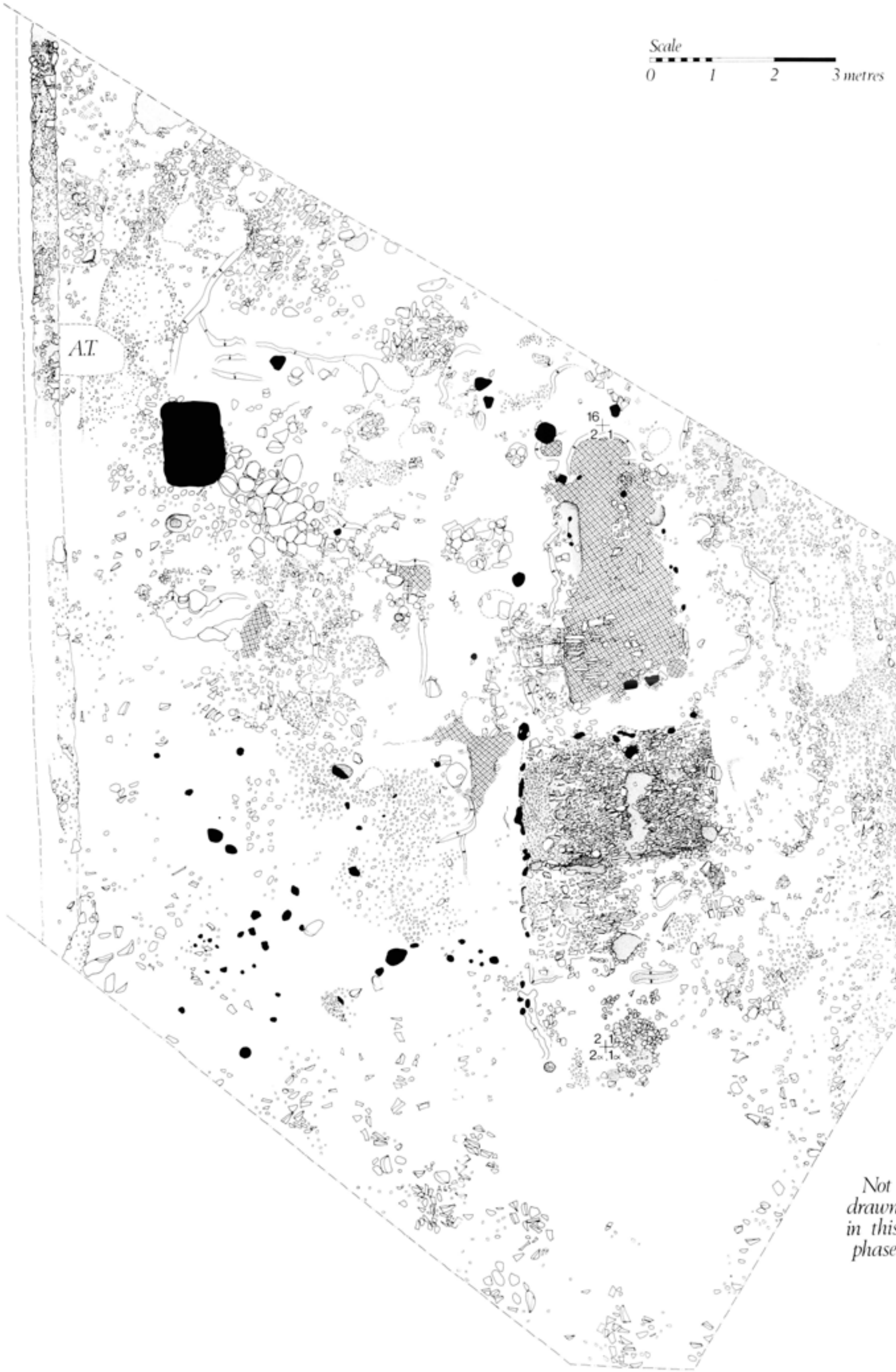
2 1
2ox 1ox

Pit and gulley system 1

Pit and gulley system 2



North-South Street and Frontages · Evidence Phase Y2



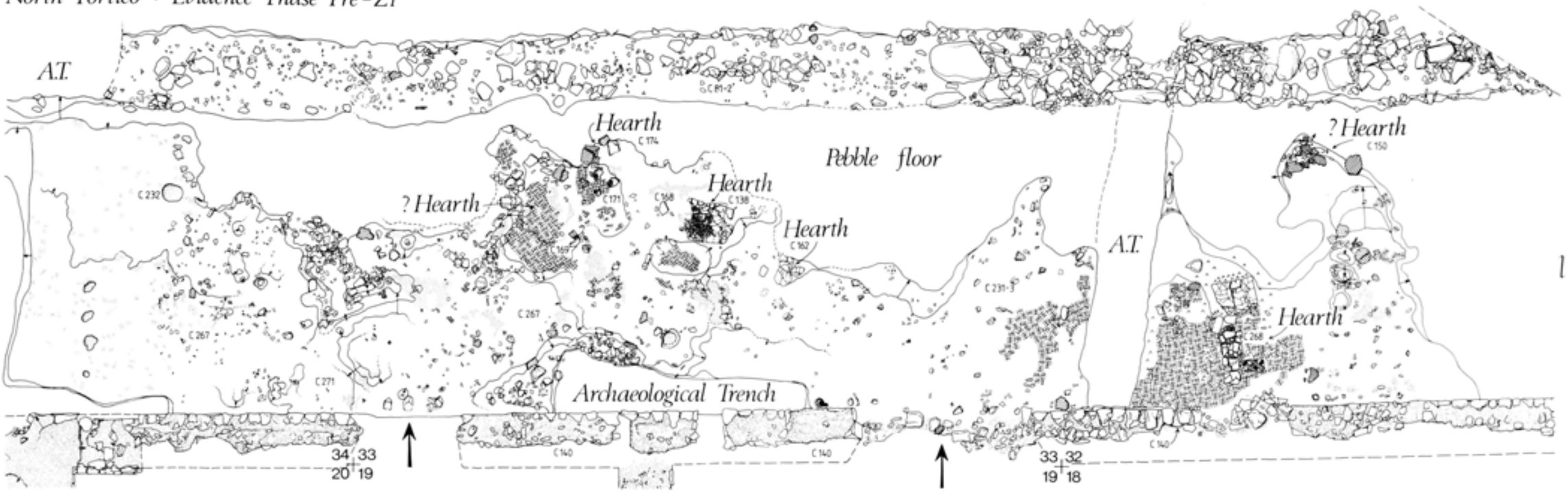
Not drawn in this phase

North-South Street and Frontages - Interpretation Phase Y2

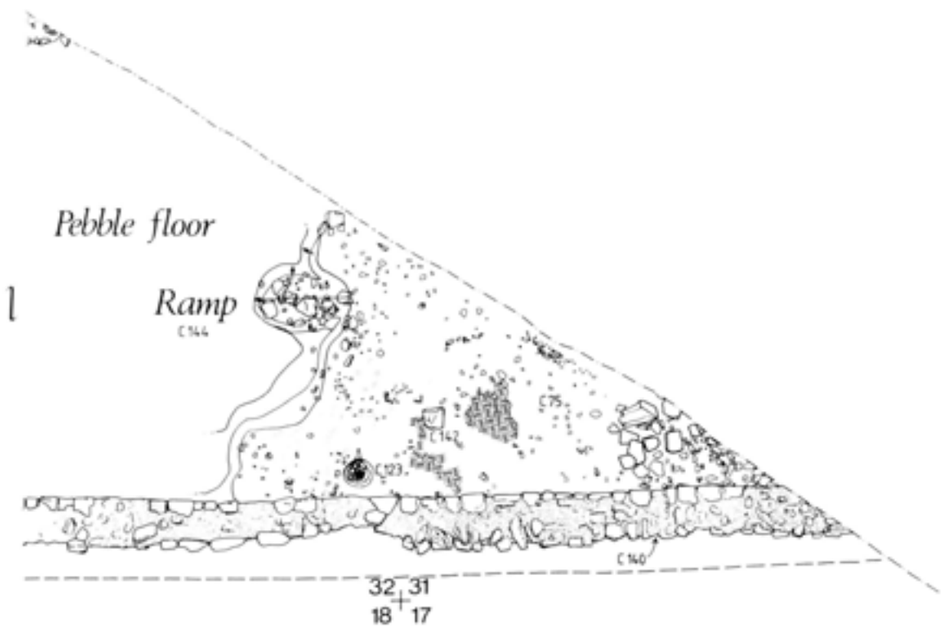
Scale
0 1 2 3 metres

A 117
A 21
A 22
A 100
A 57
A 103
A 39
A 55
A 371
A 38
A 53
A 5
A 14
A 372
A 373
A 353
A 36
A 24
A 370
A 365
A 367
A 6
A 366
A 208
1
A 374
A 368
A 3
A 377
A 19
2
1
2
1
A 376
?
?
?out-buildings
A 54
A 58
A 58
Cobble street
A 352/
A 221-1

North Portico · Evidence Phase Pre-Z1



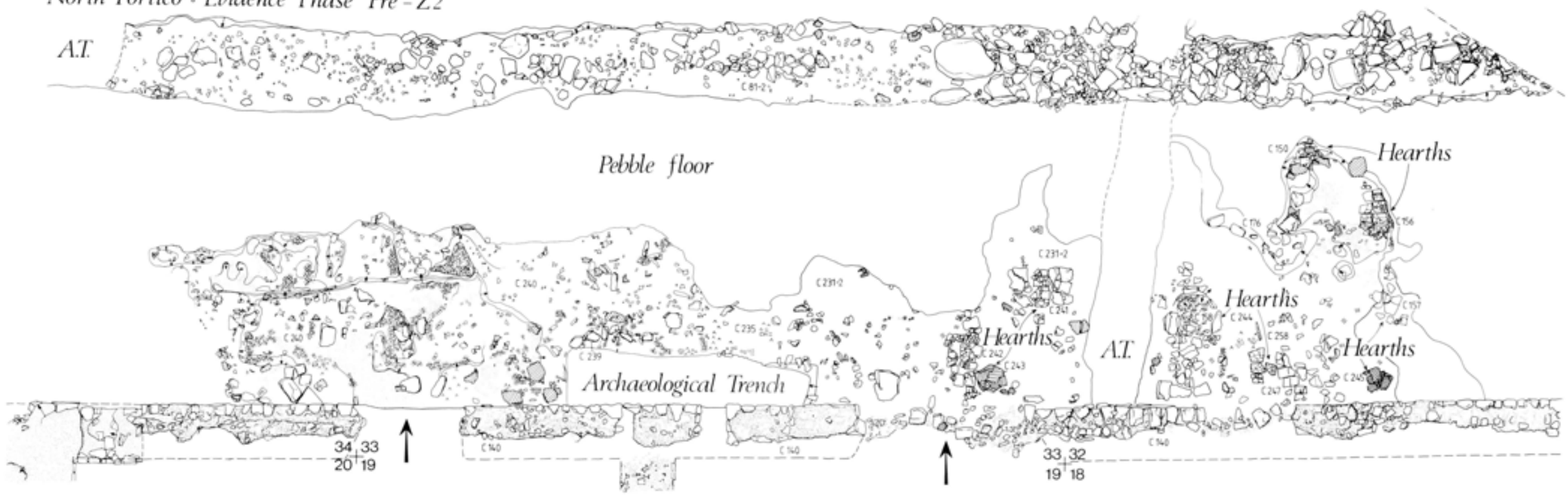
North Portico · Evidence Phase Pre-Z1



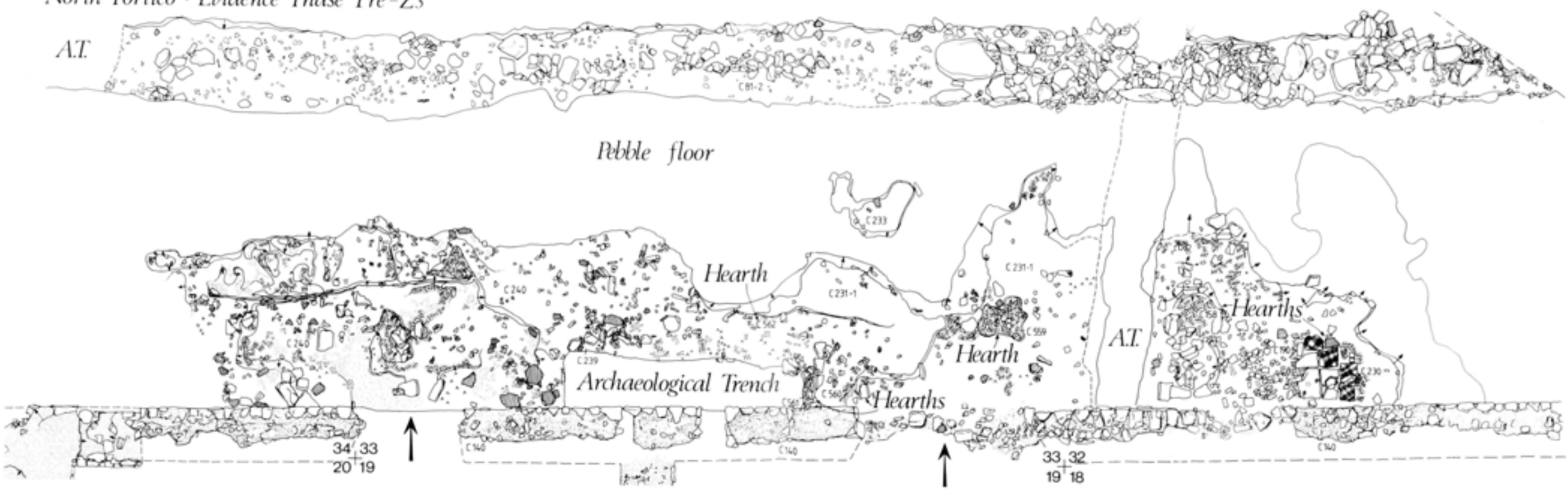
Scale
0 1 2 3 metres

Key
Burnt clay

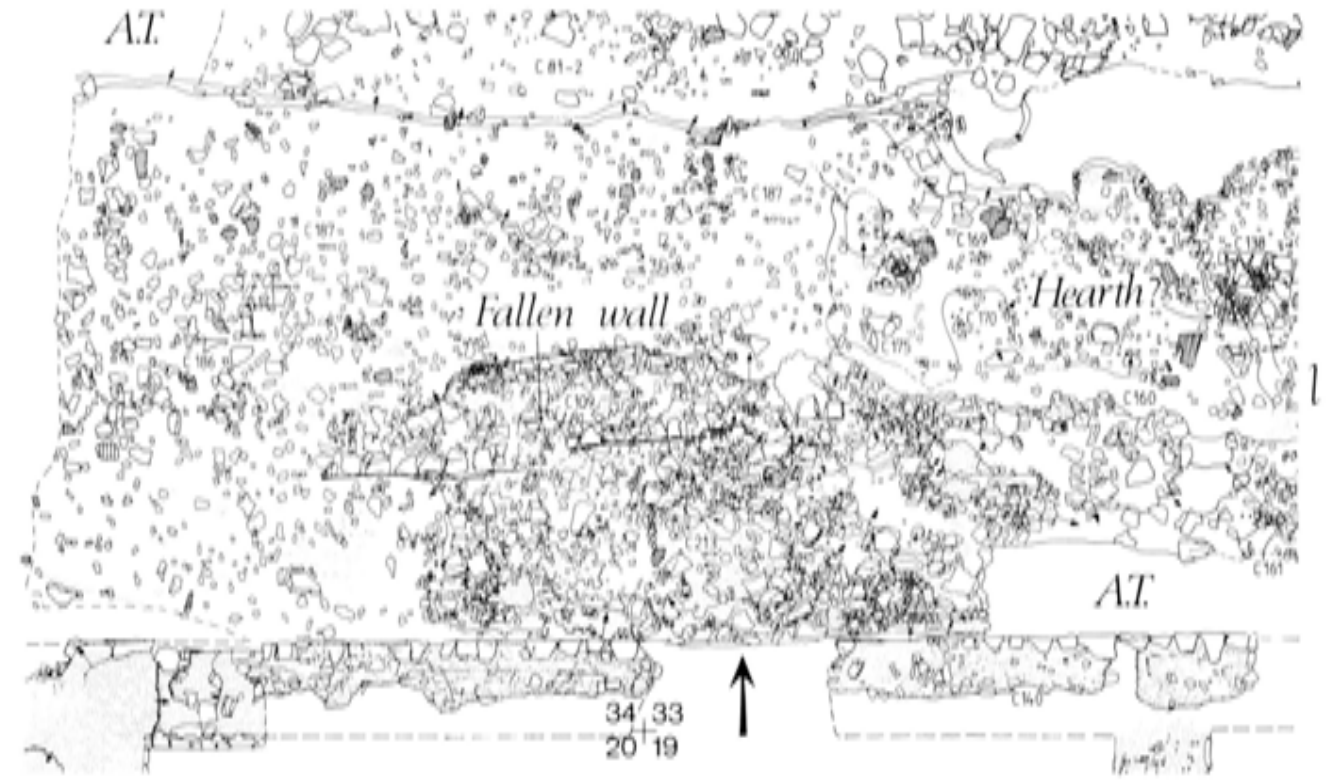
North Portico - Evidence Phase Pre-Z2



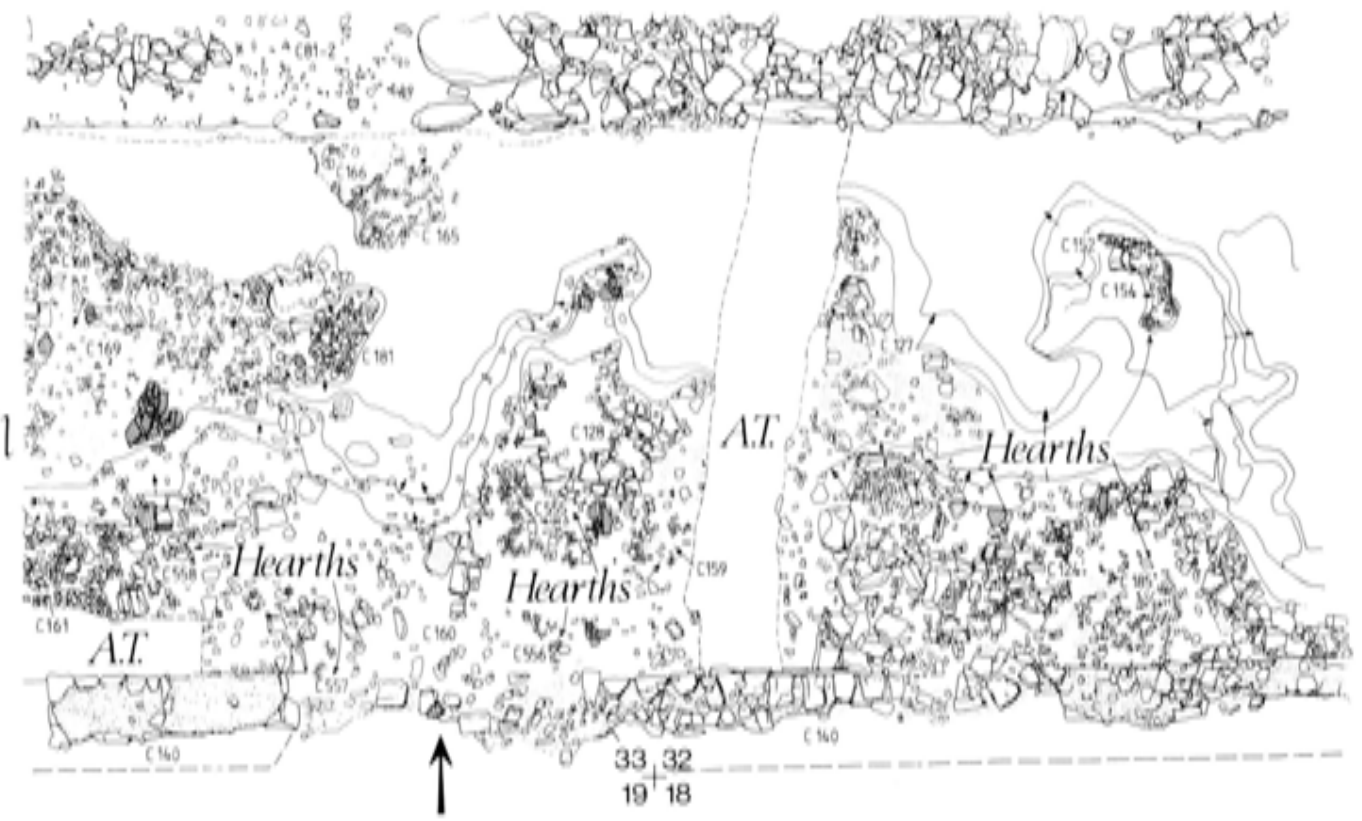
North Portico - Evidence Phase Pre-Z3



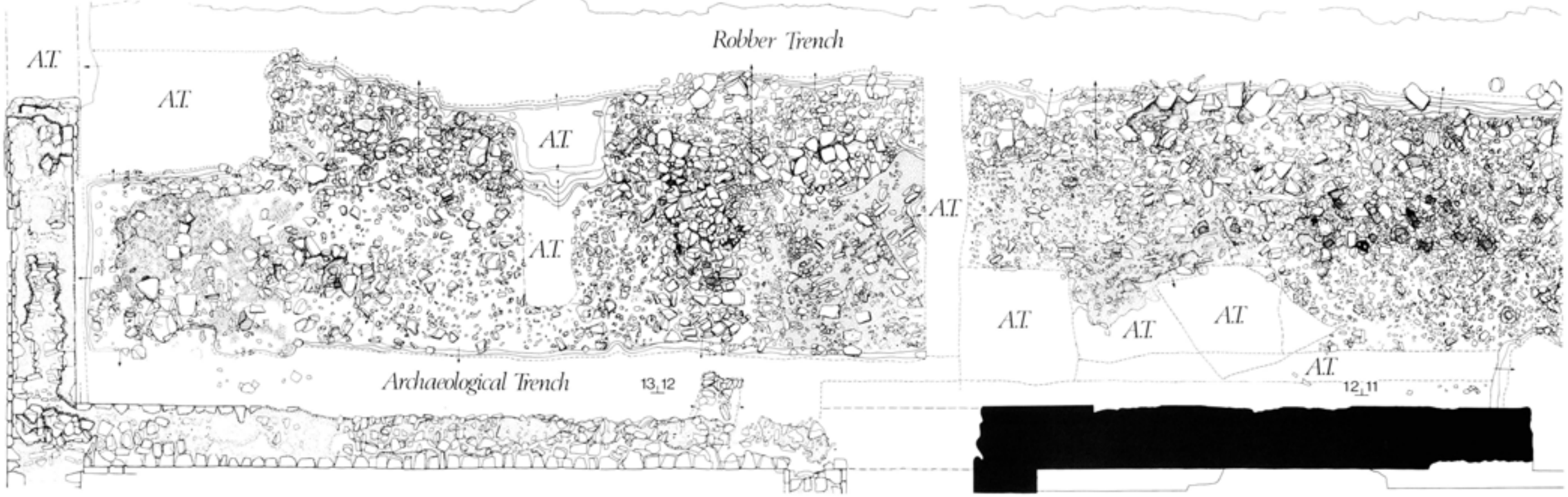
North Portico - Evidence Phase Pre-Z4



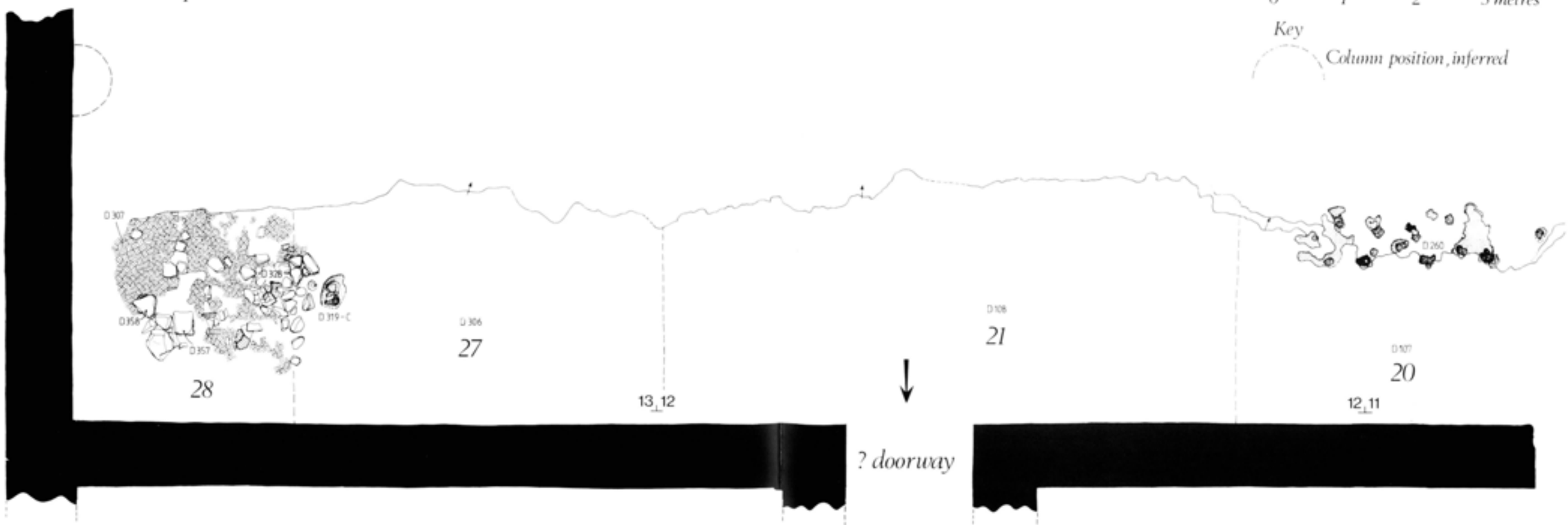
North Portico - Evidence Phase Pre-Z4



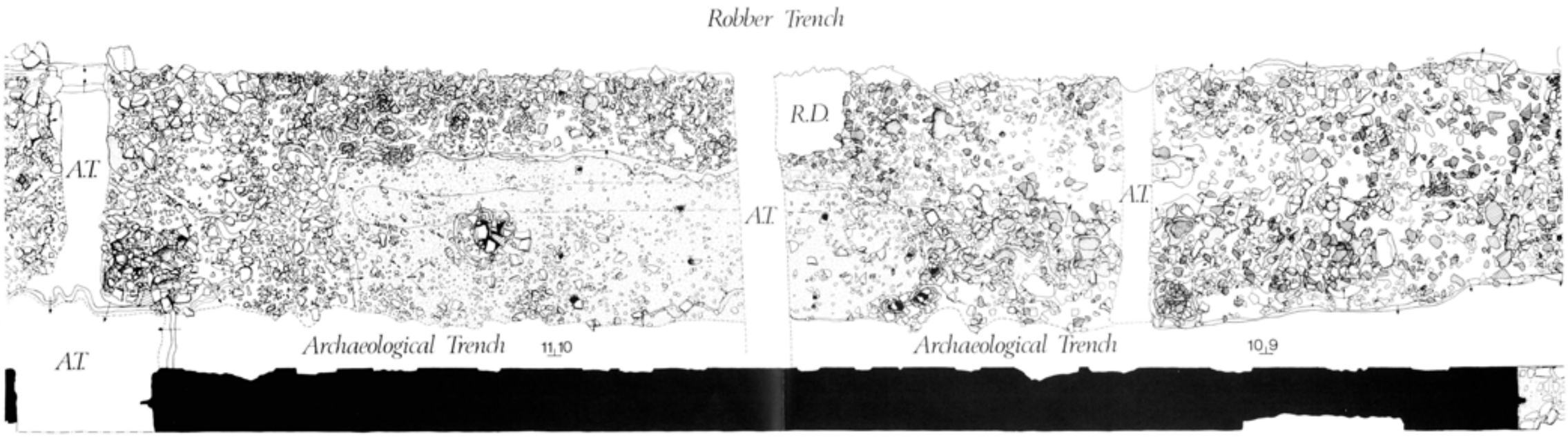
South Aisle - Evidence Phase Z



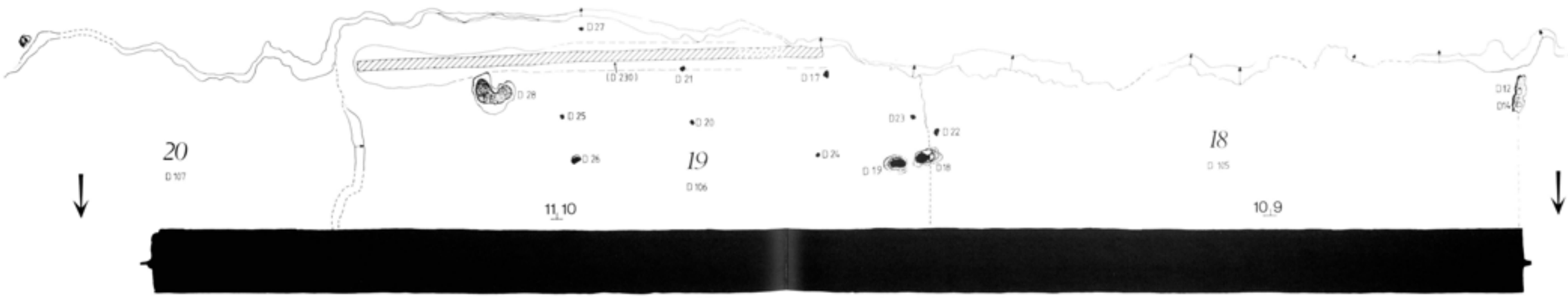
South Aisle - Interpretation Phase Z



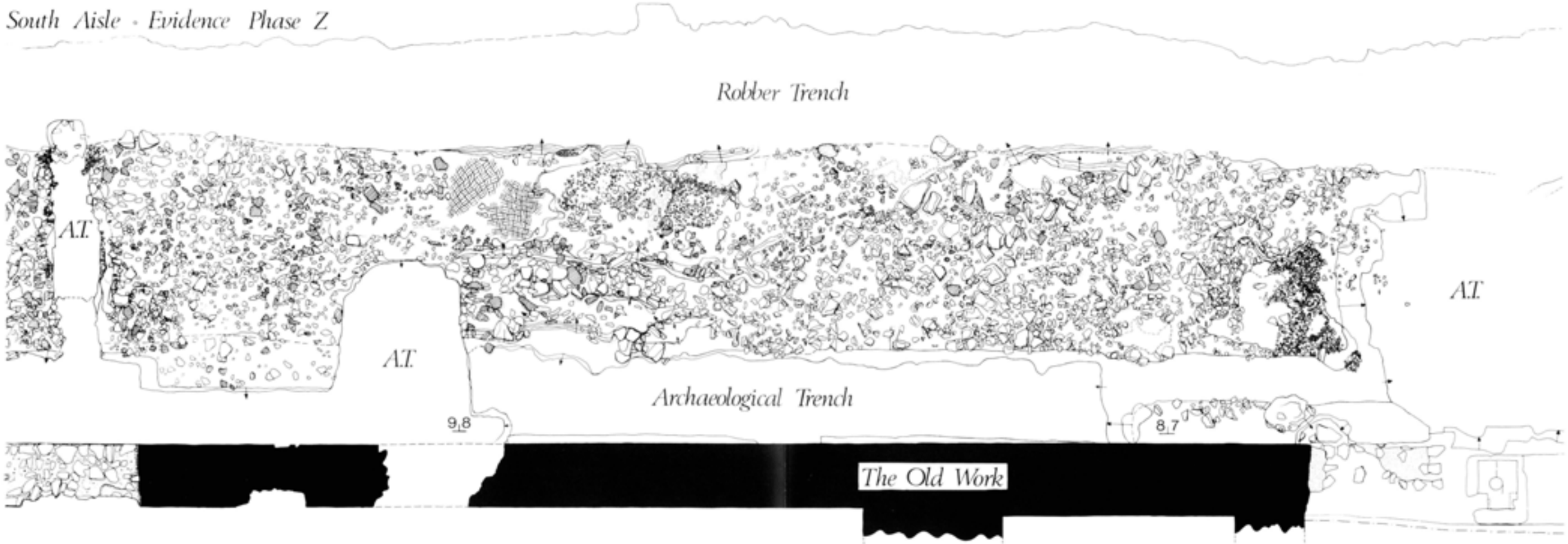
South Aisle - Evidence Phase Z



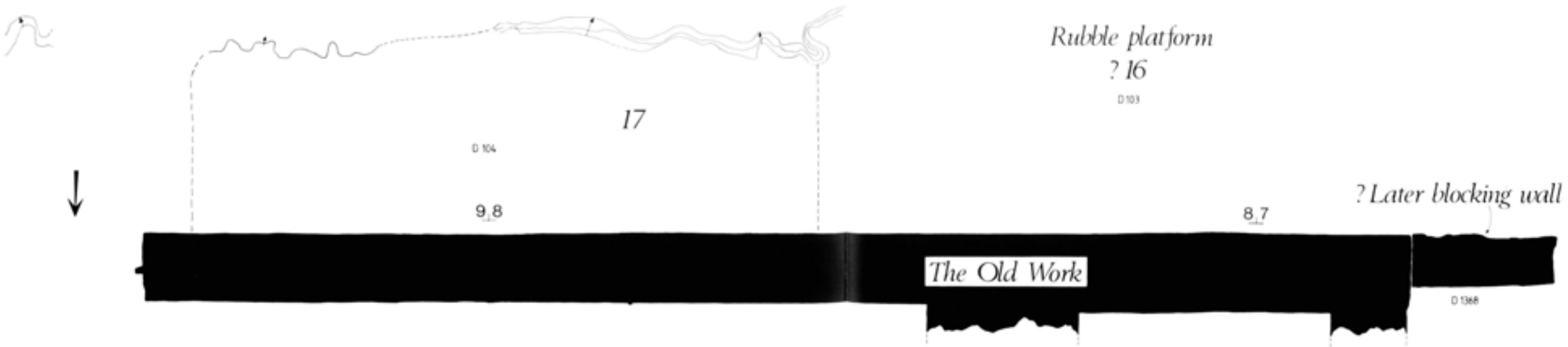
South Aisle - Interpretation Phase Z

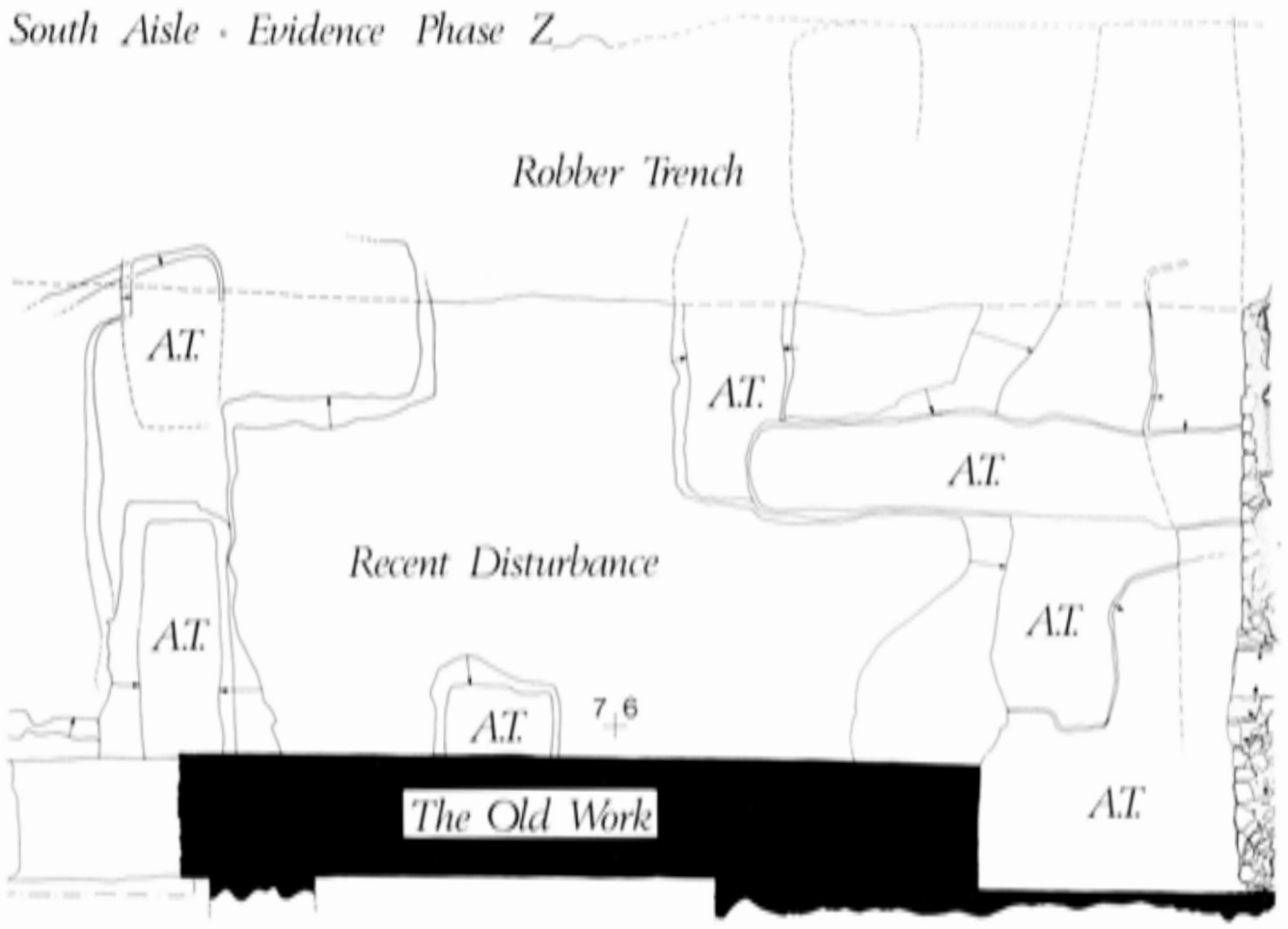


South Aisle - Evidence Phase Z

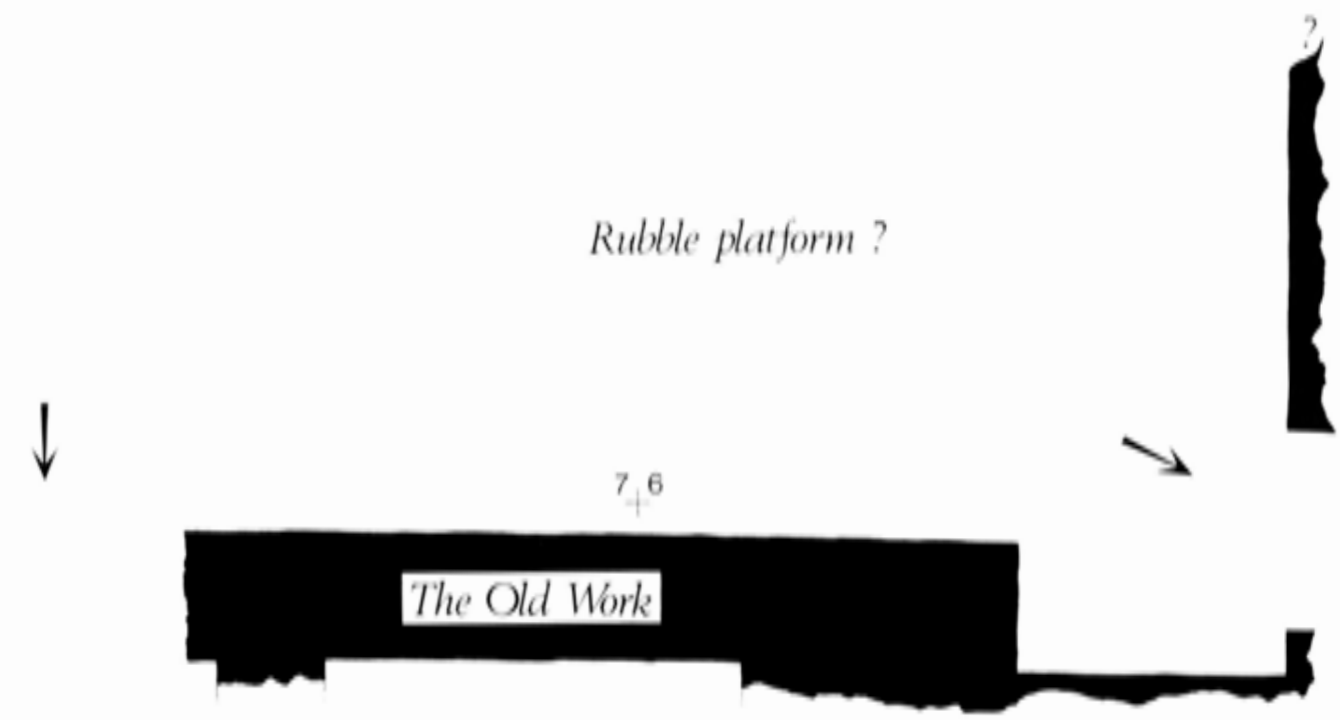


South Aisle - Interpretation Phase Z

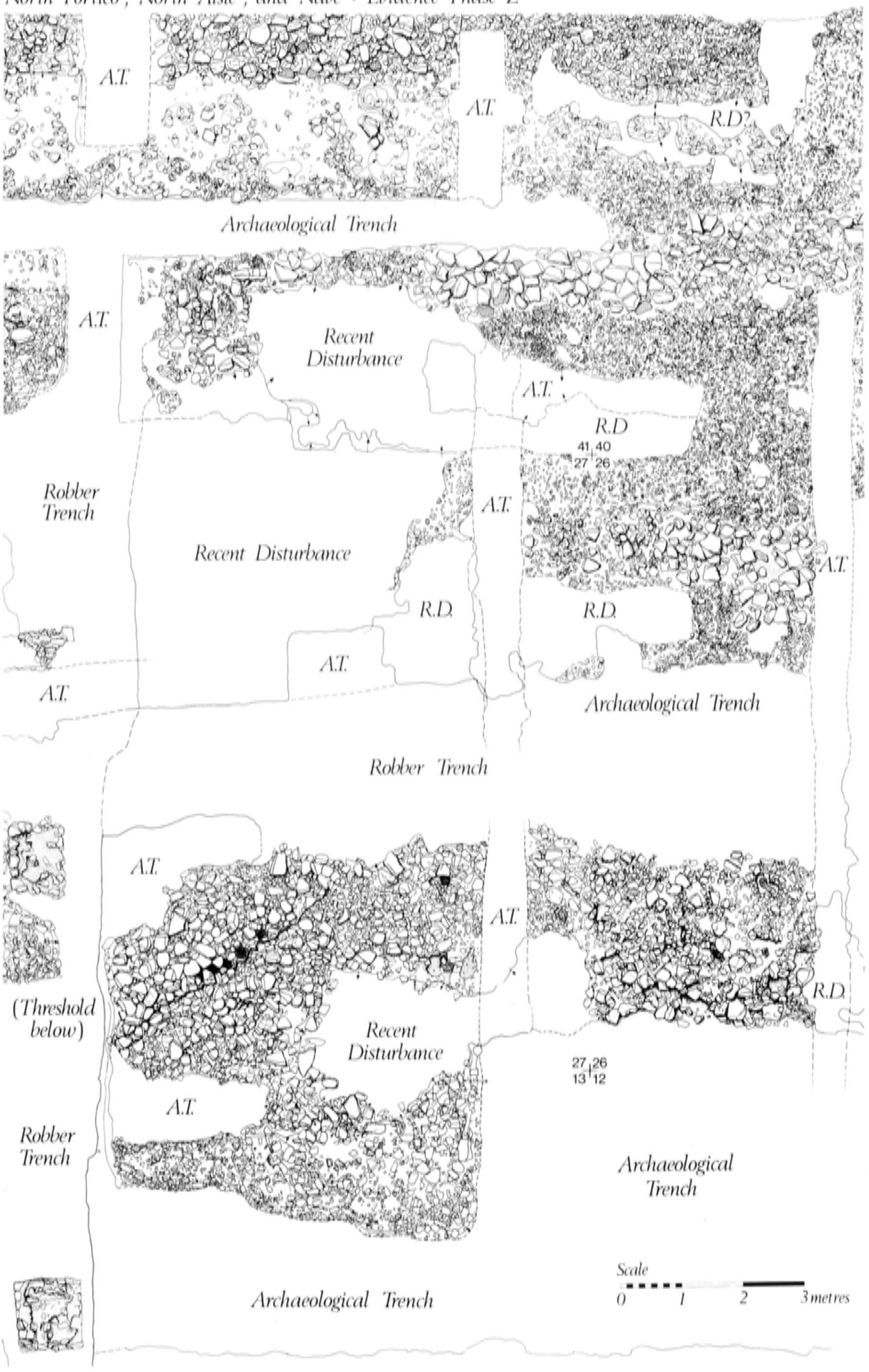




South Aisle · Interpretation Phase Z



North Portico, North Aisle, and Nave · Evidence Phase Z

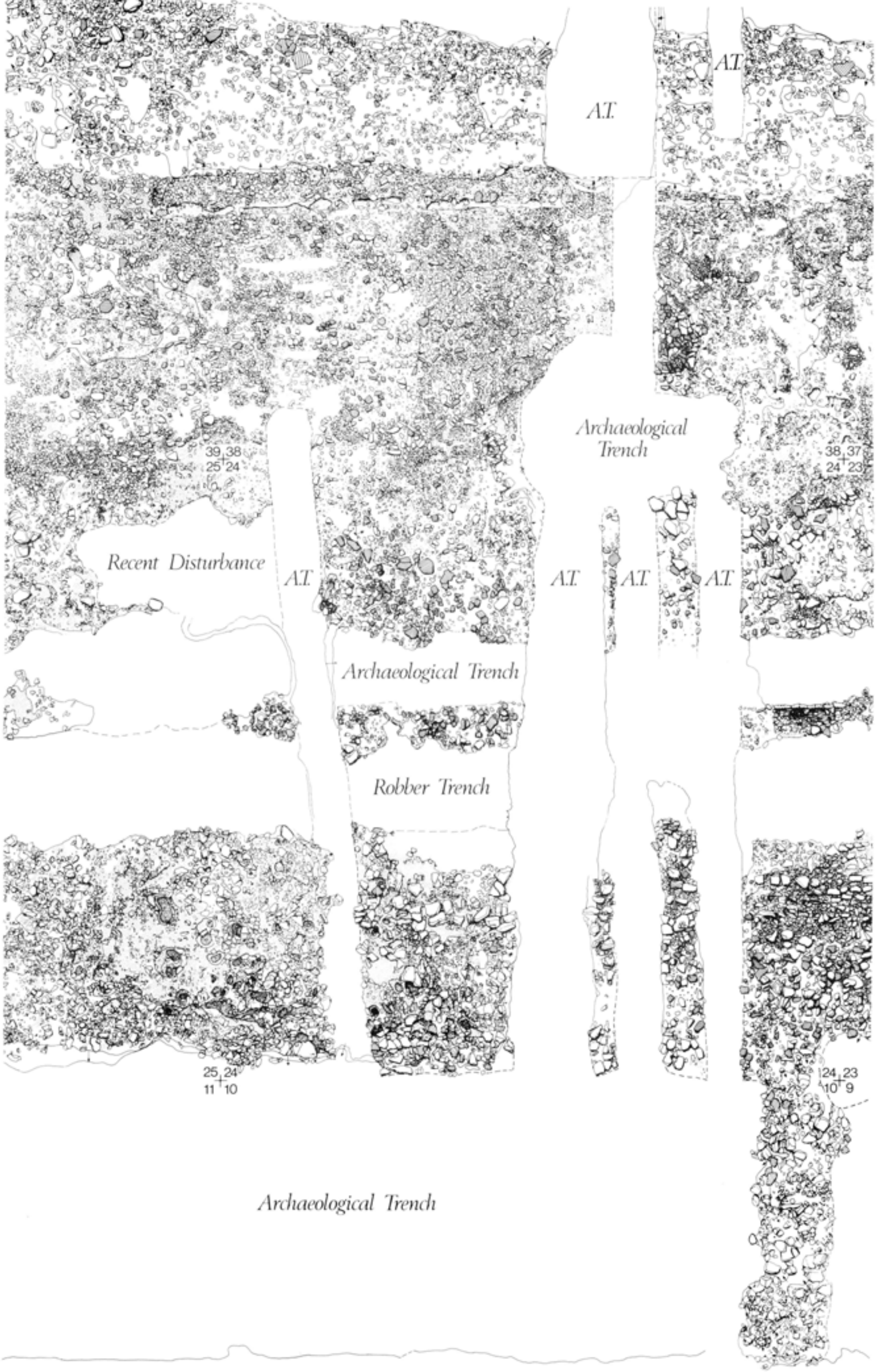


North Portico , North Aisle , and Nave · Evidence Phase Z

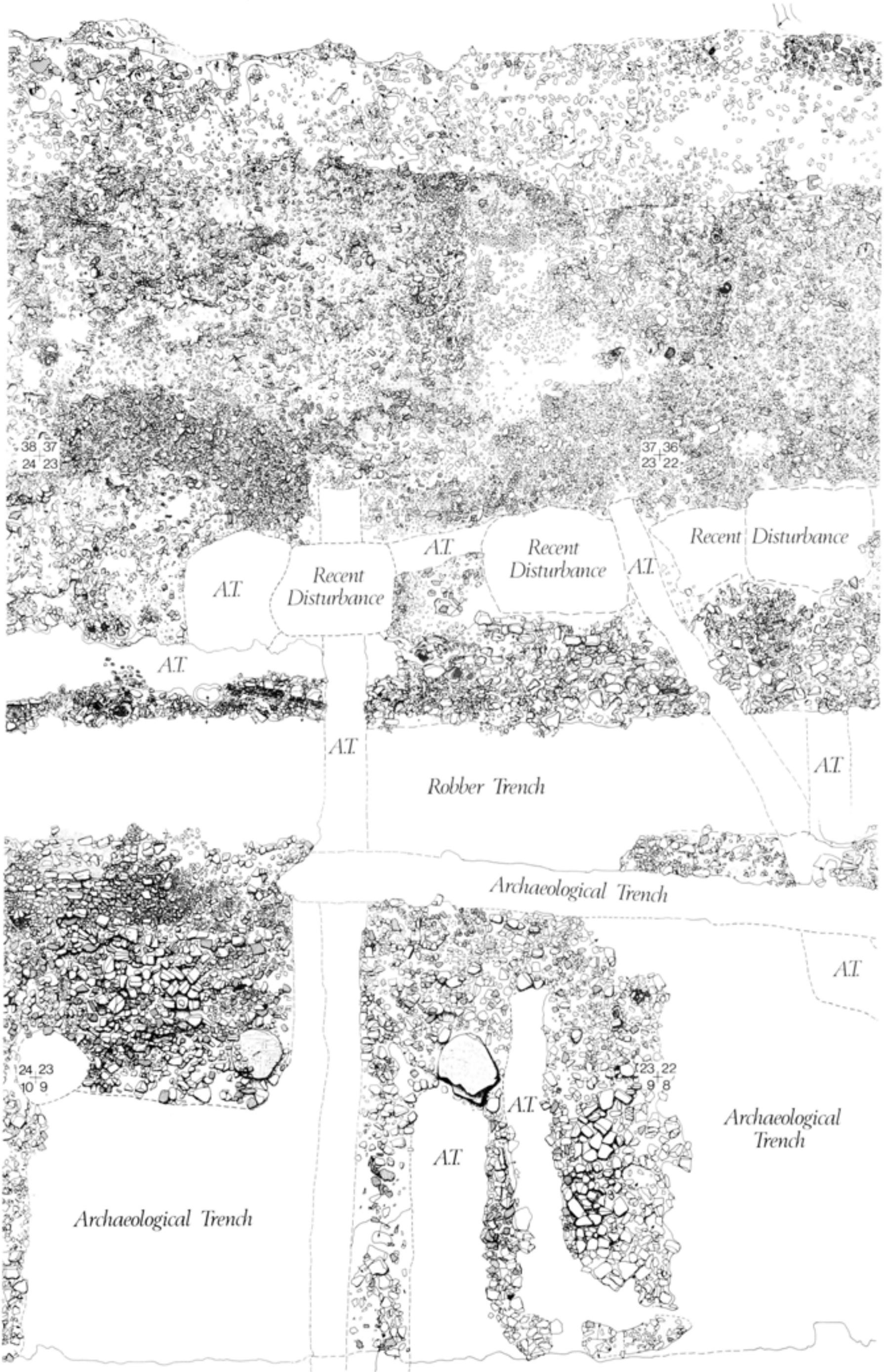


Archaeological Trench

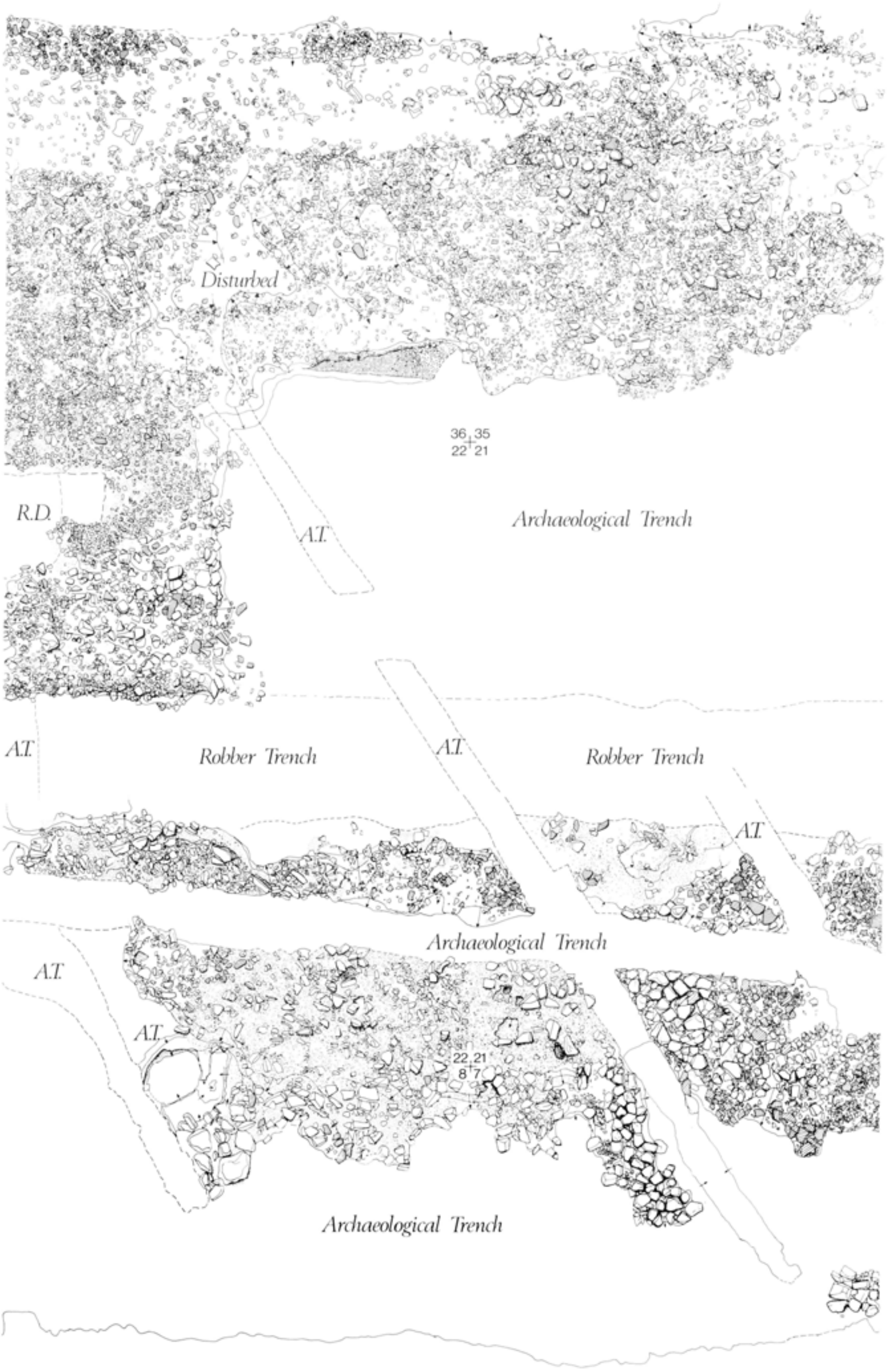
North Portico, North Aisle, and Nave · Evidence Phase Z



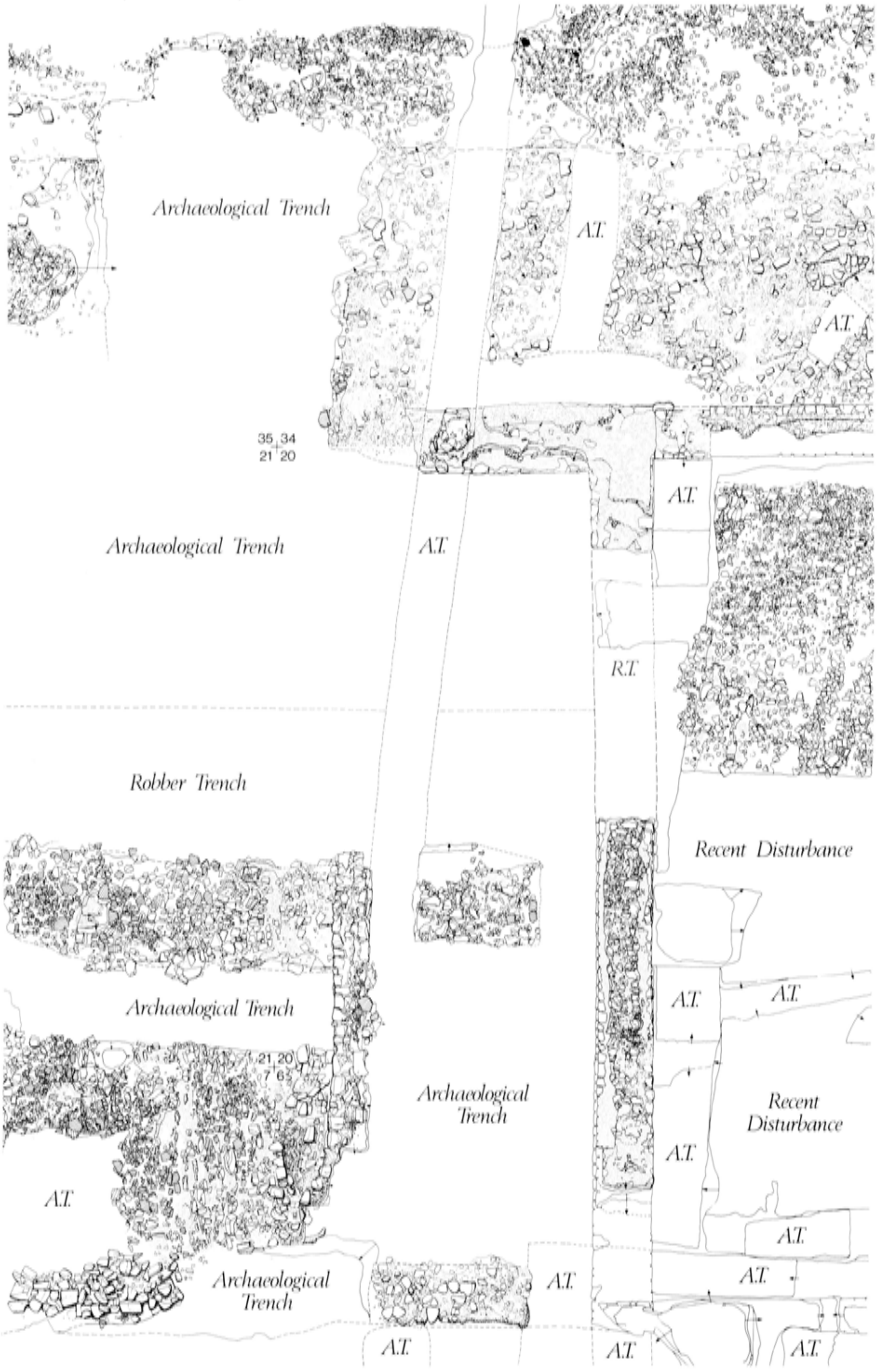
North Portico , North Aisle , and Nave · Evidence Phase Z



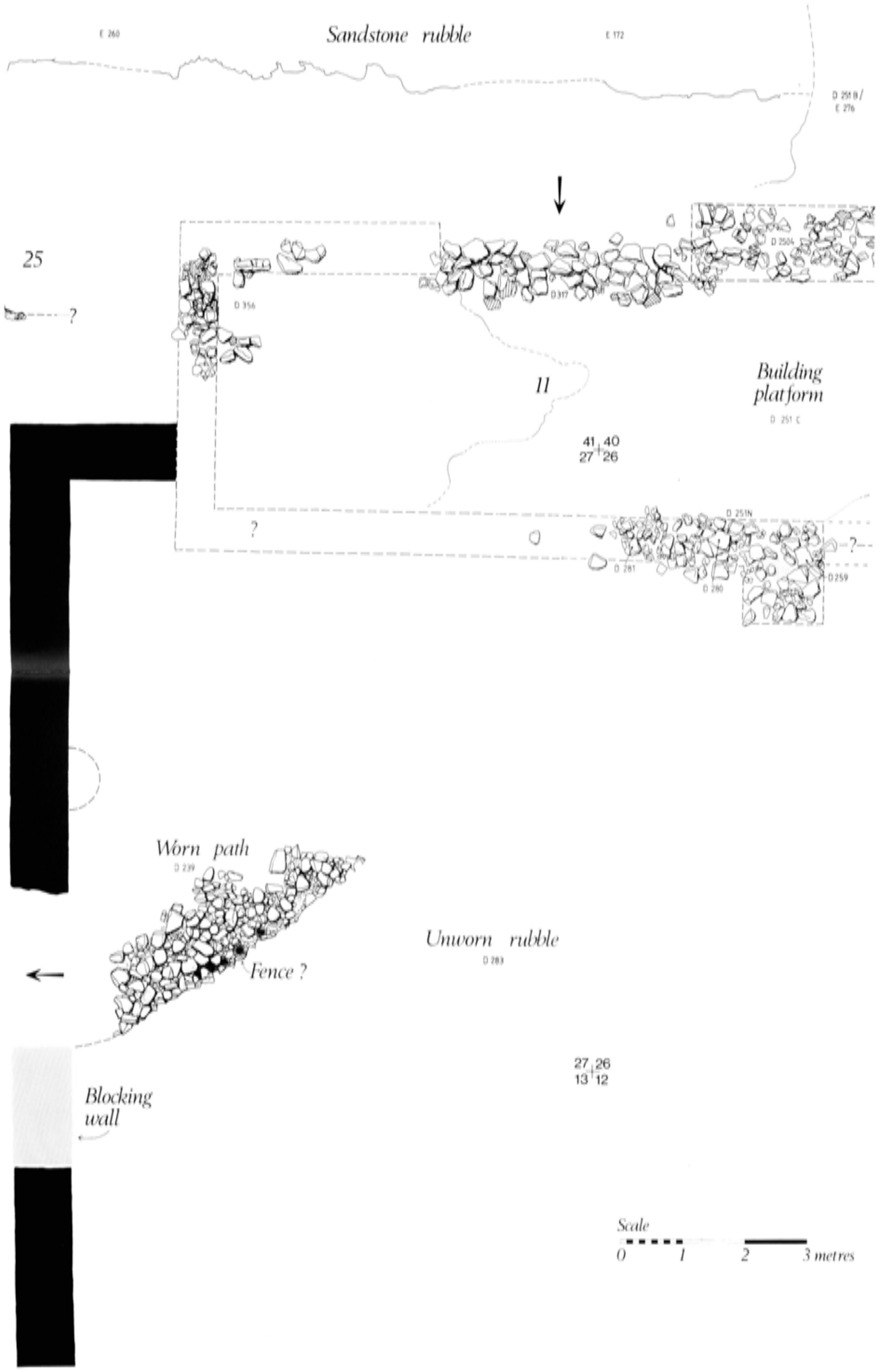
North Portico , North Aisle , and Nave · Evidence Phase Z



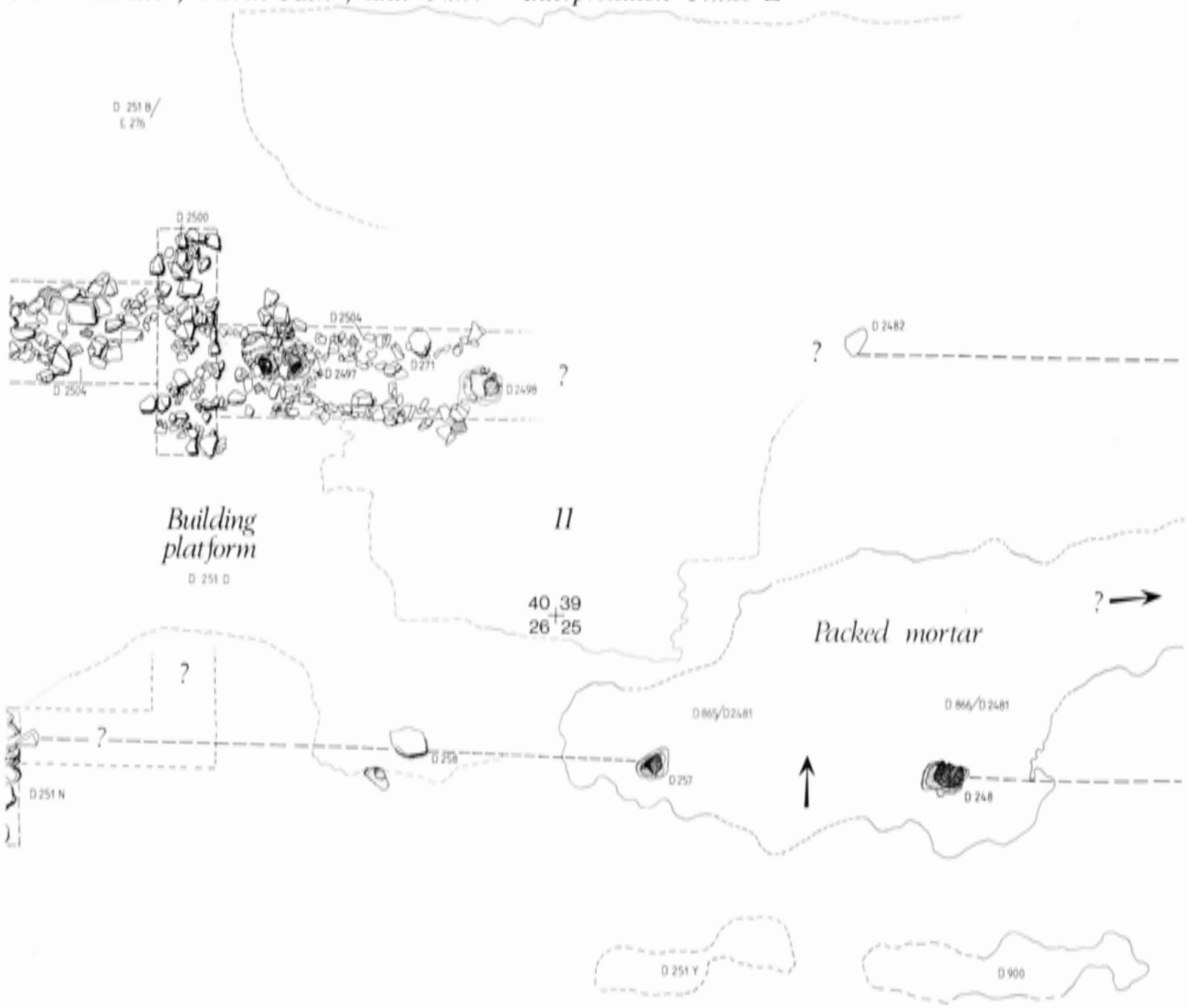
North Portico, North Aisle, and Nave · Evidence Phase Z



North Portico, North Aisle, and Nave · Interpretation Phase Z



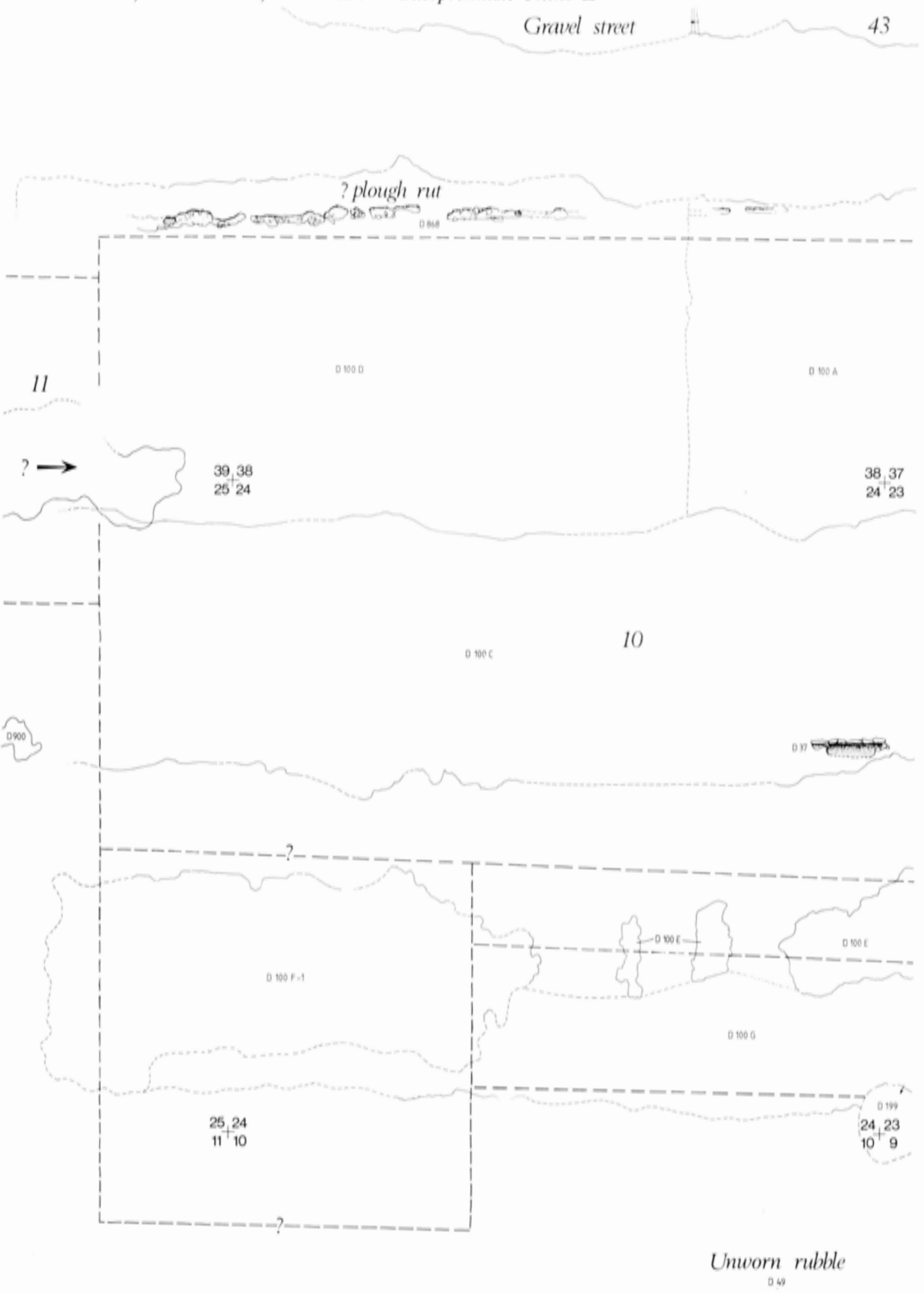
North Portico , North Aisle , and Nave · Interpretation Phase Z



Unworn rubble

D 283

26 25
12 11


Gravel street
? plough rut
D 868
11
?
39 38
25 24
38 37
24 23
D 100 D
D 100 A
10
D 100 C
D 900
D 37
?
D 100 F-1
D 100 E
D 100 E
D 100 G
D 199
25 24
11 10
24 23
10 9
?
Unworn rubble
D 49

North Portico, North Aisle, and Nave · Interpretation Phase Z

43

Gravel street

42

D 267?

D 100 A

Packed mortar

38 37
24 23

37 36
23 22

10

D 100 C

D 37

D 100 E

D 208

D 100 B

D 100 D

D 199

24 23
10 9

D 202

D 201

23 22
9 8

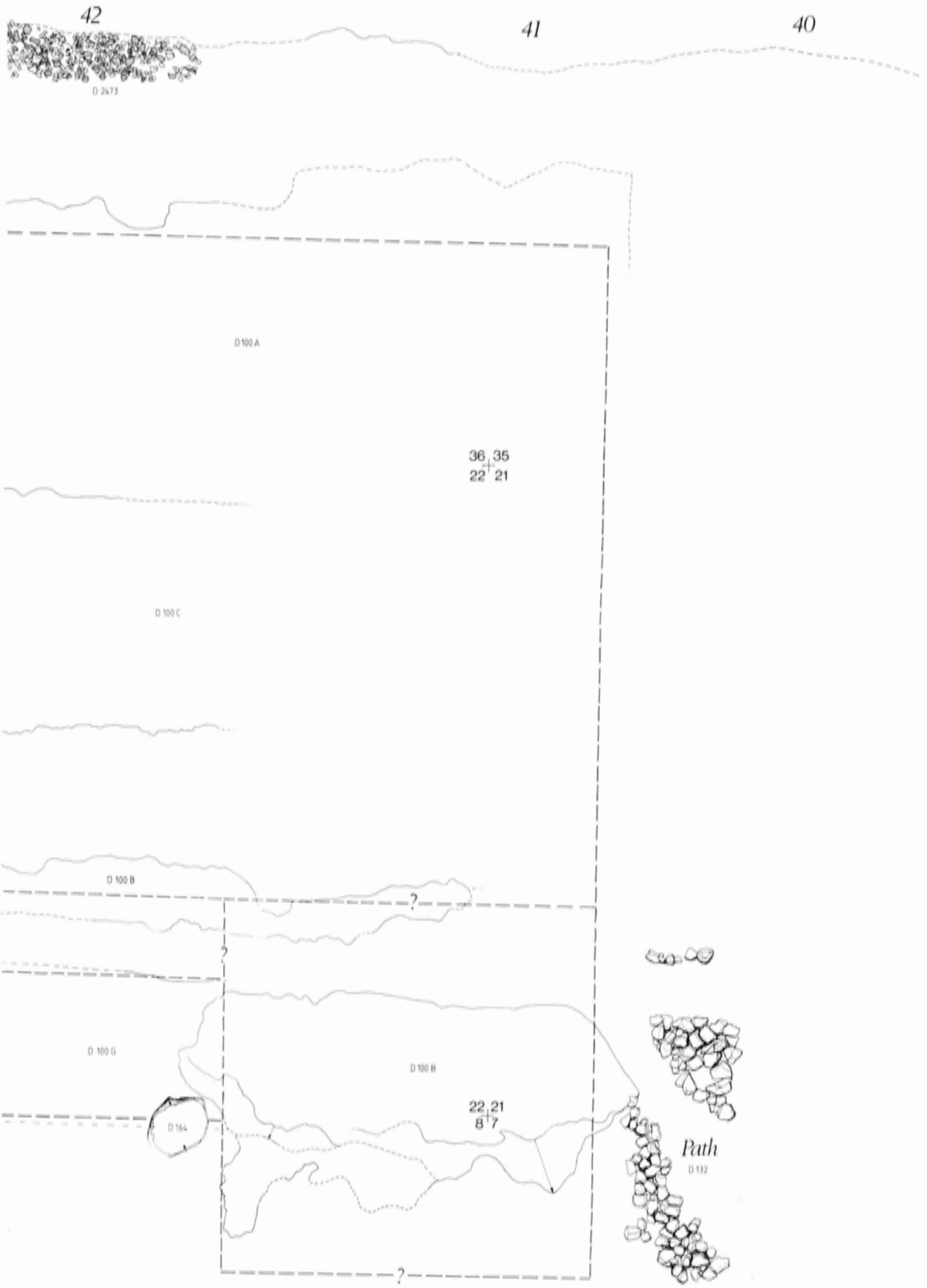
Unworn rubble

D 49

Path ?

D 50

North Portico , North Aisle , and Nave - Interpretation Phase Z



North Portico , North Aisle , and Nave · Interpretation Phase Z

Gravel street

Cobble street

Grassed bank

35 34
21 20

?

?

Path

B 294

?

?

D 131

D75

D120

Building platform

31

Collapsed wall (Phase Post-Z)

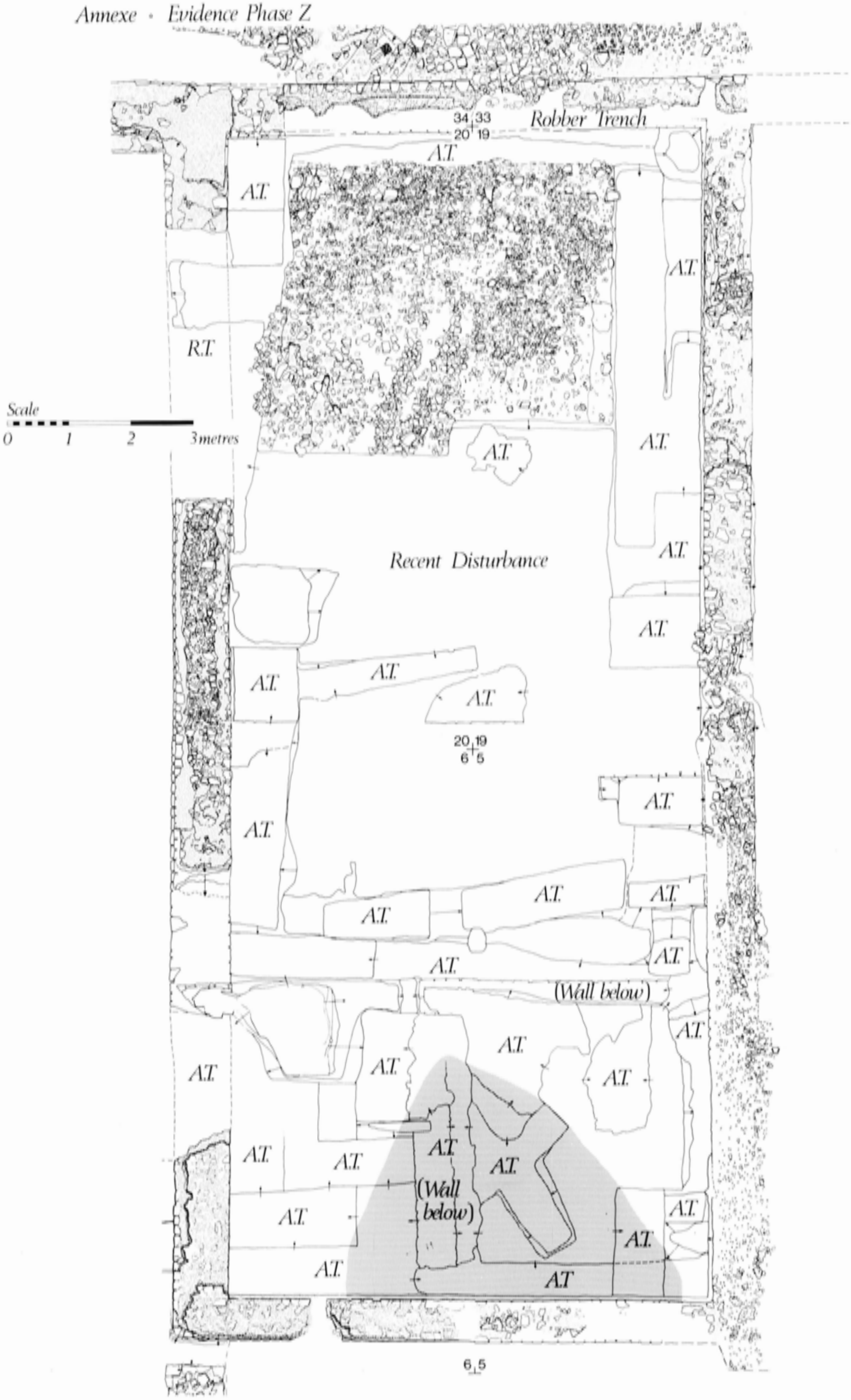
21 20
7 6

D101

B 82

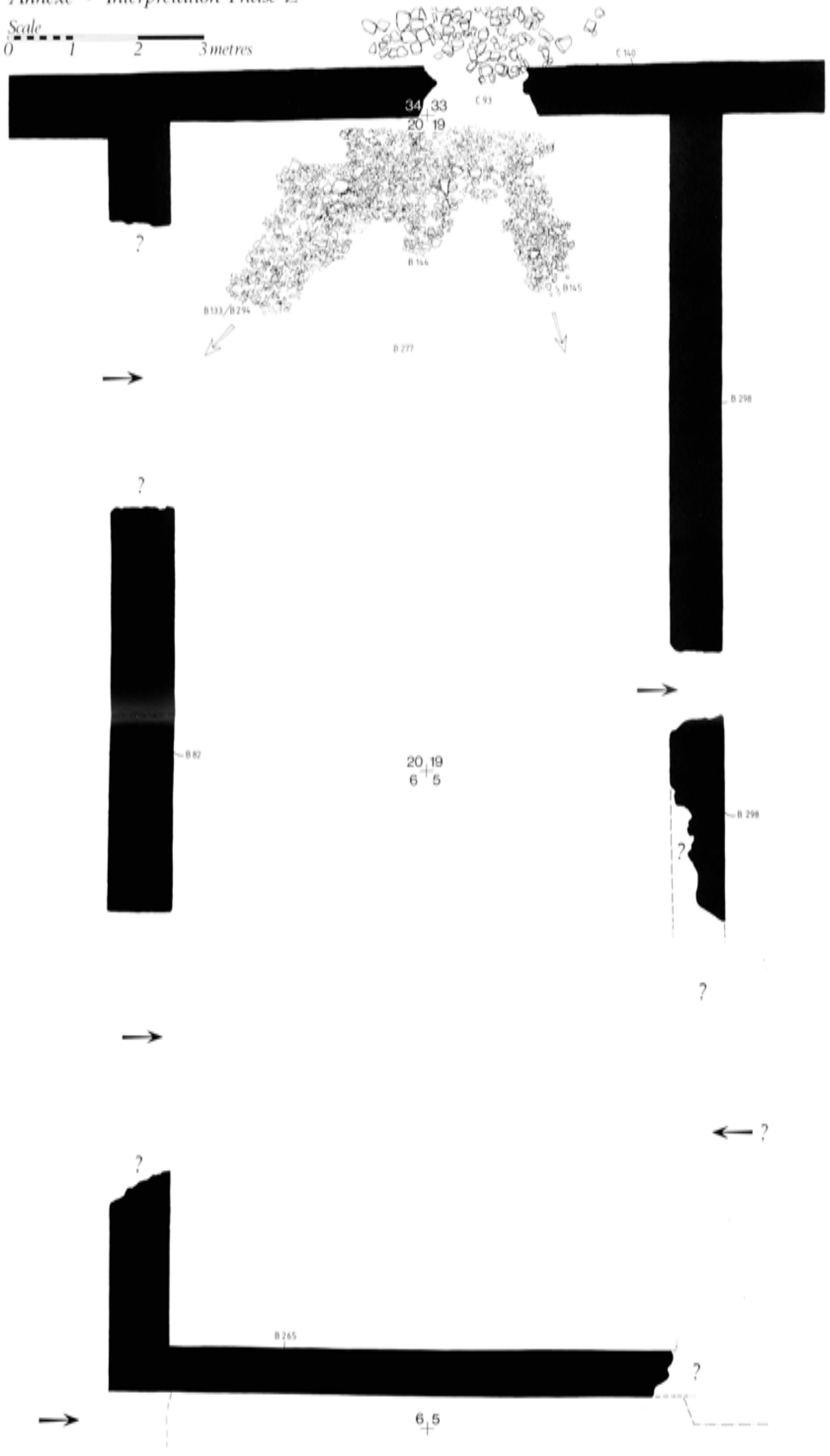
D 86

Annexe • Evidence Phase Z

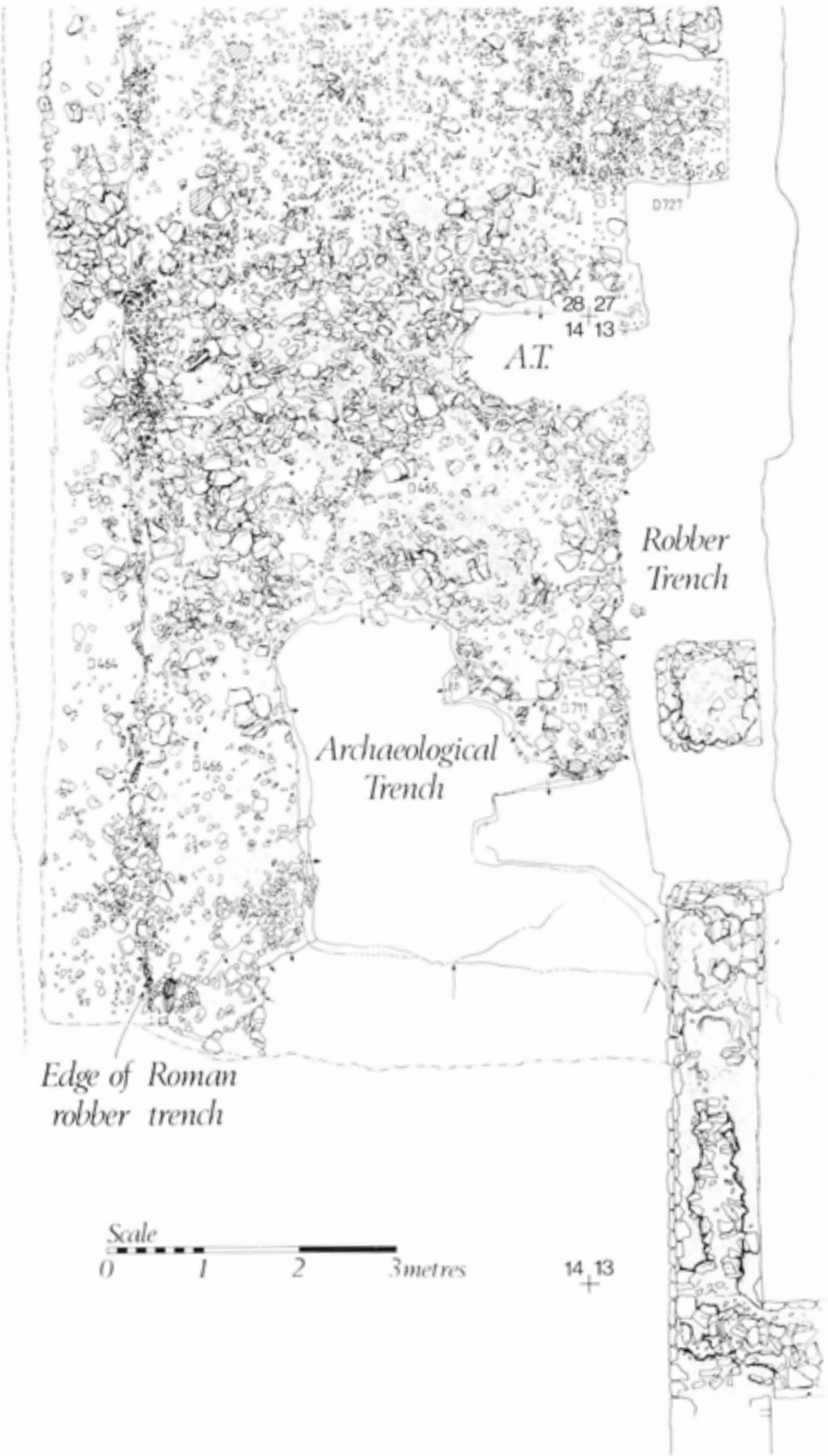


Scale
0 1 2 3metres

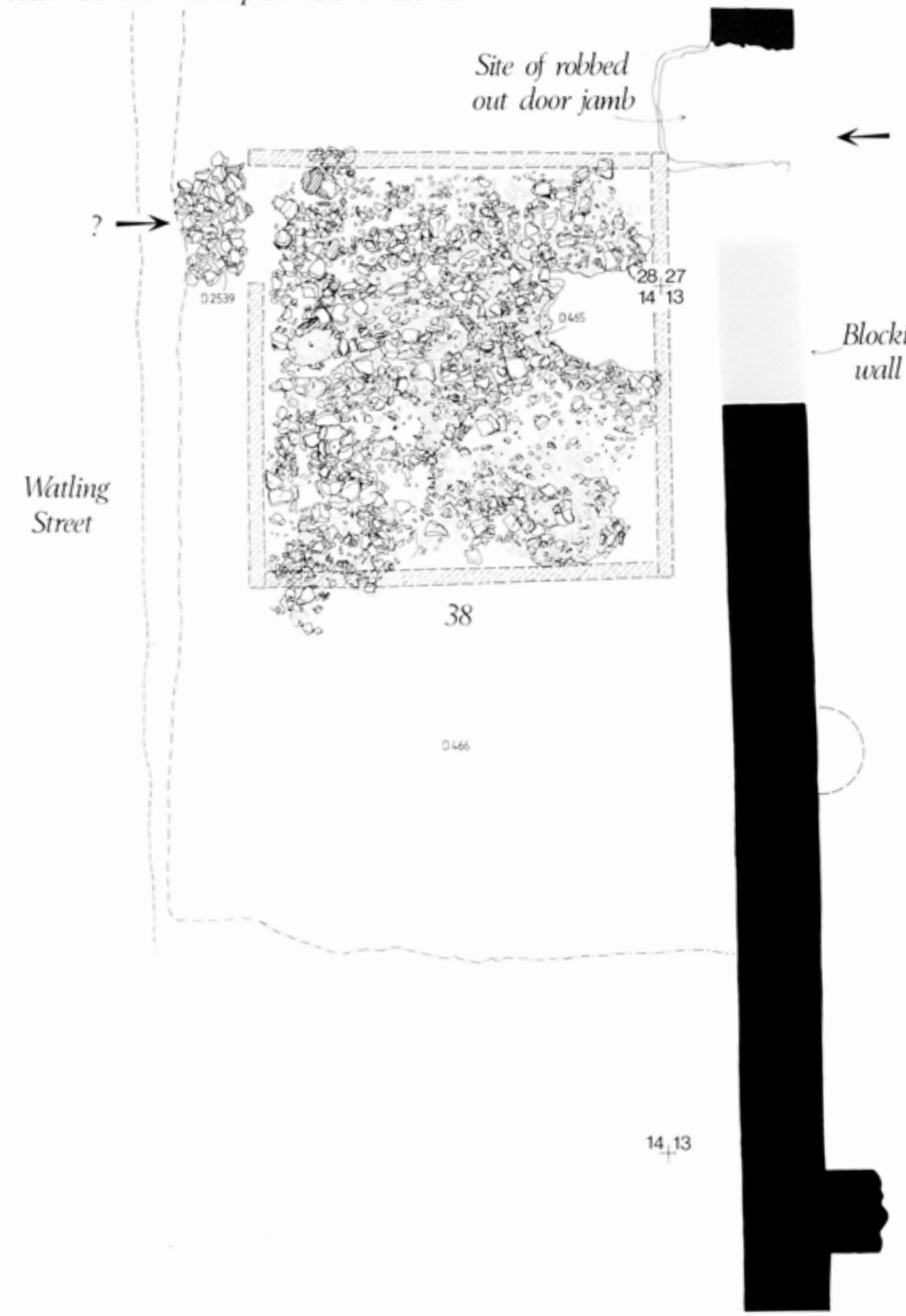
Annexe · Interpretation Phase Z



West Portico - Evidence Phase Z1



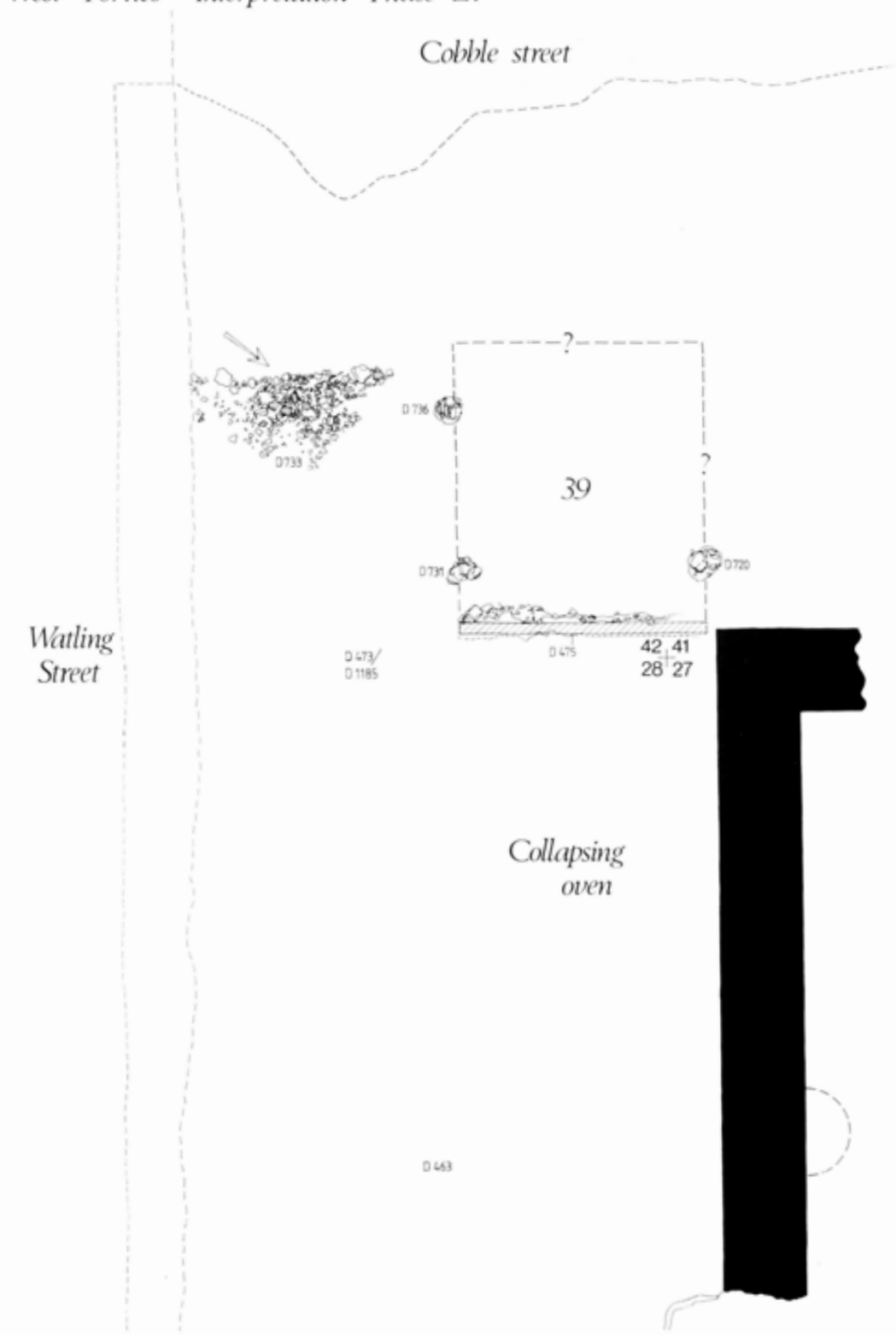
West Portico - Interpretation Phase Z1



West Portico - Evidence Phase Z1



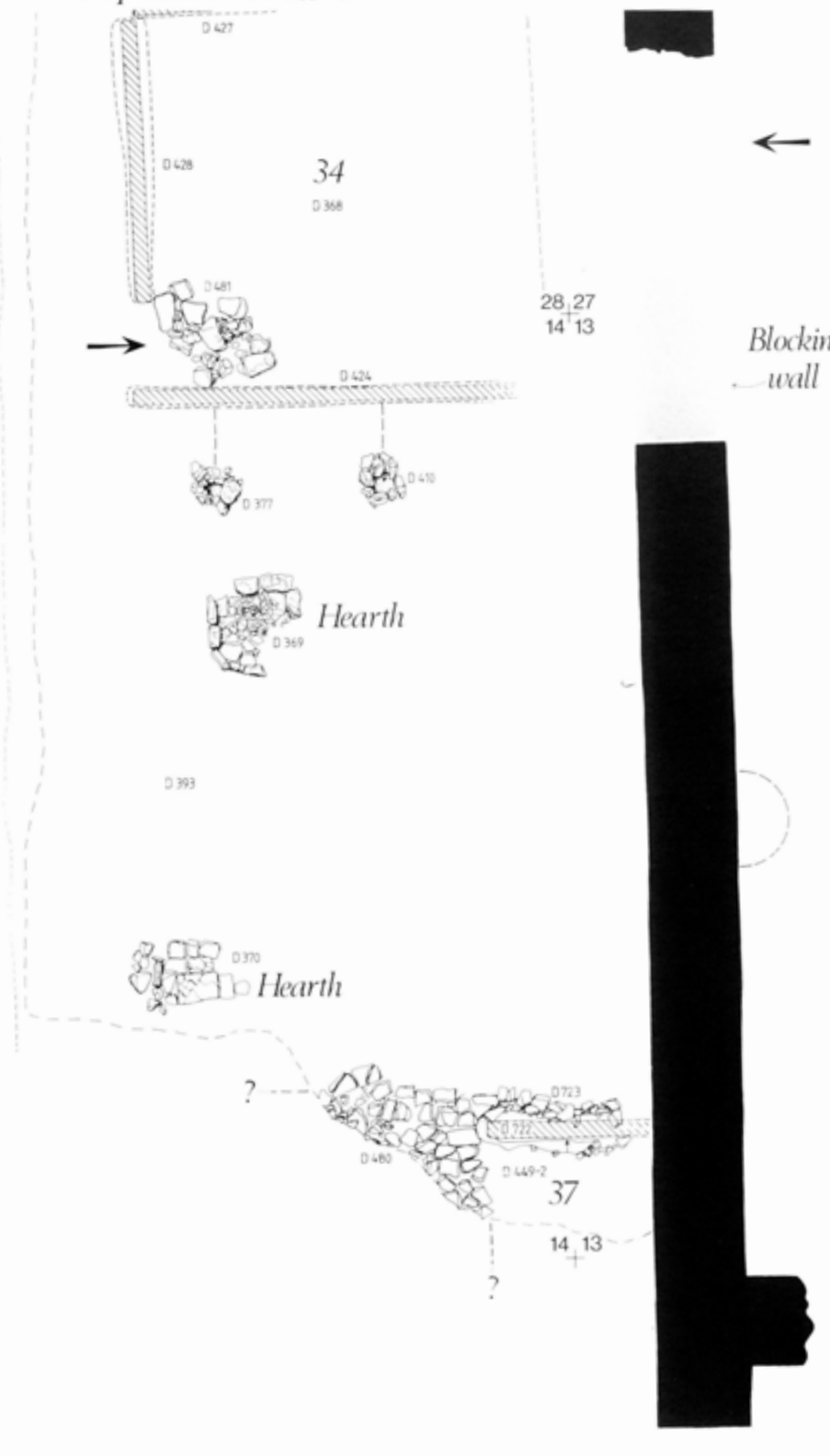
West Portico - Interpretation Phase Z1



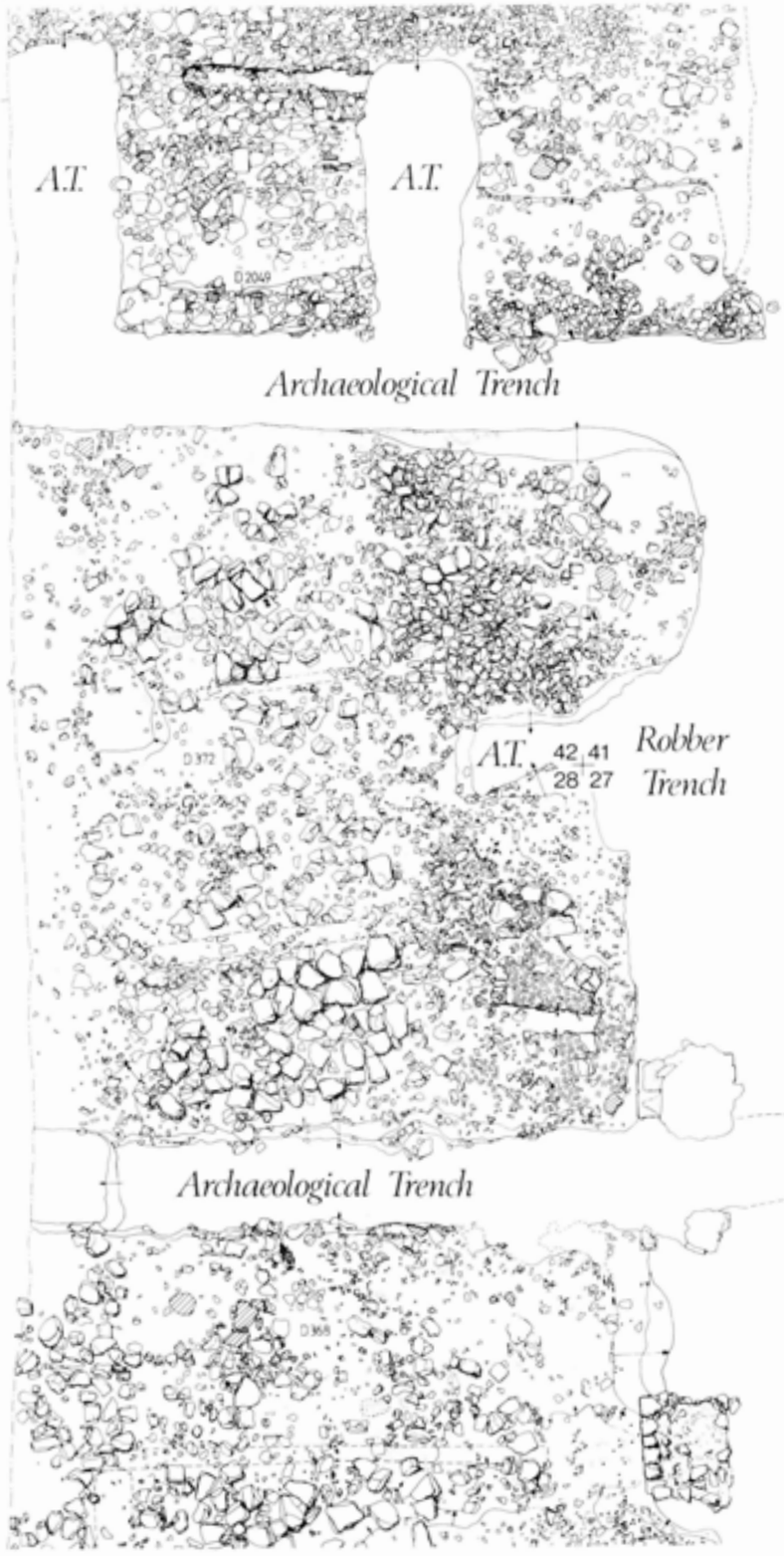
West Portico - Evidence Phase Z2



West Portico - Interpretation Phase Z2



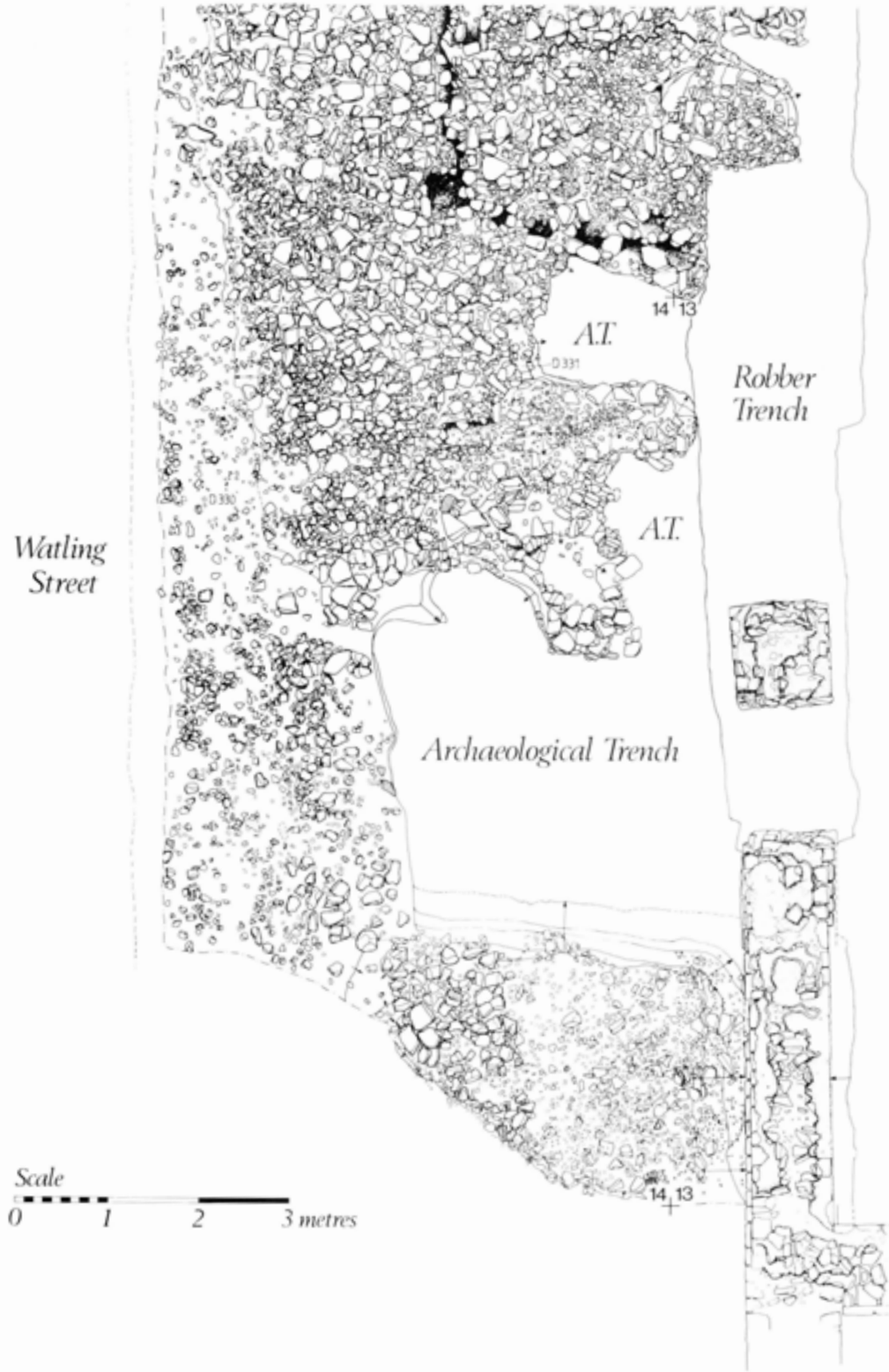
West Portico - Evidence Phase Z2



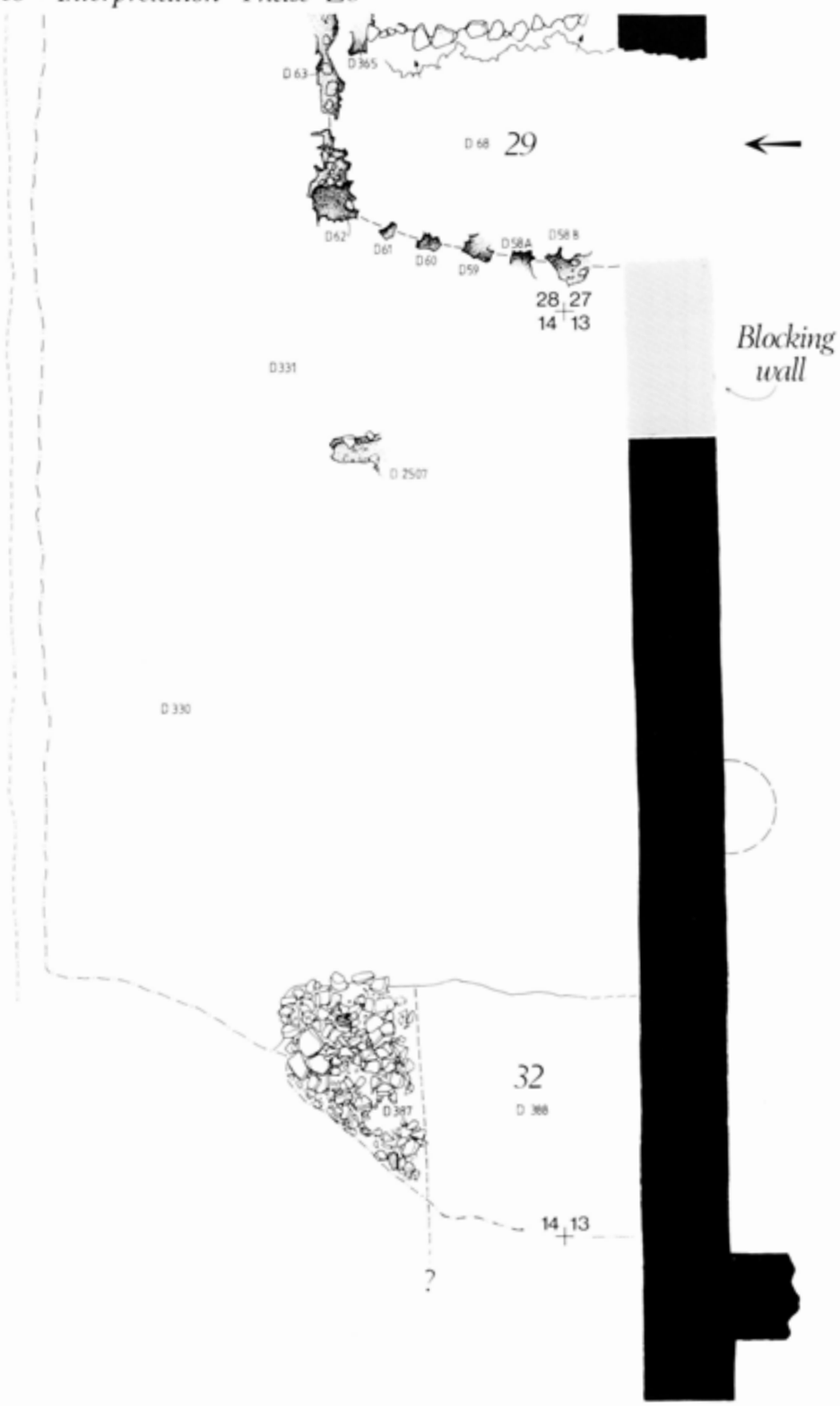
West Portico - Interpretation Phase Z2



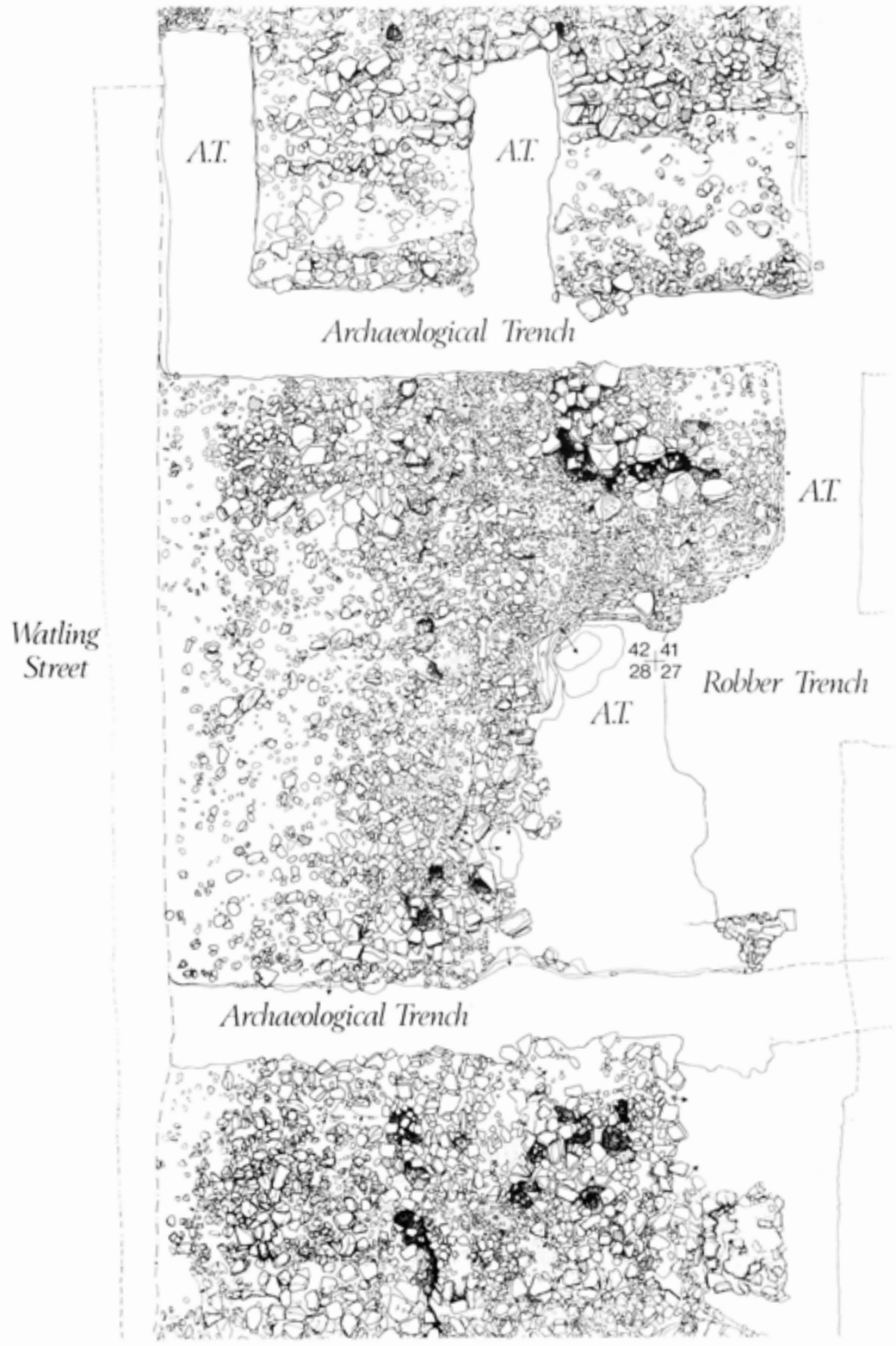
West Portico - Evidence Phase Z3



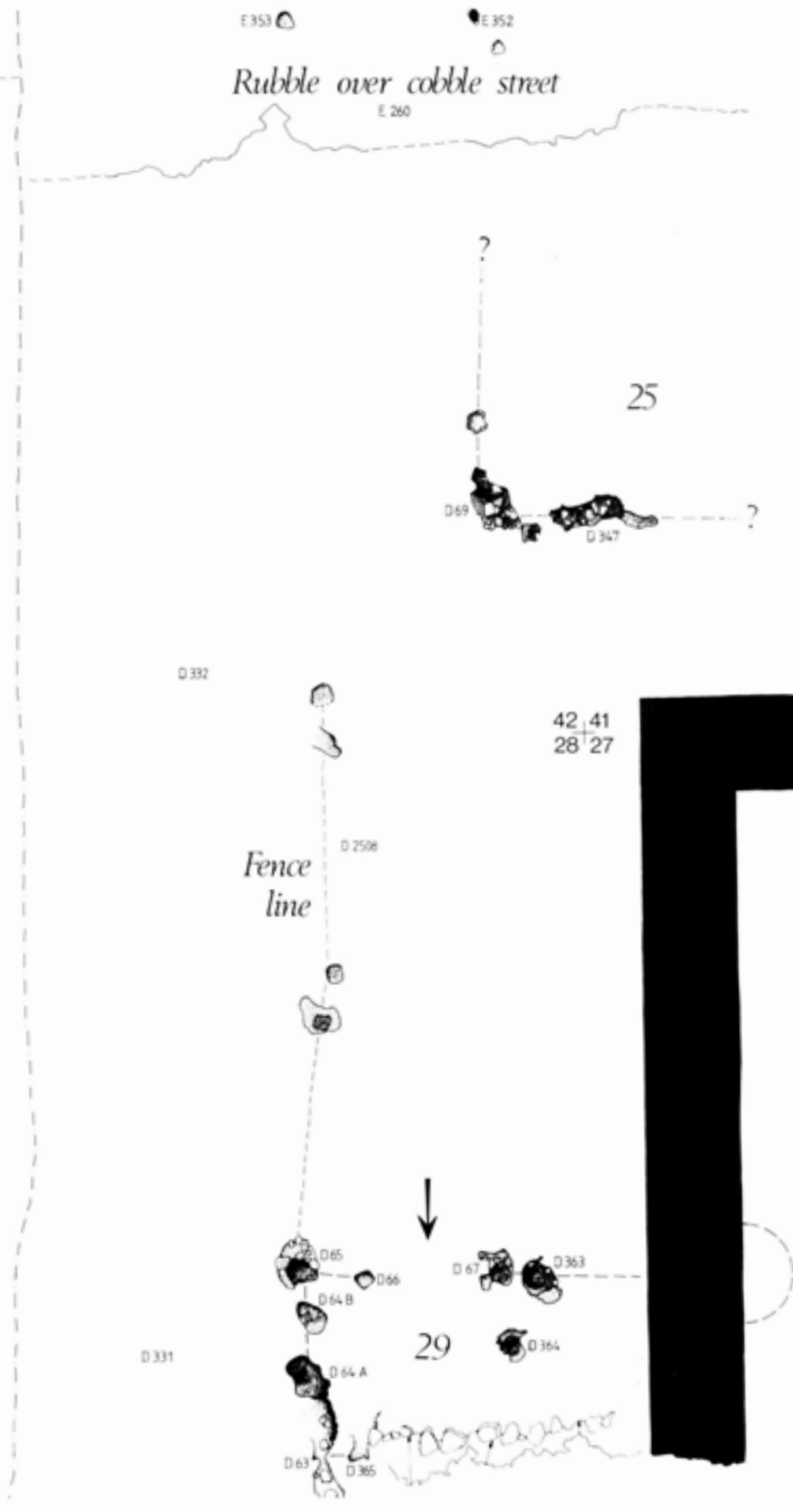
West Portico - Interpretation Phase Z3



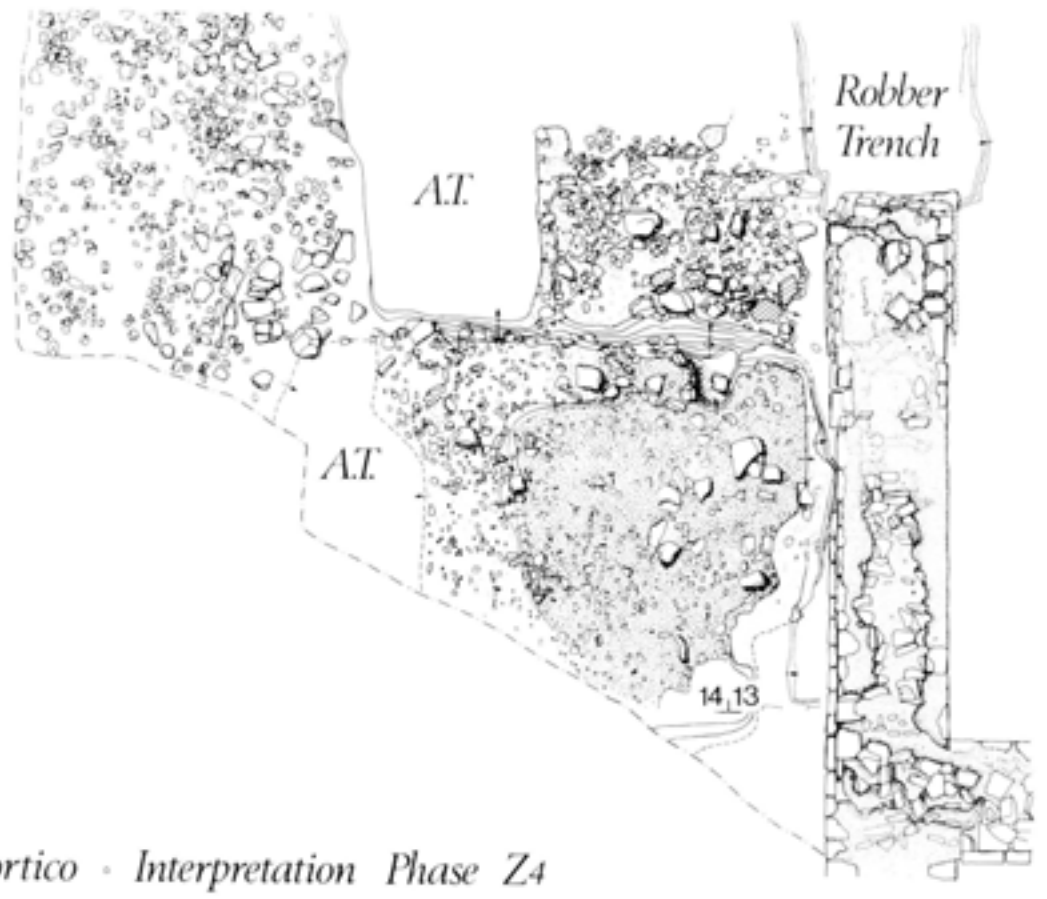
West Portico - Evidence Phase Z3



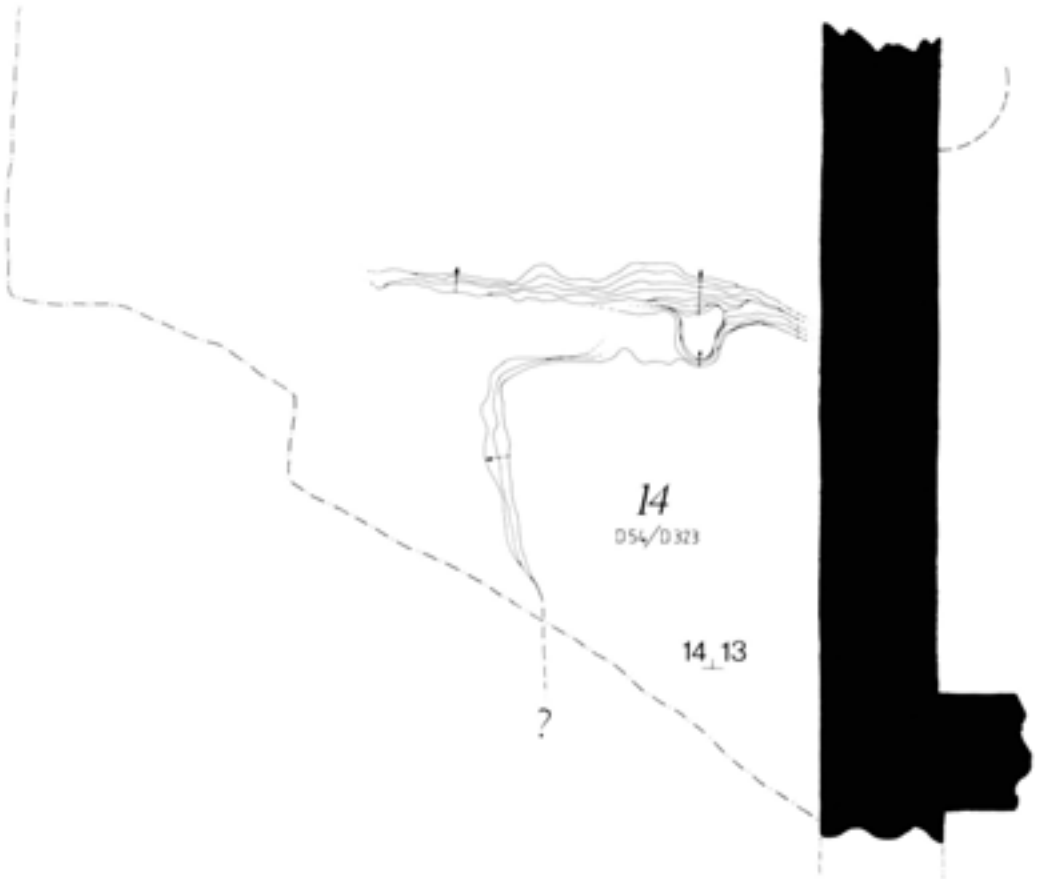
West Portico - Interpretation Phase Z3



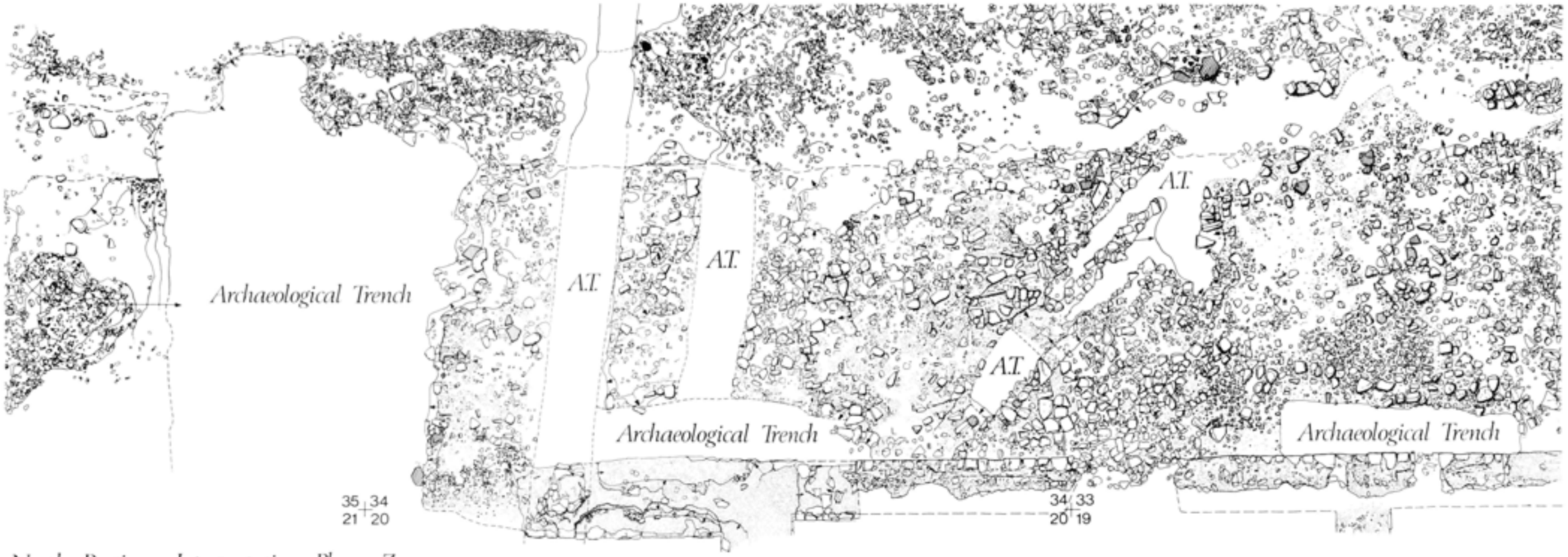
West Portico · Evidence Phase Z4



West Portico · Interpretation Phase Z4



North Portico - Evidence Phase Z

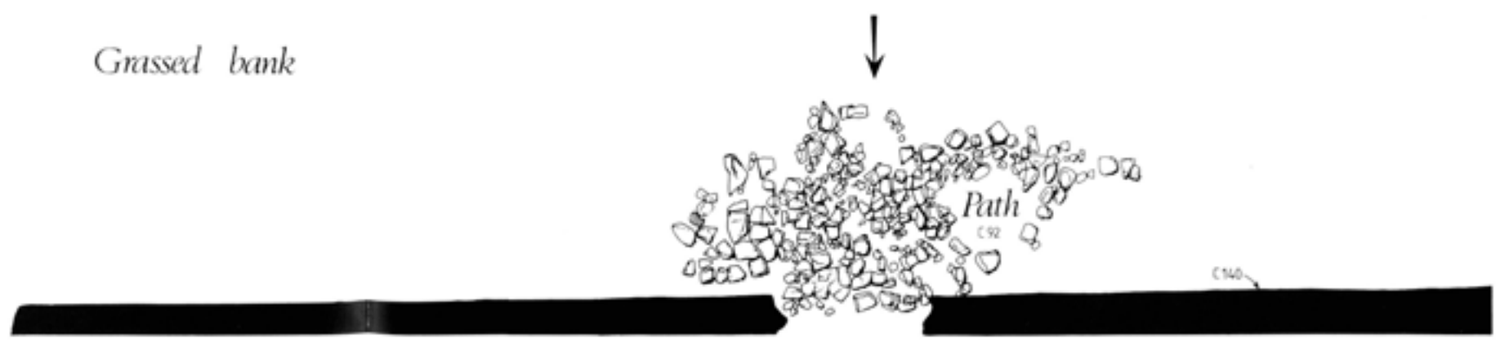


North Portico - Interpretation Phase Z



35 | 34

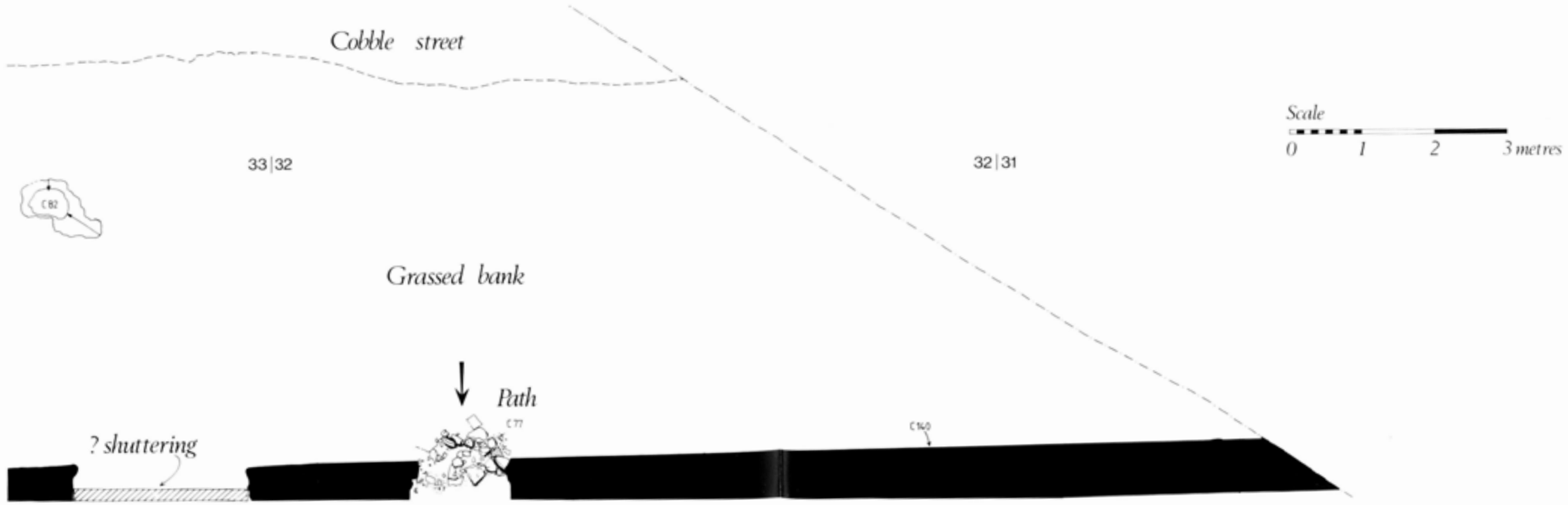
34 | 33



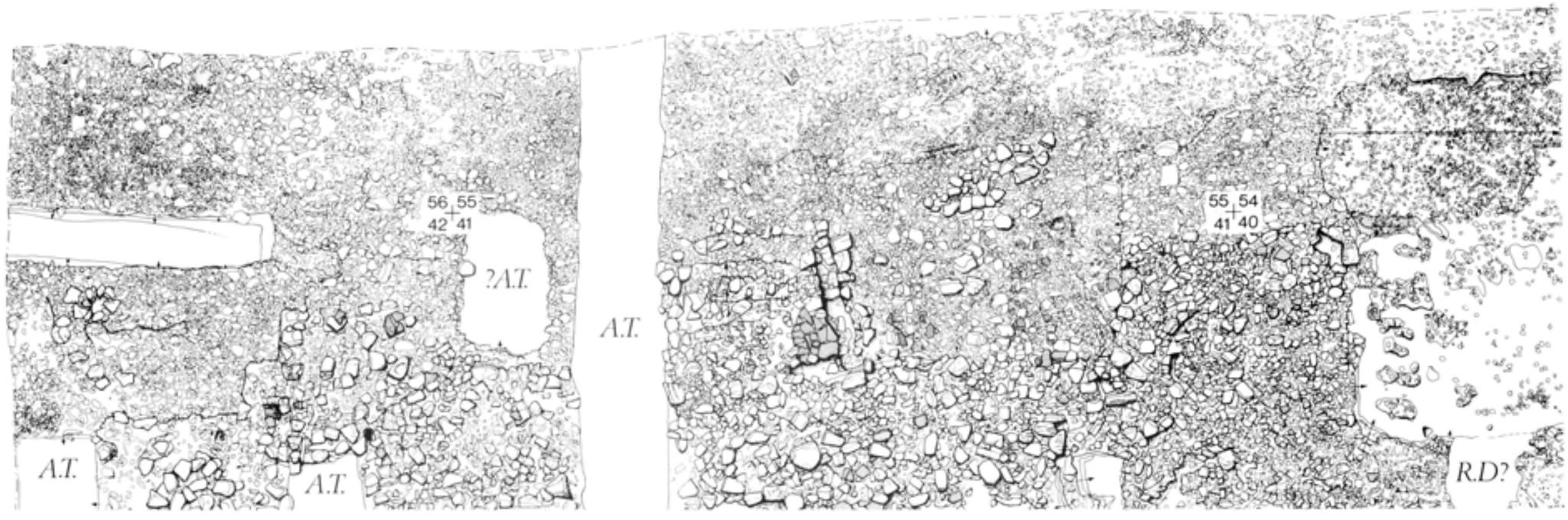
North Portico - Evidence Phase Z



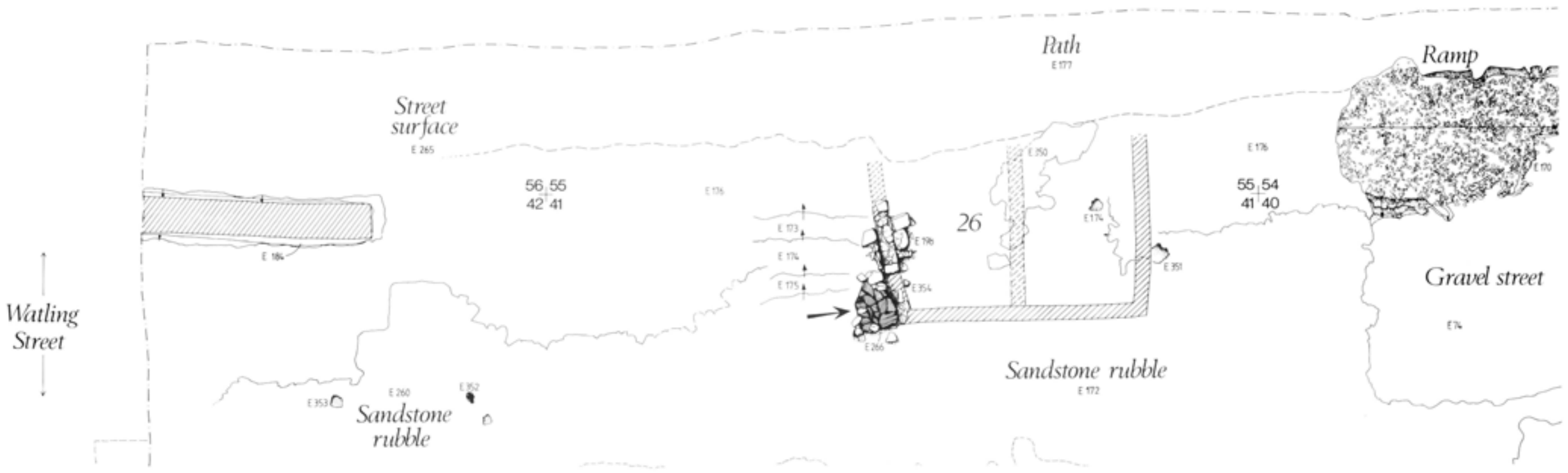
North Portico - Interpretation Phase Z



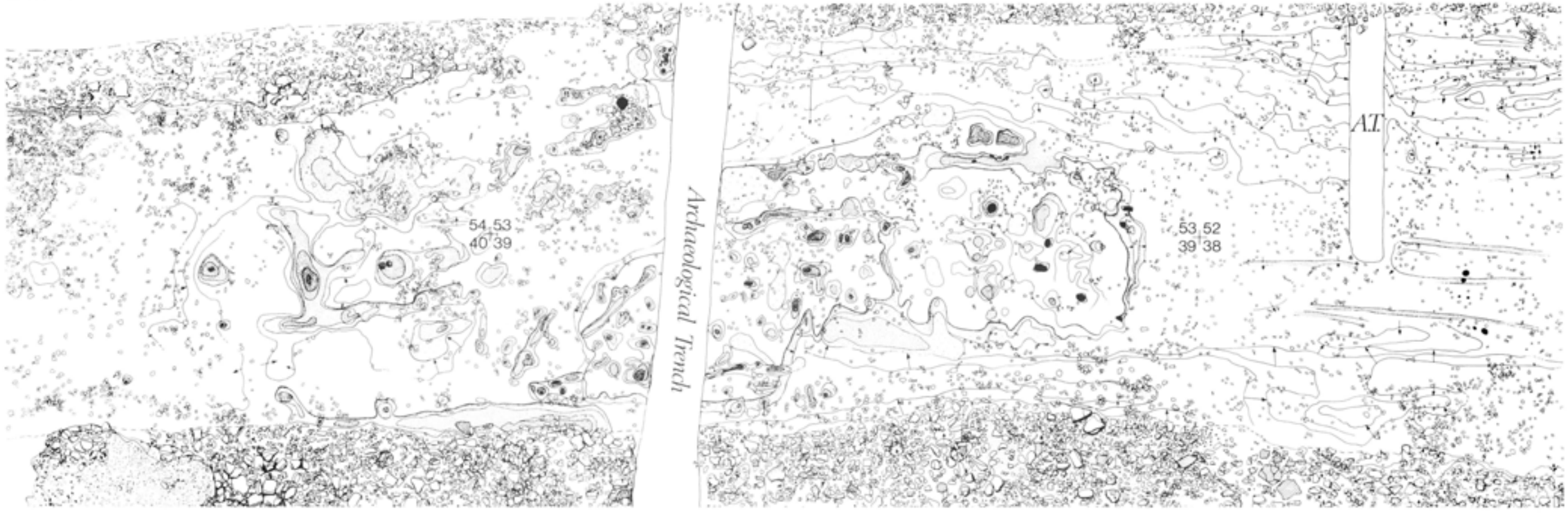
East-West Street · Evidence Phase Z3



East-West Street · Interpretation Phase Z3



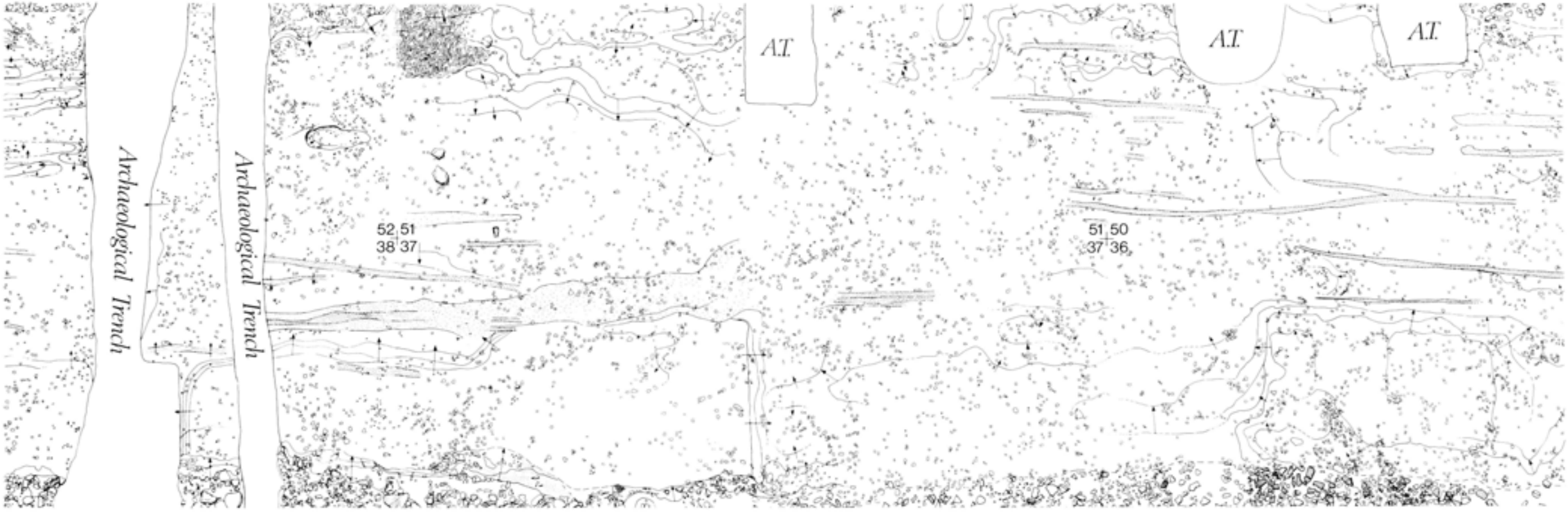
East-West Street · Evidence Phase Z2



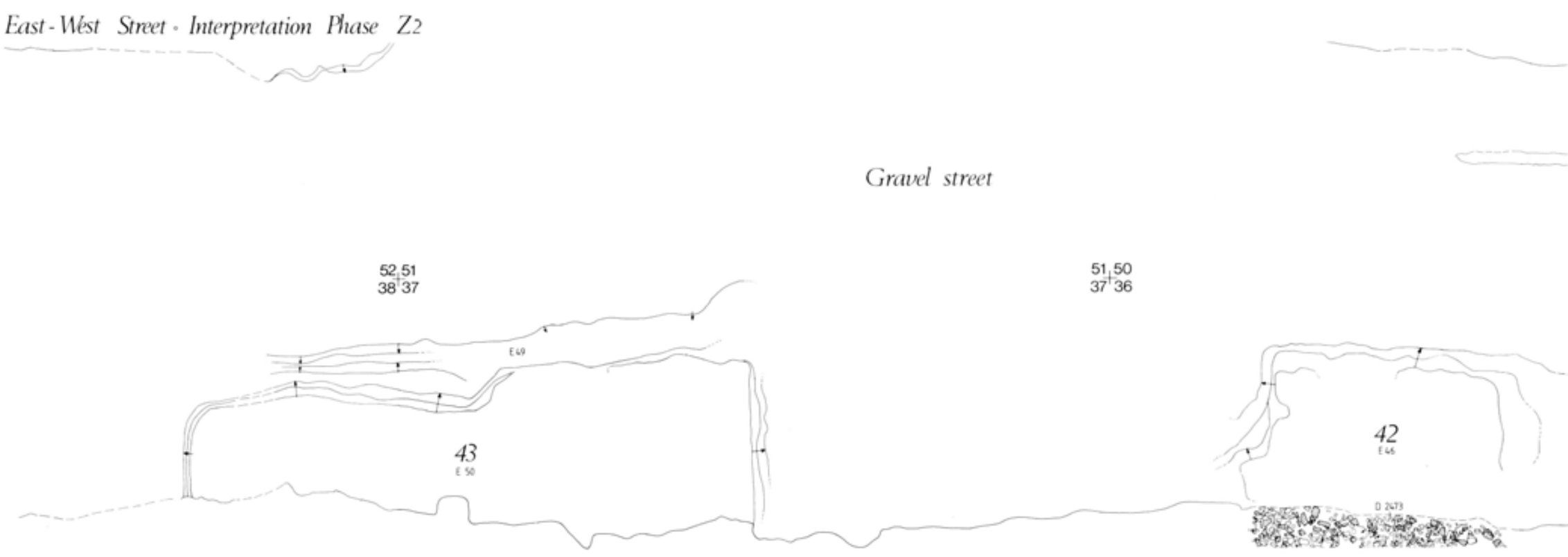
East-West Street · Interpretation Phase Z2



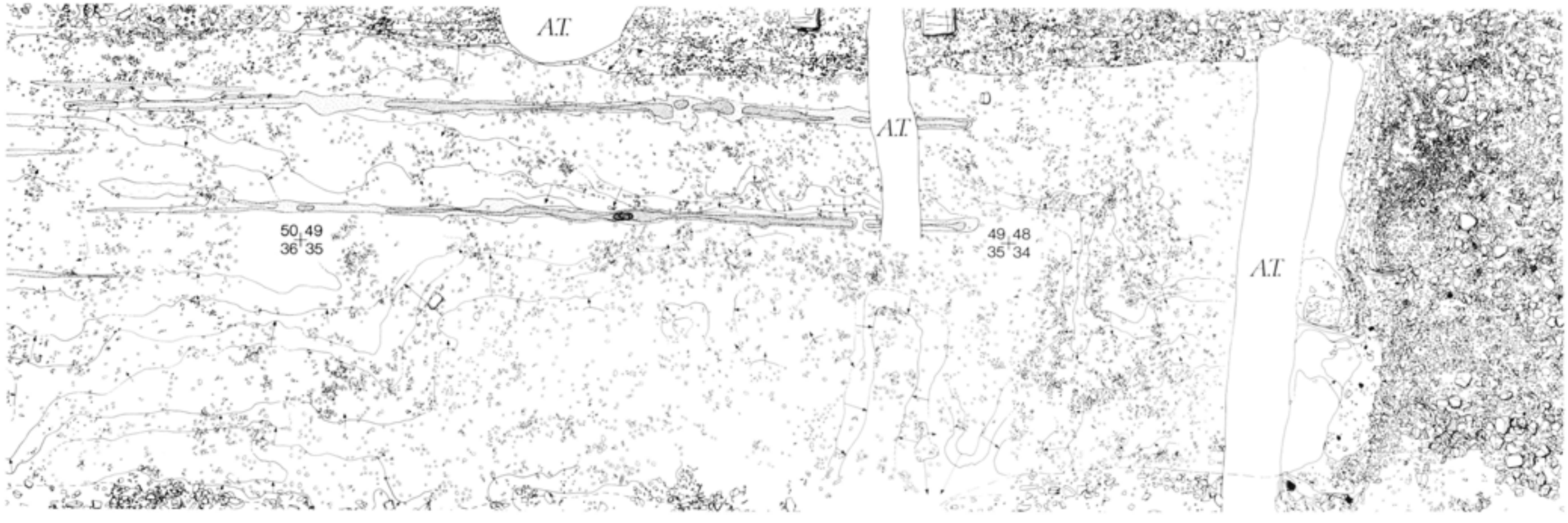
East - West Street - Evidence Phase Z2



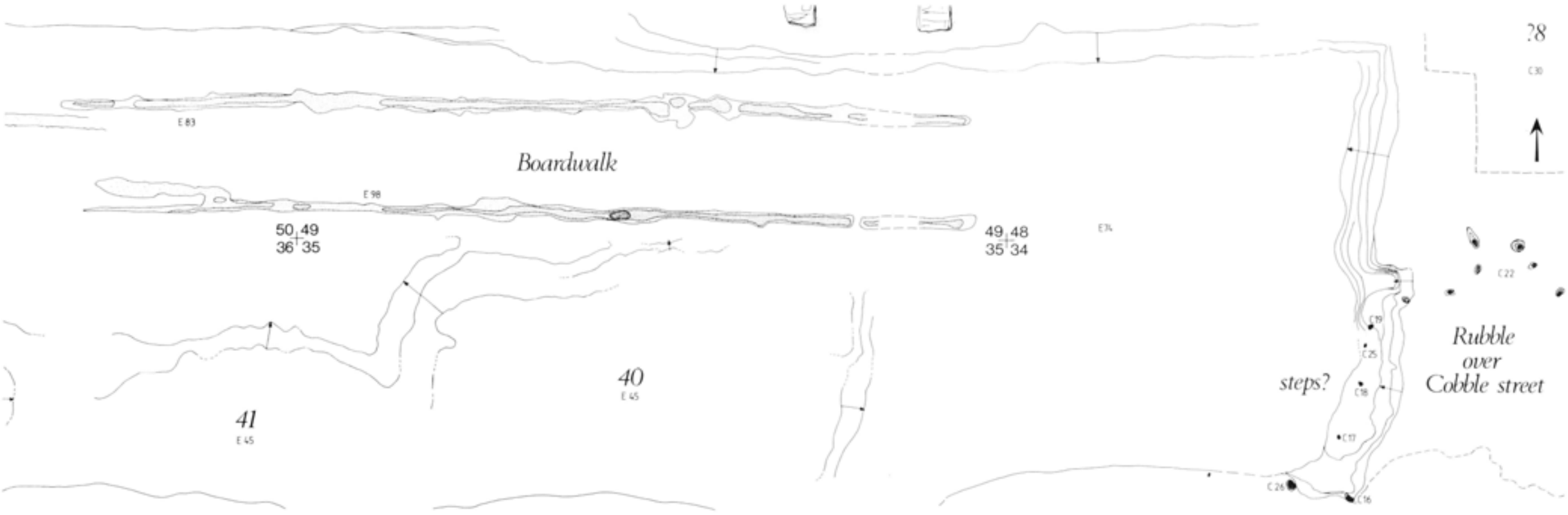
East - West Street - Interpretation Phase Z2



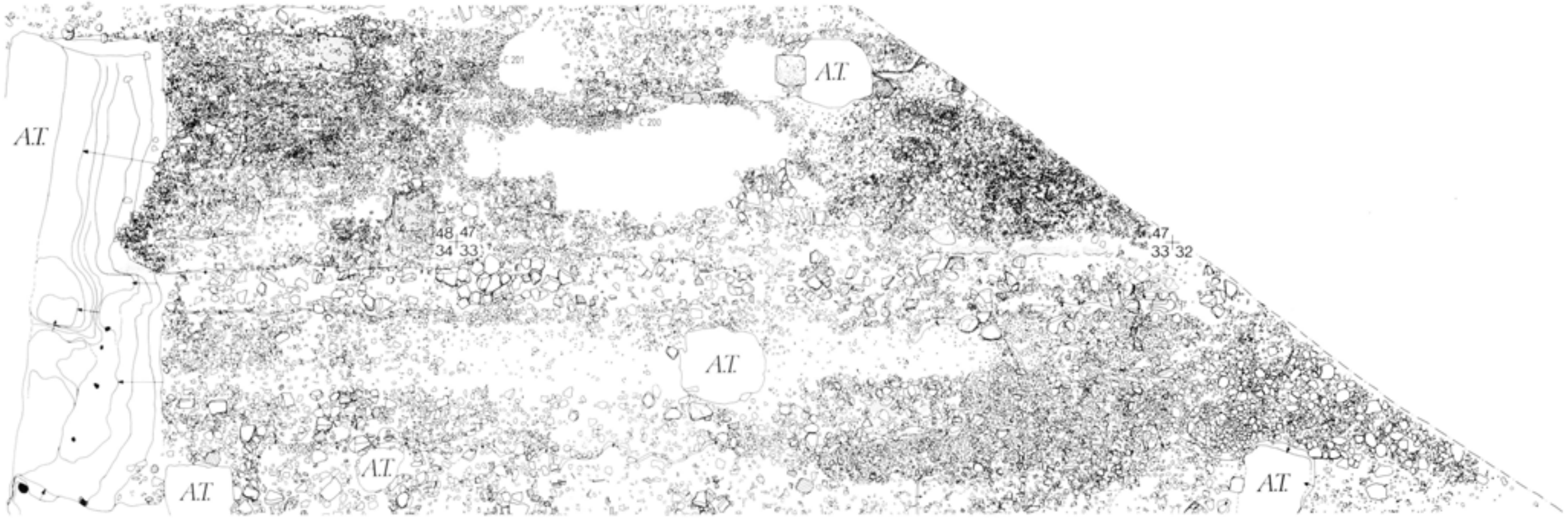
East - West Street - Evidence Phase Z2



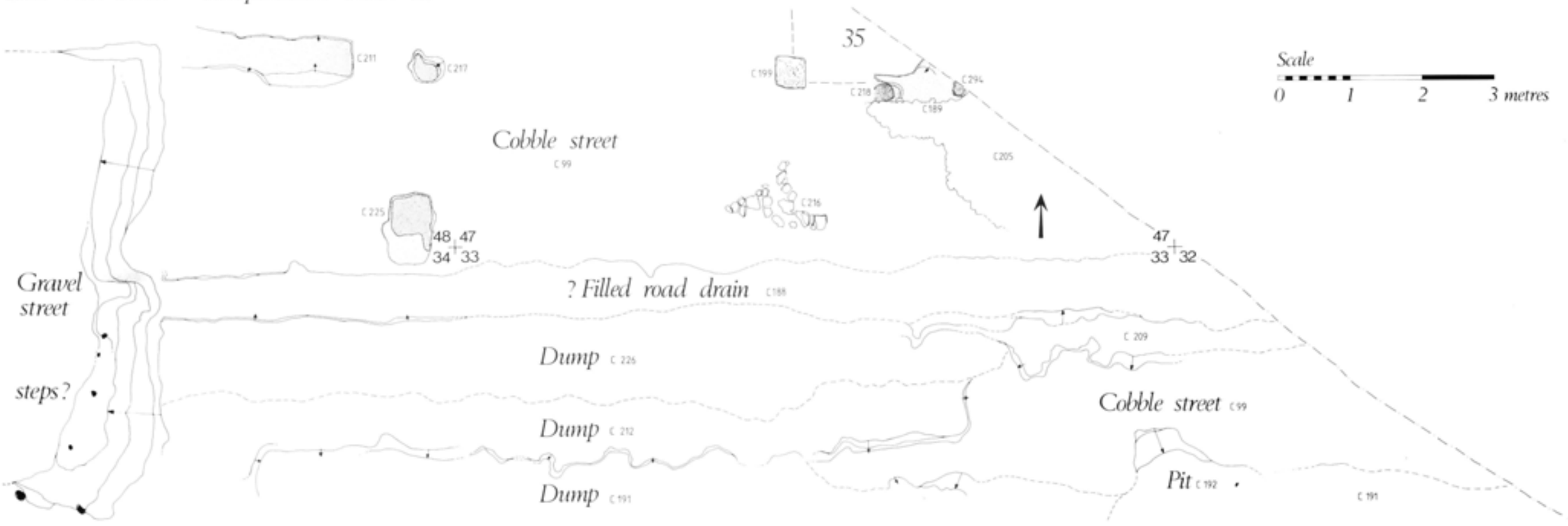
East - West Street - Interpretation Phase Z2



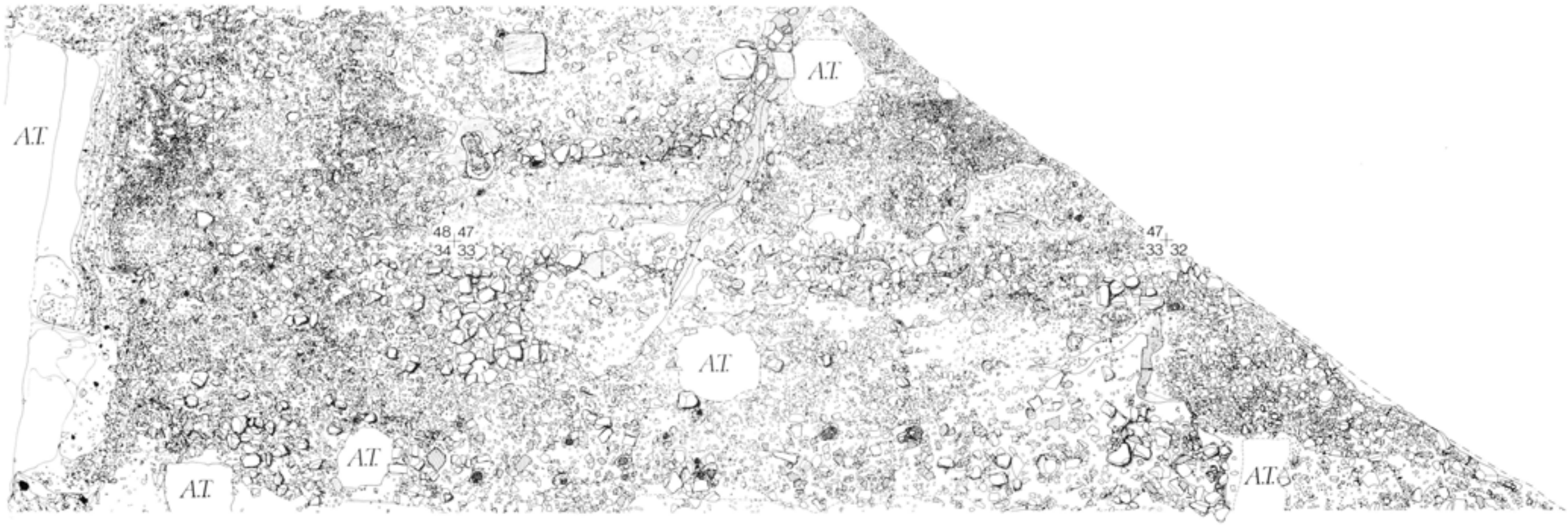
East - West Street · Evidence Phase Z1



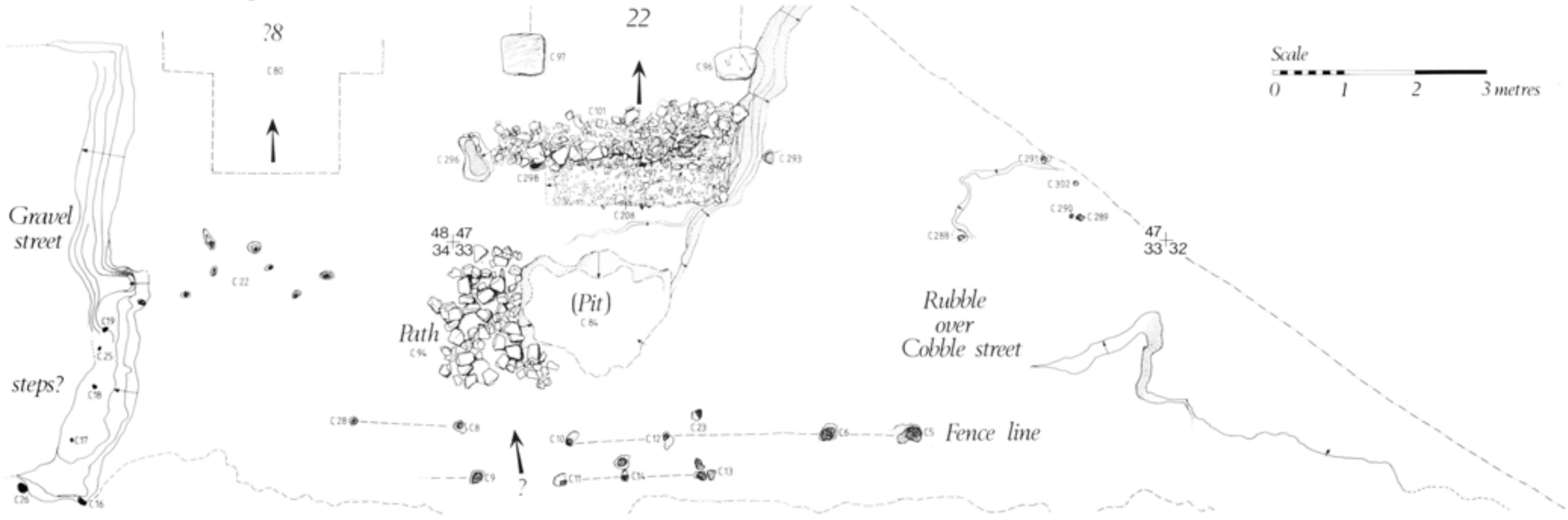
East - West Street · Interpretation Phase Z1



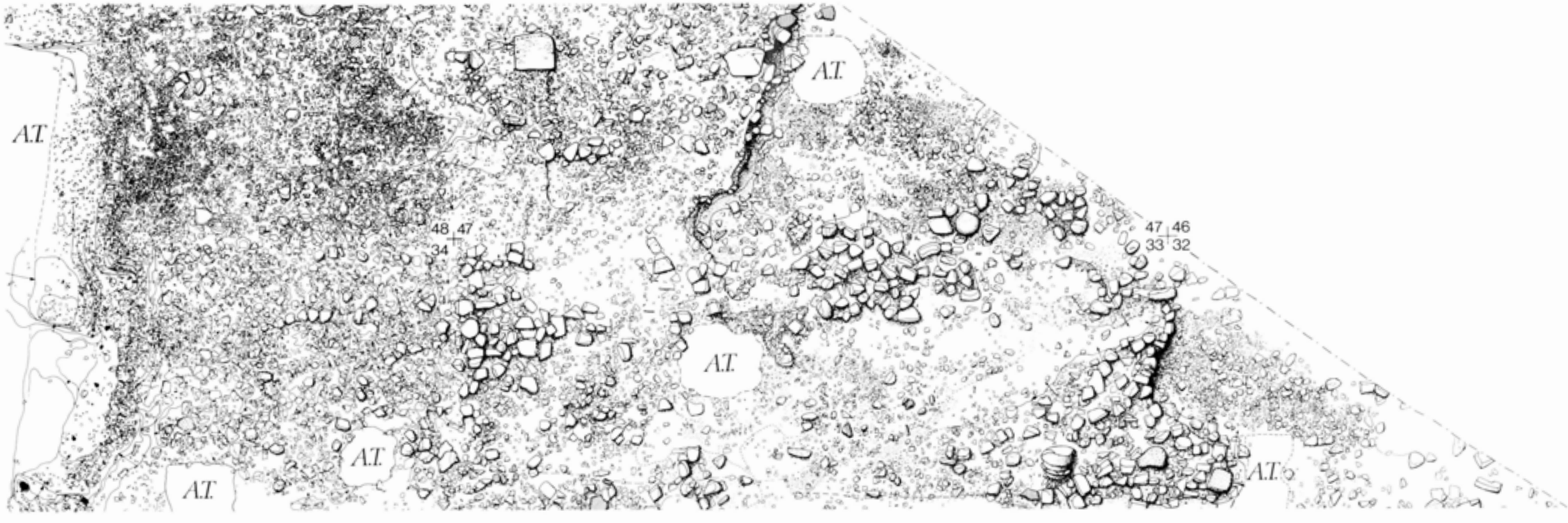
East - West Street - Evidence Phase Z2



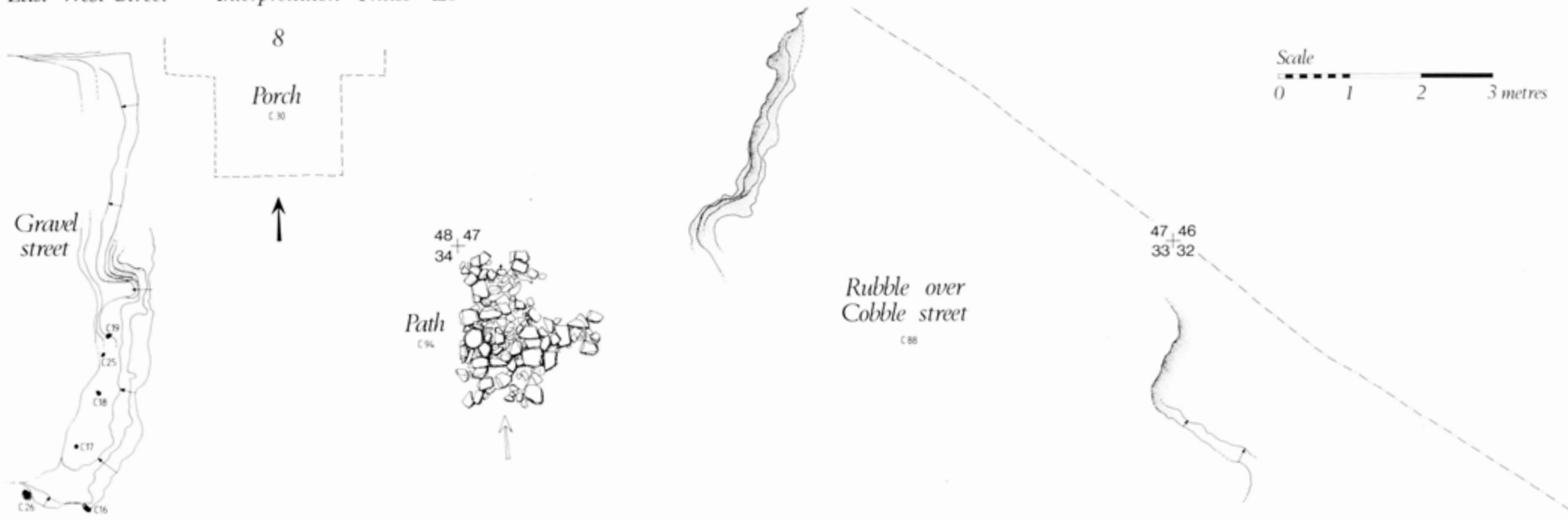
East - West Street - Interpretation Phase Z2



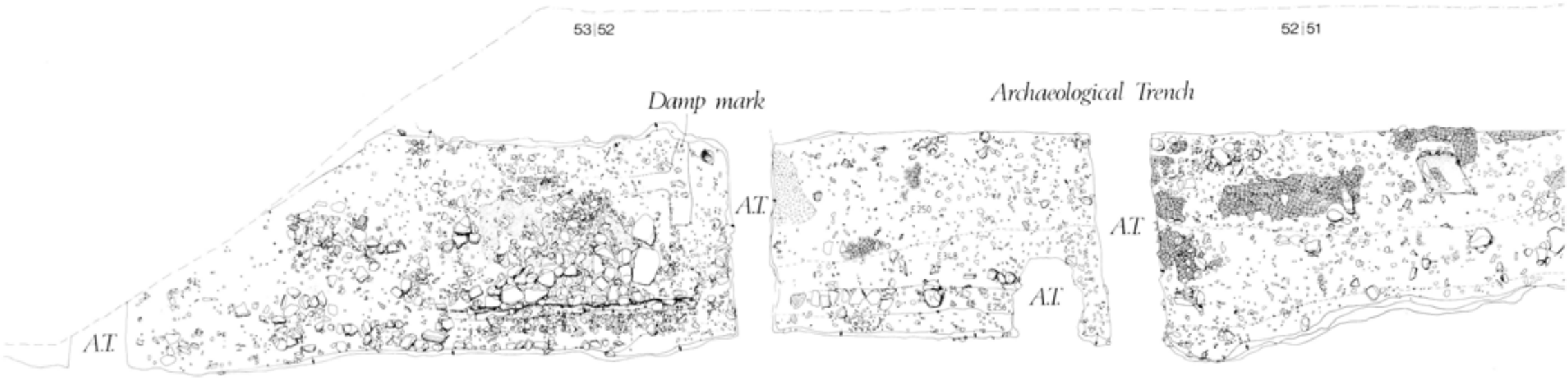
East - West Street · Evidence Phase Z3



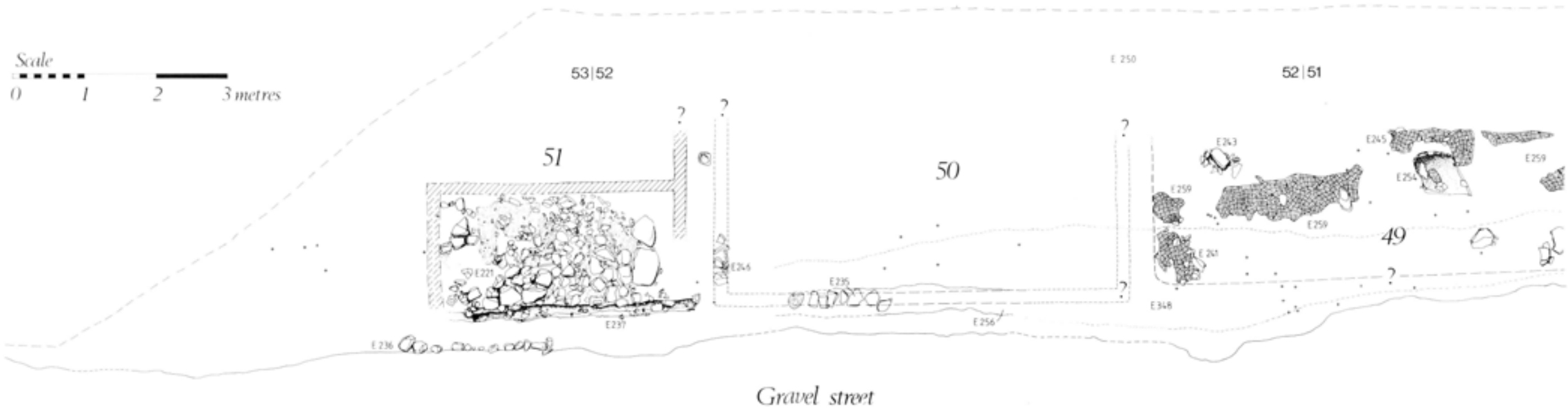
East - West Street · Interpretation Phase Z3



Insula 2 · Evidence Phase Z1

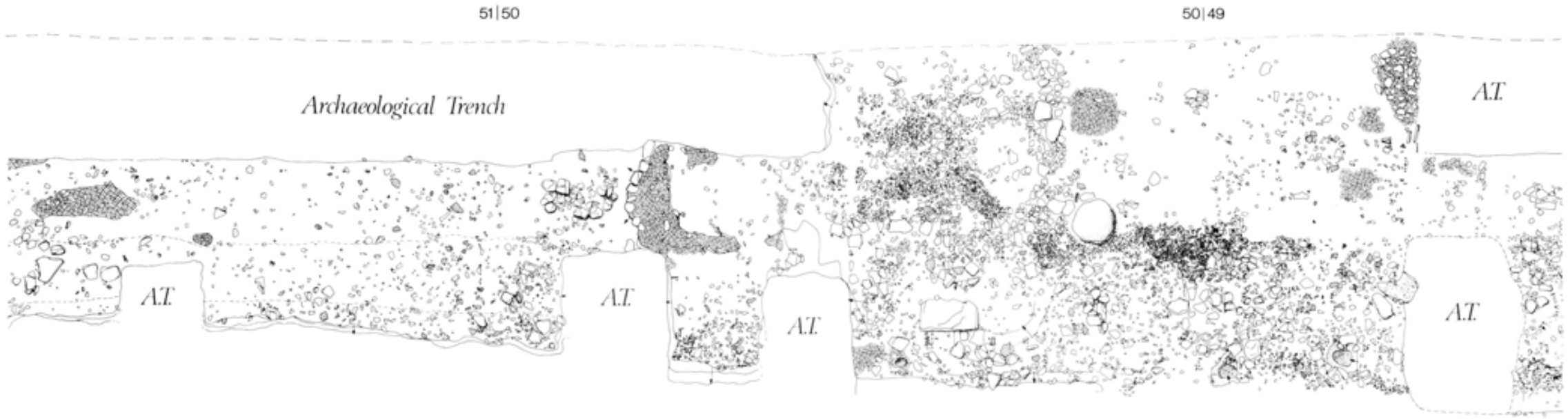


Insula 2 · Interpretation Phase Z1



Gravel street

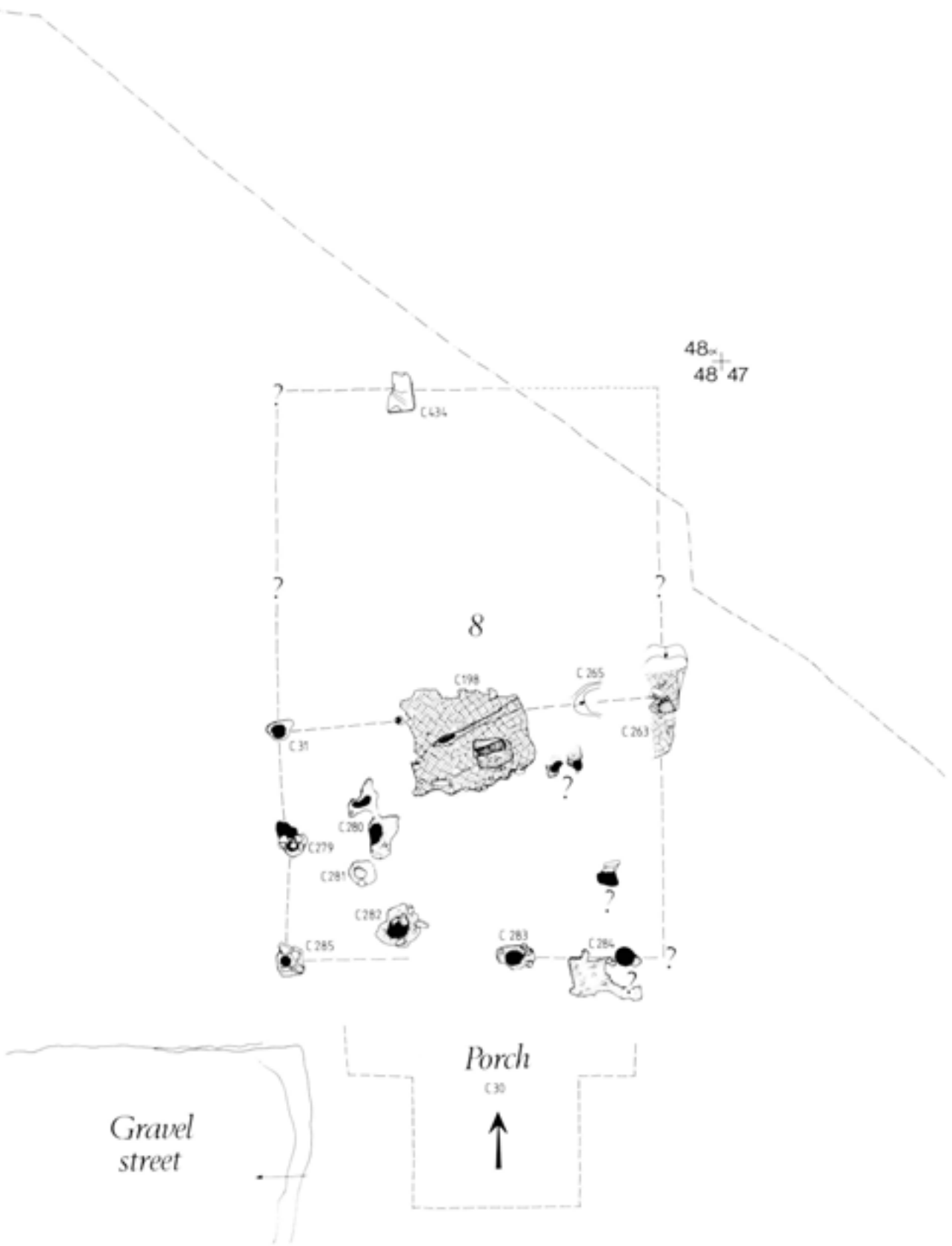
Insula 2 · Evidence Phase Z1



Insula 2 · Interpretation Phase Z1



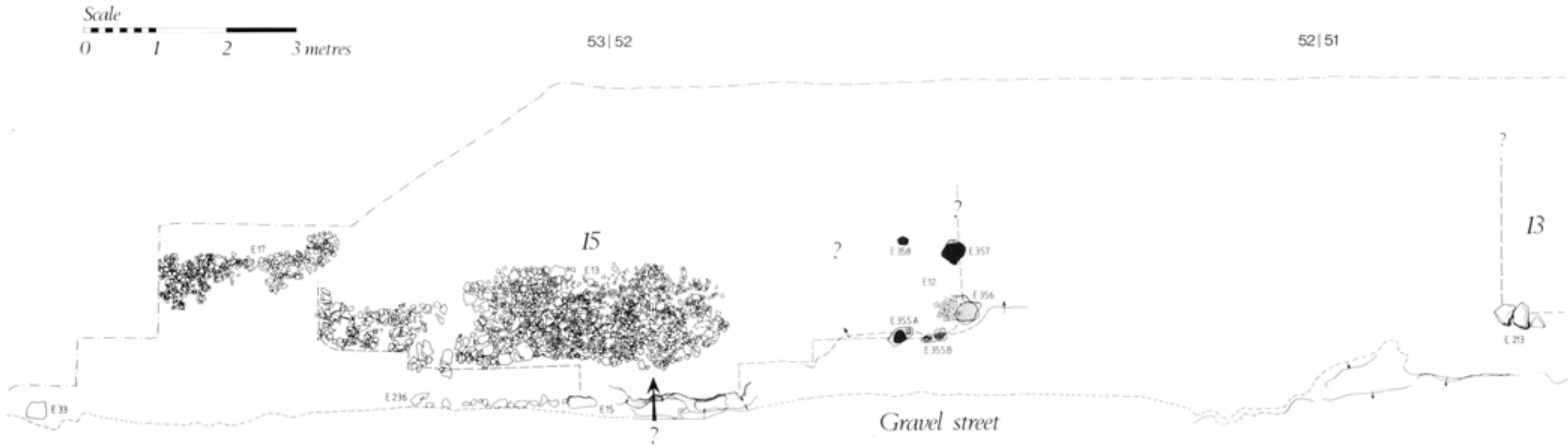
Insula 2 · Interpretation Phase Z2



Insula 2 · Evidence Phase Z2



Insula 2 · Interpretation Phase Z2



Insula 2 · Evidence Phase Z2

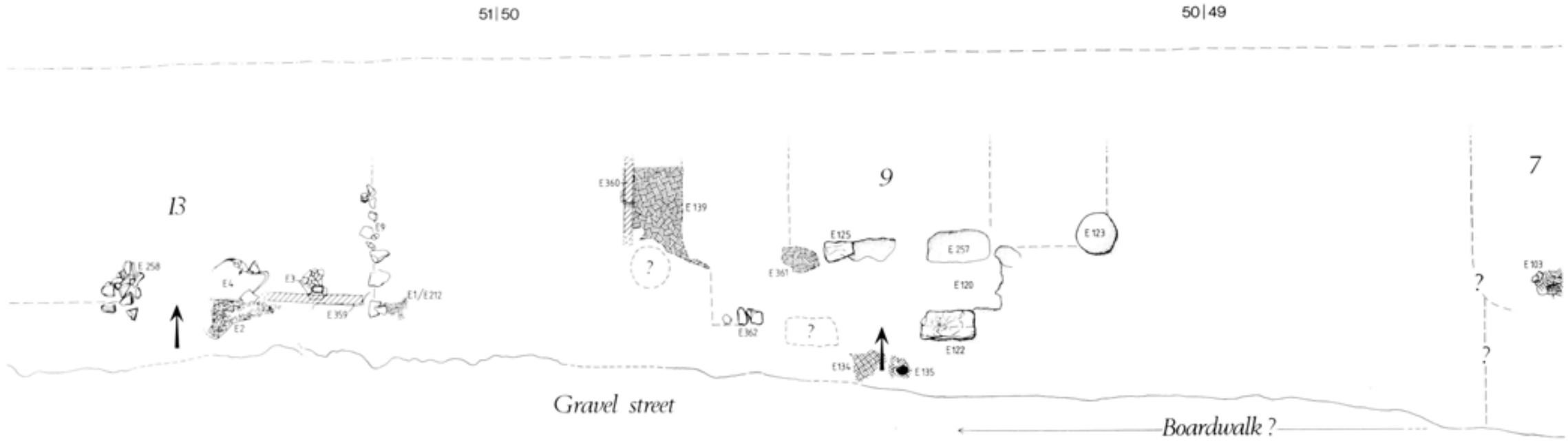
51|50 50|49

Archaeological Trench

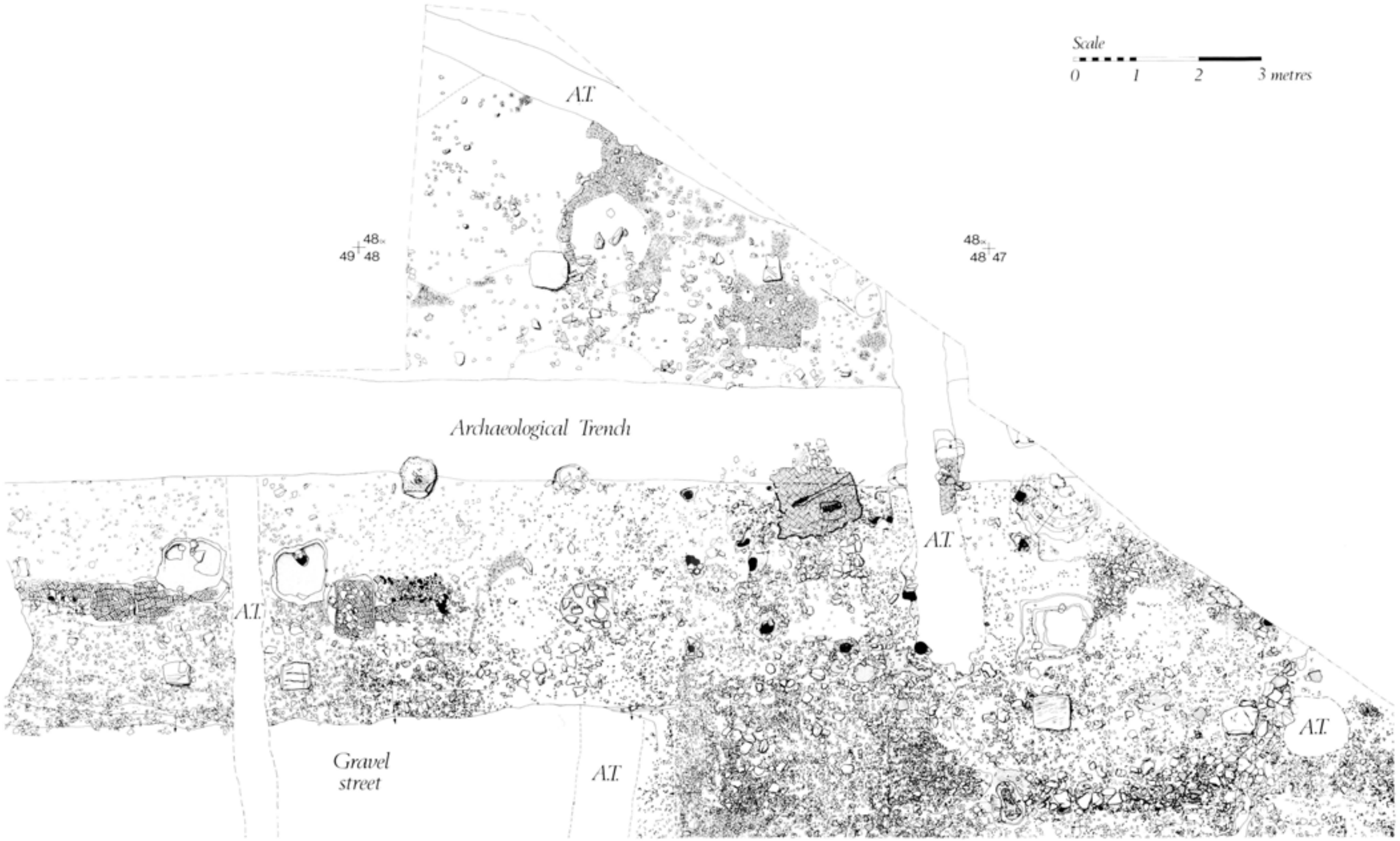


Insula 2 · Interpretation Phase Z2

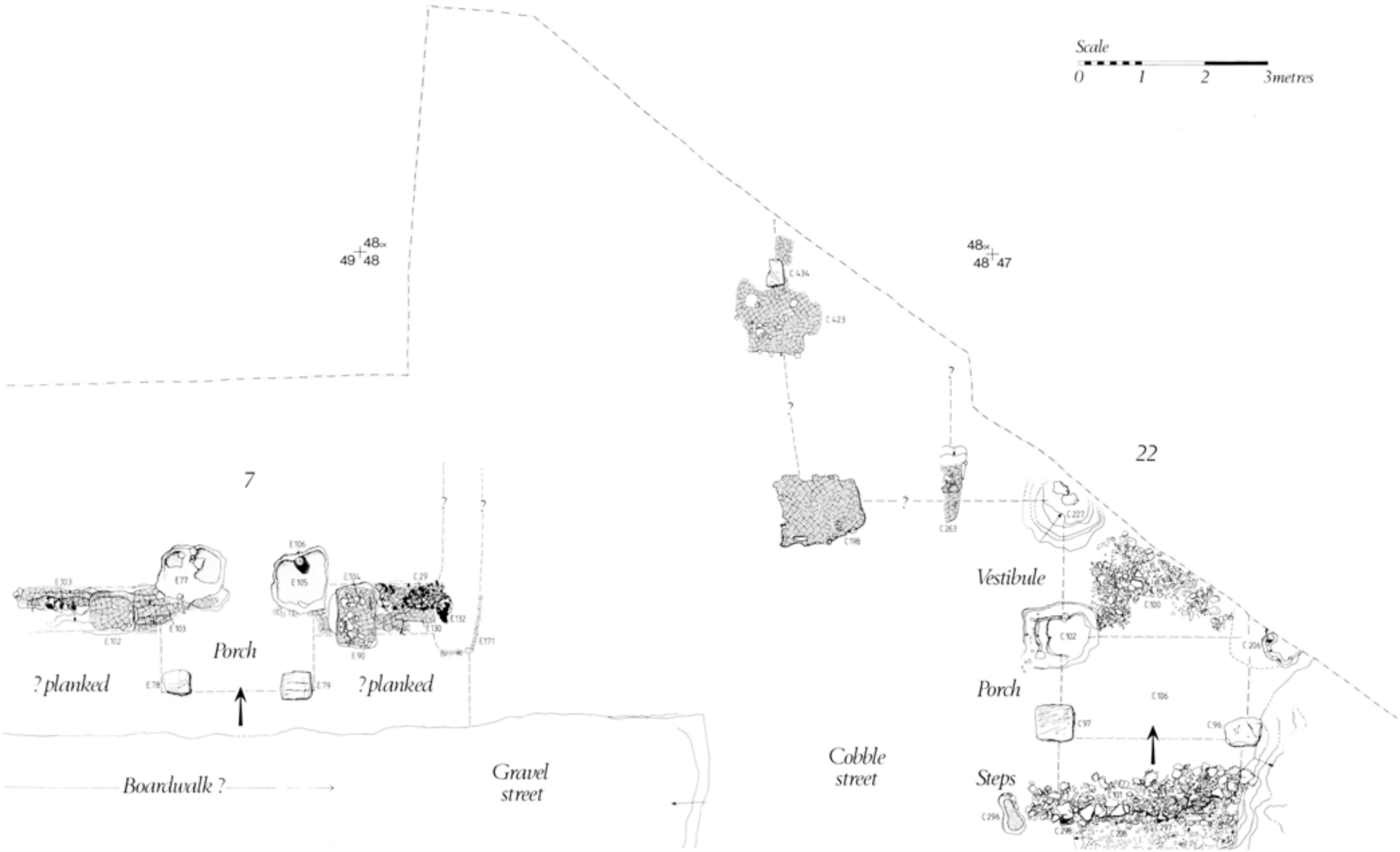
51|50 50|49



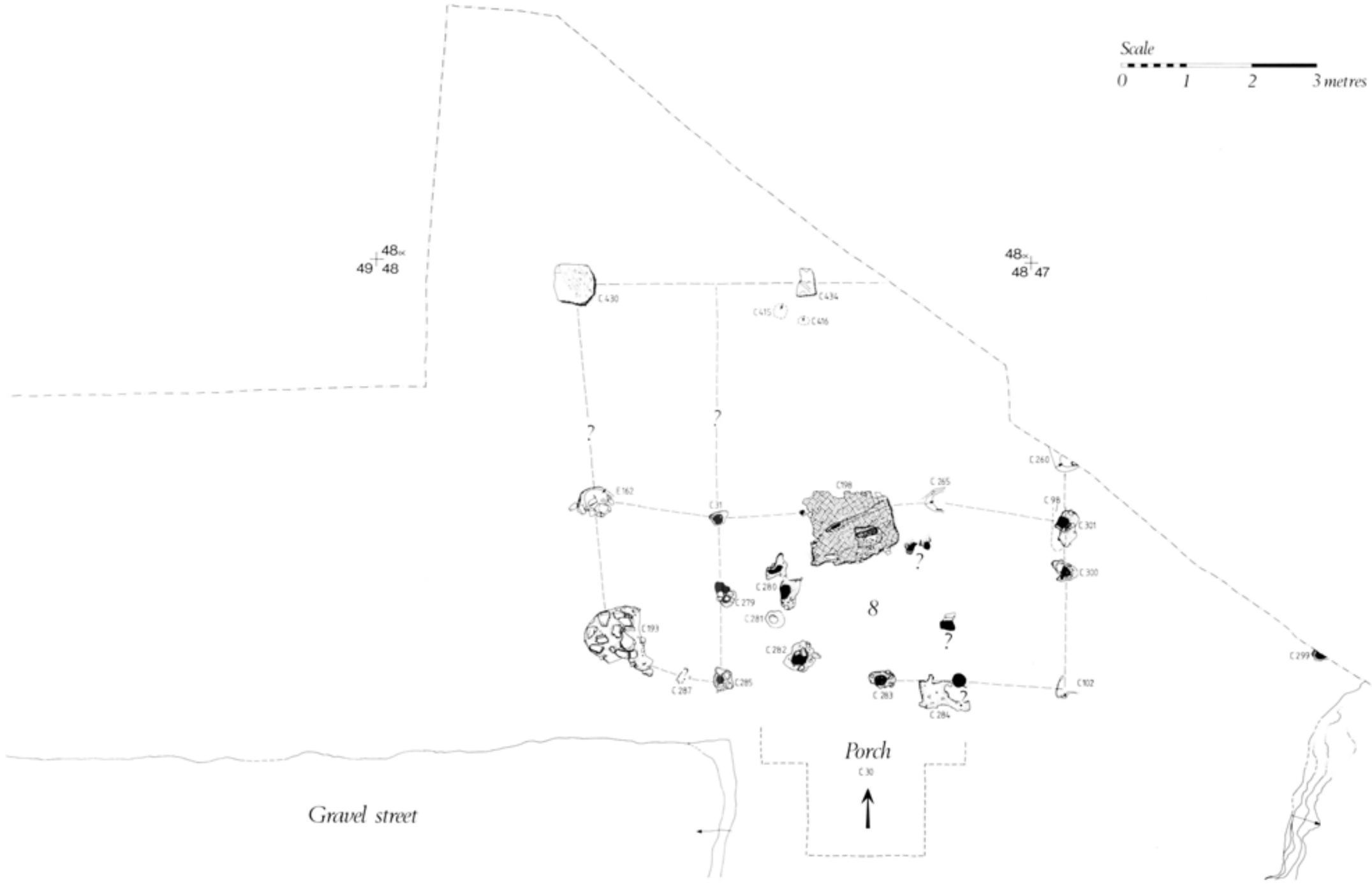
Insula 2 · Evidence Phases Z2 and Z3

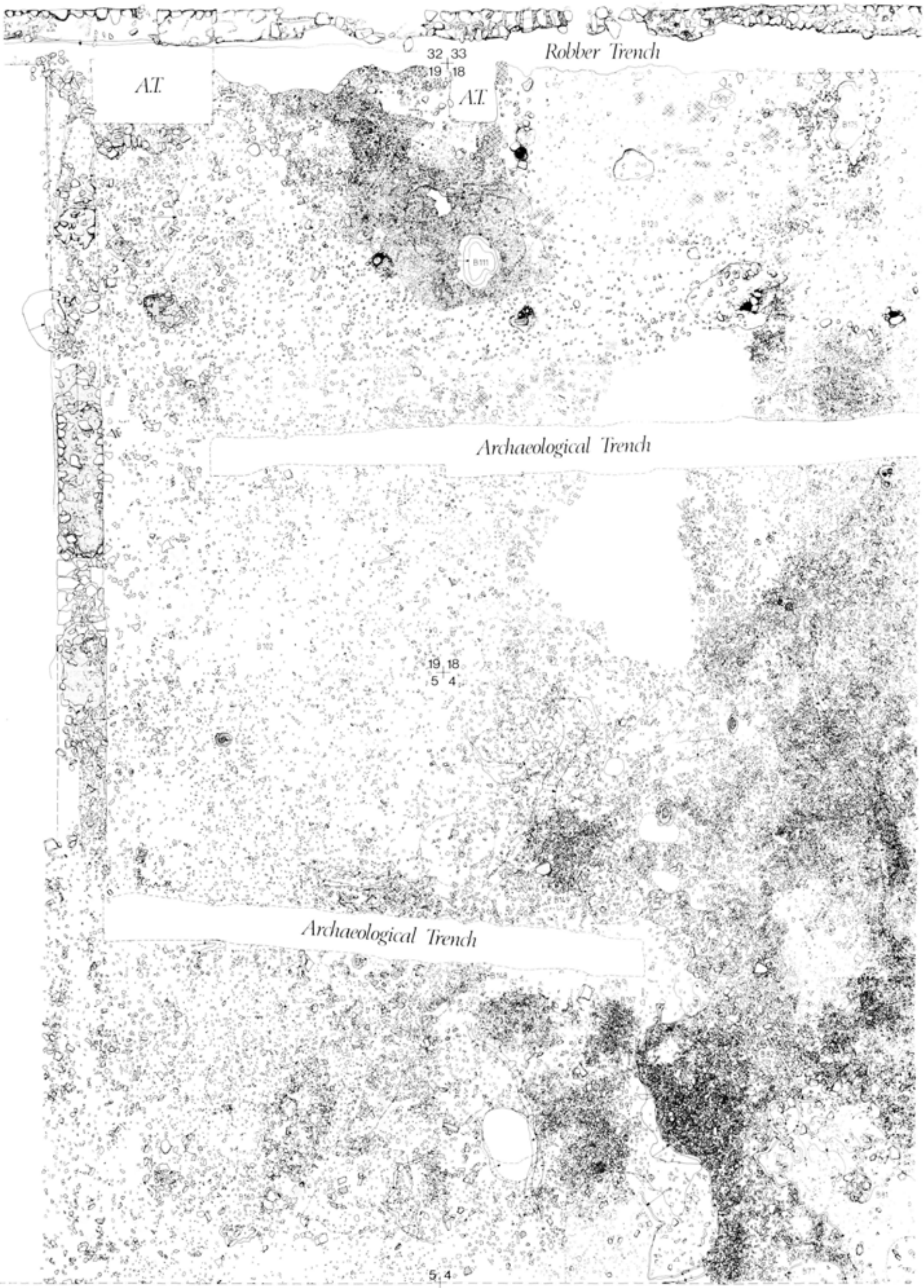


Insula 2 · Interpretation Phase Z2

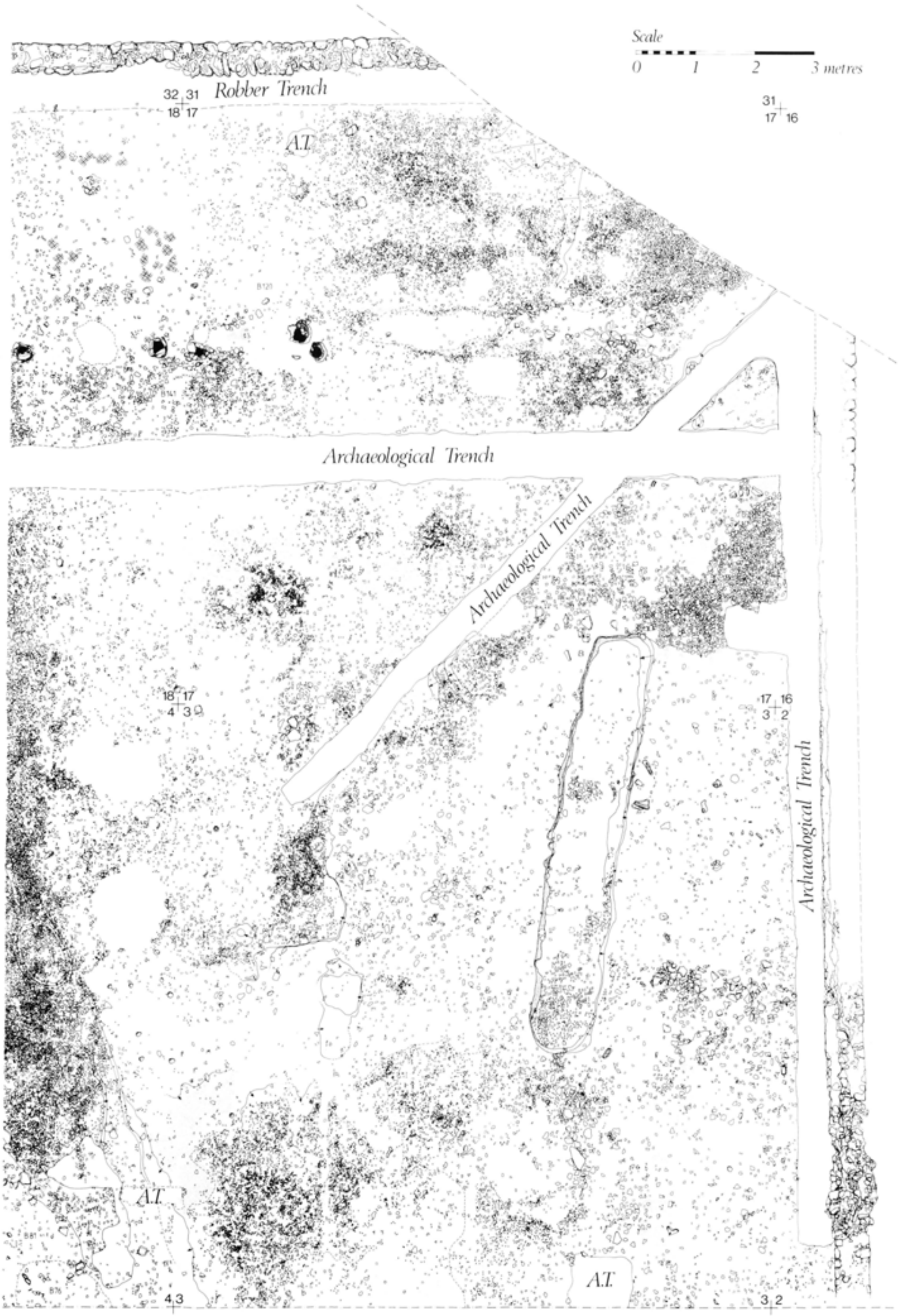


Insula 2 · Interpretation Phase Z3



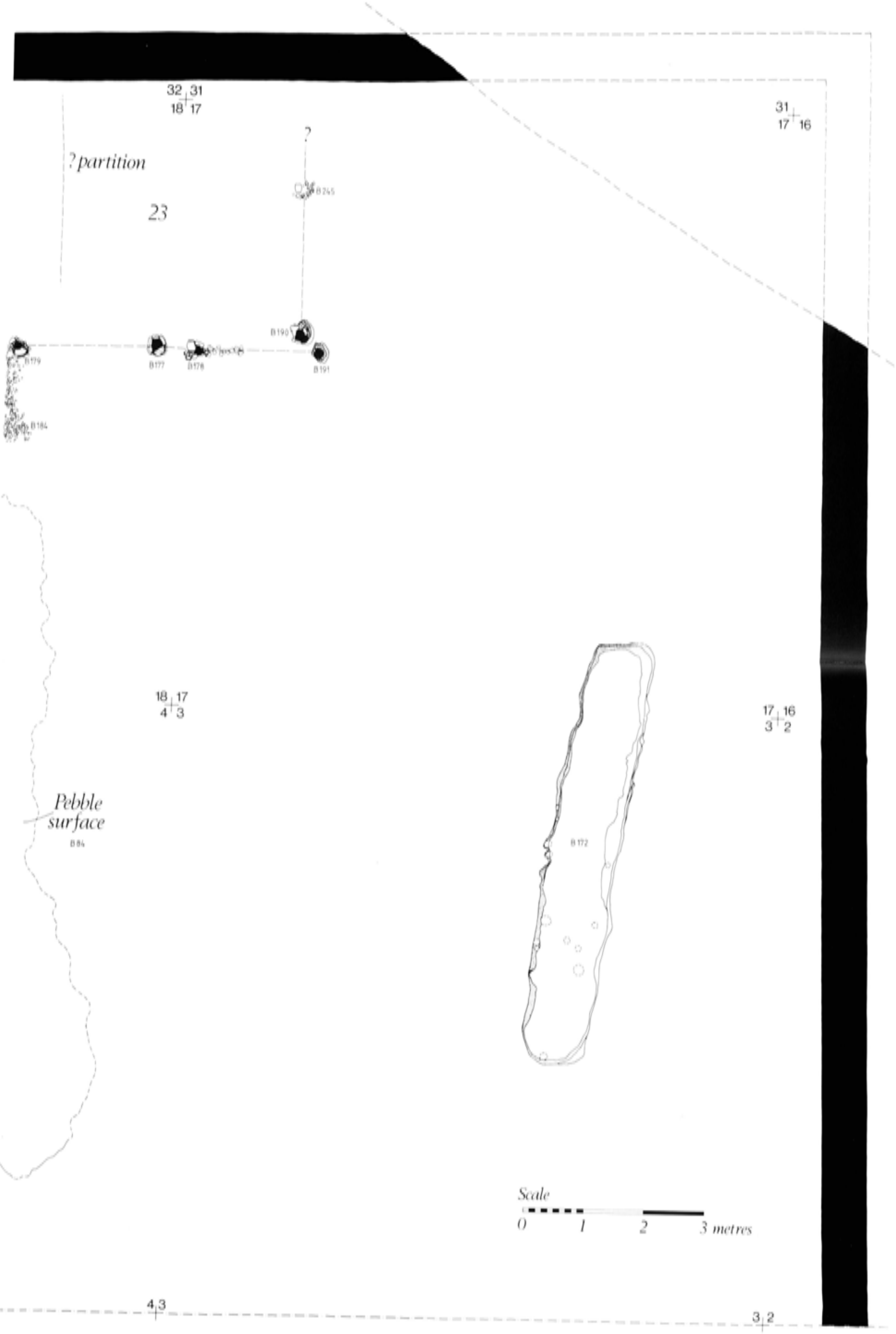

Robber Trench
A.T.
A.T.
32 33
19 18
B111
Archaeological Trench
19 18
5 4
Archaeological Trench
5, 4

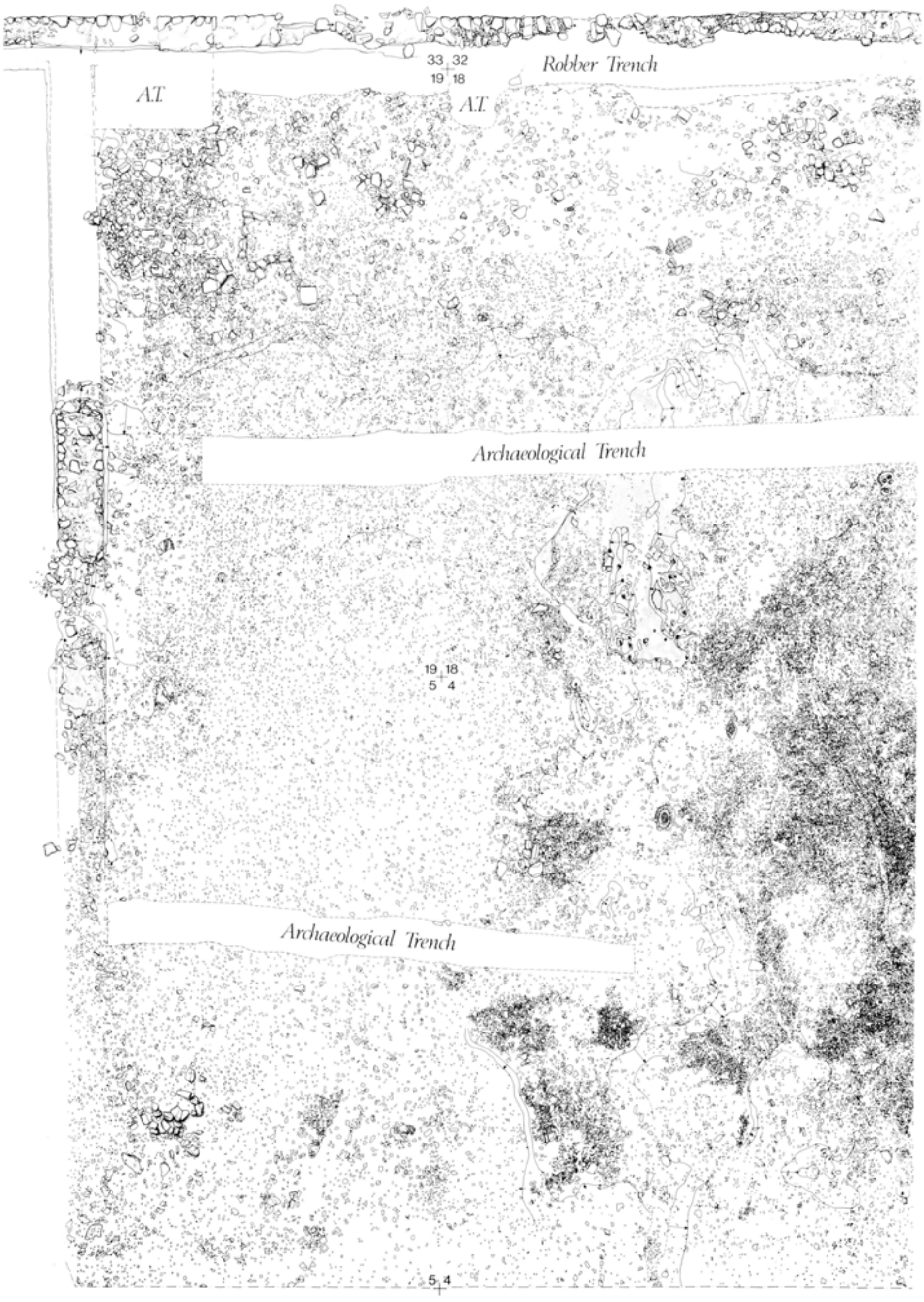
Precinct · Evidence Phase Z2



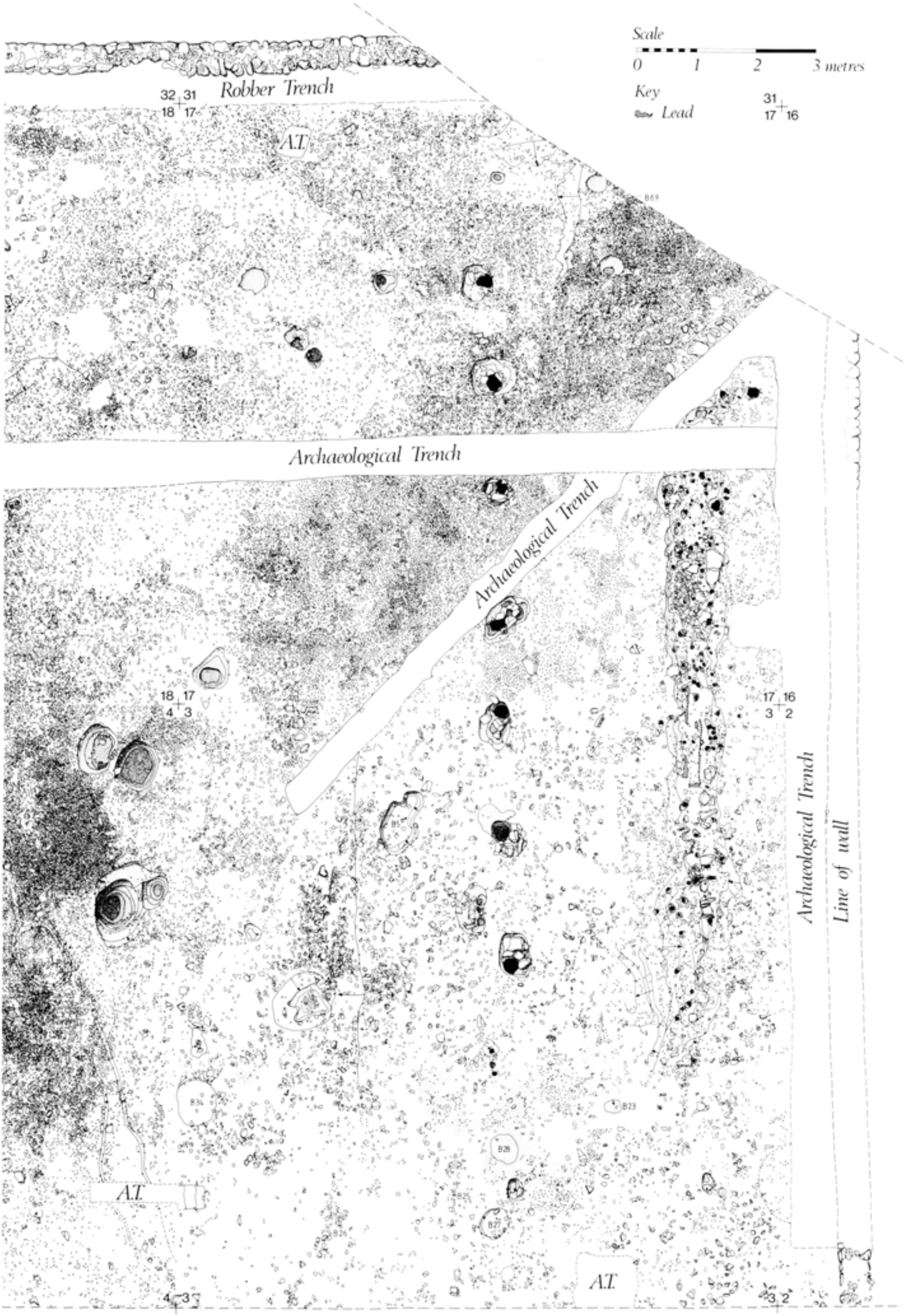

33 32
19 18
B182
B181
23
B64
B183
B180
B119
B179
B164
B549
Threshold
B 278
B552
Fence ?
19 18
5 4
B198
B214
B197
B194
B205
B43
B193
B158
? Backfilled pits
B194
B44
B195
B149
B196
B199
Pebble surface
B207
B148
B75
B167
? Backfilled pits
B153
B98
B97
B150
B80
5 4

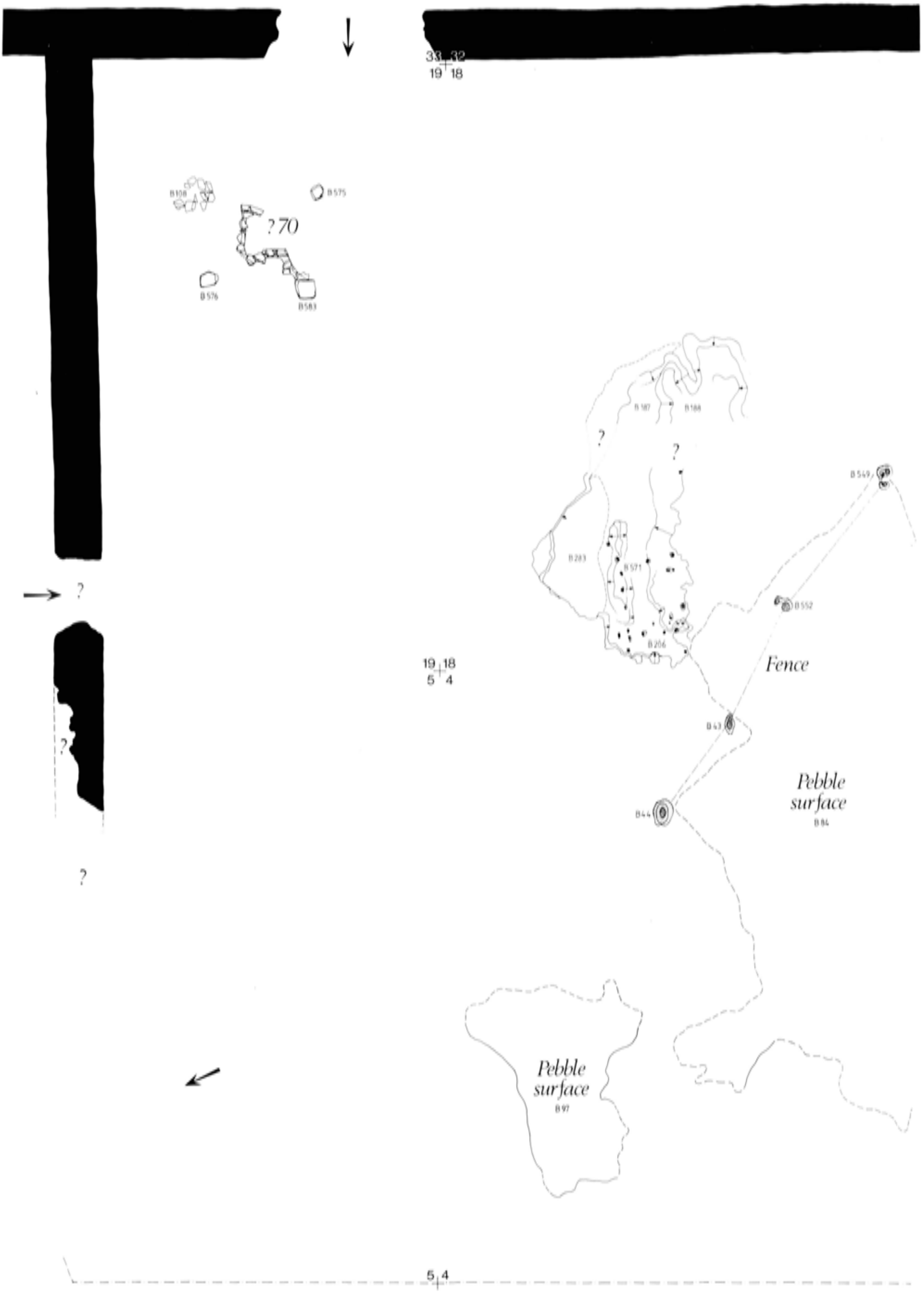
Precinct · Evidence Phase Z2



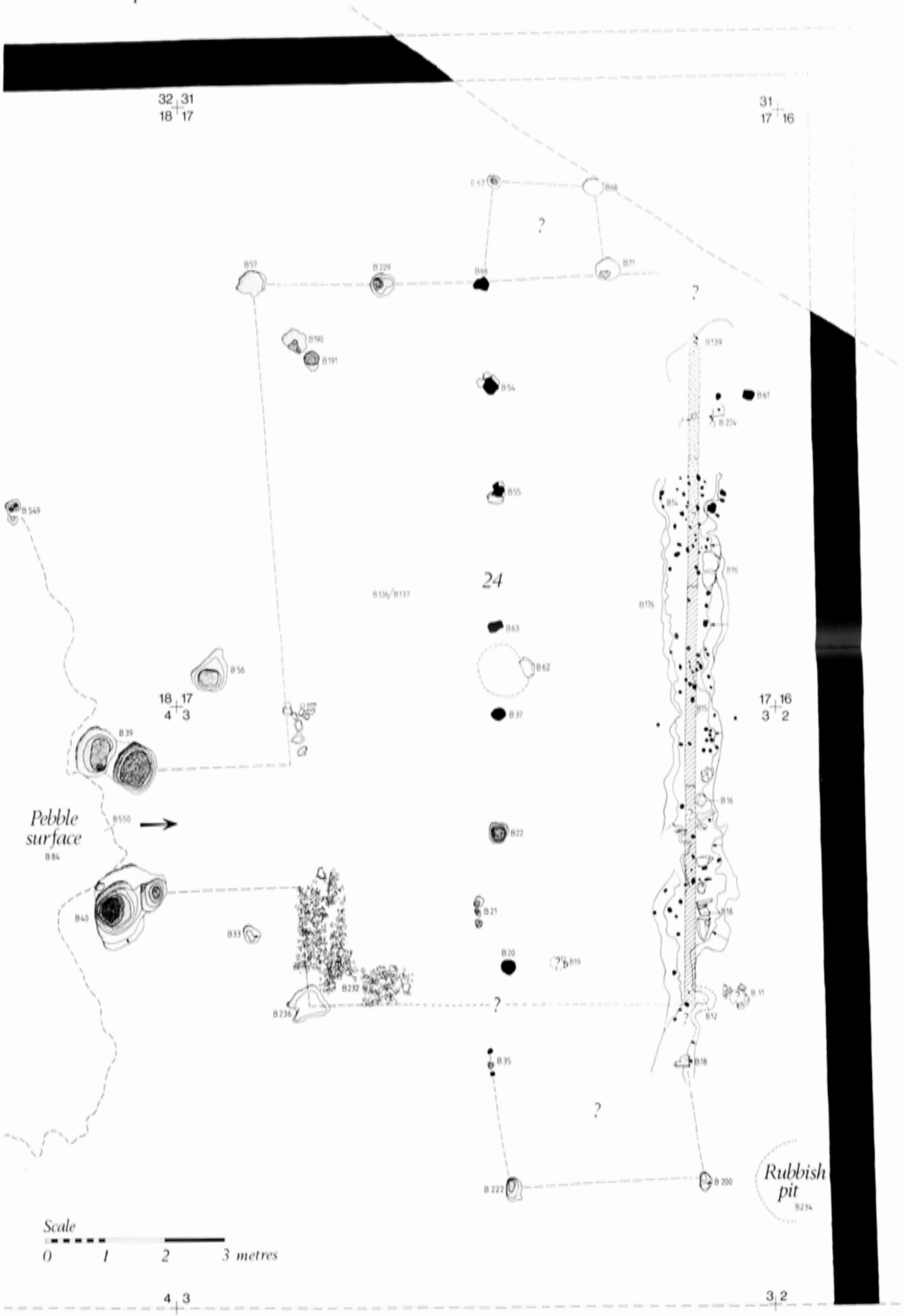

33 32
19 18
Robber Trench
A.T.
A.T.
Archaeological Trench
19 18
5 4
Archaeological Trench
5 4

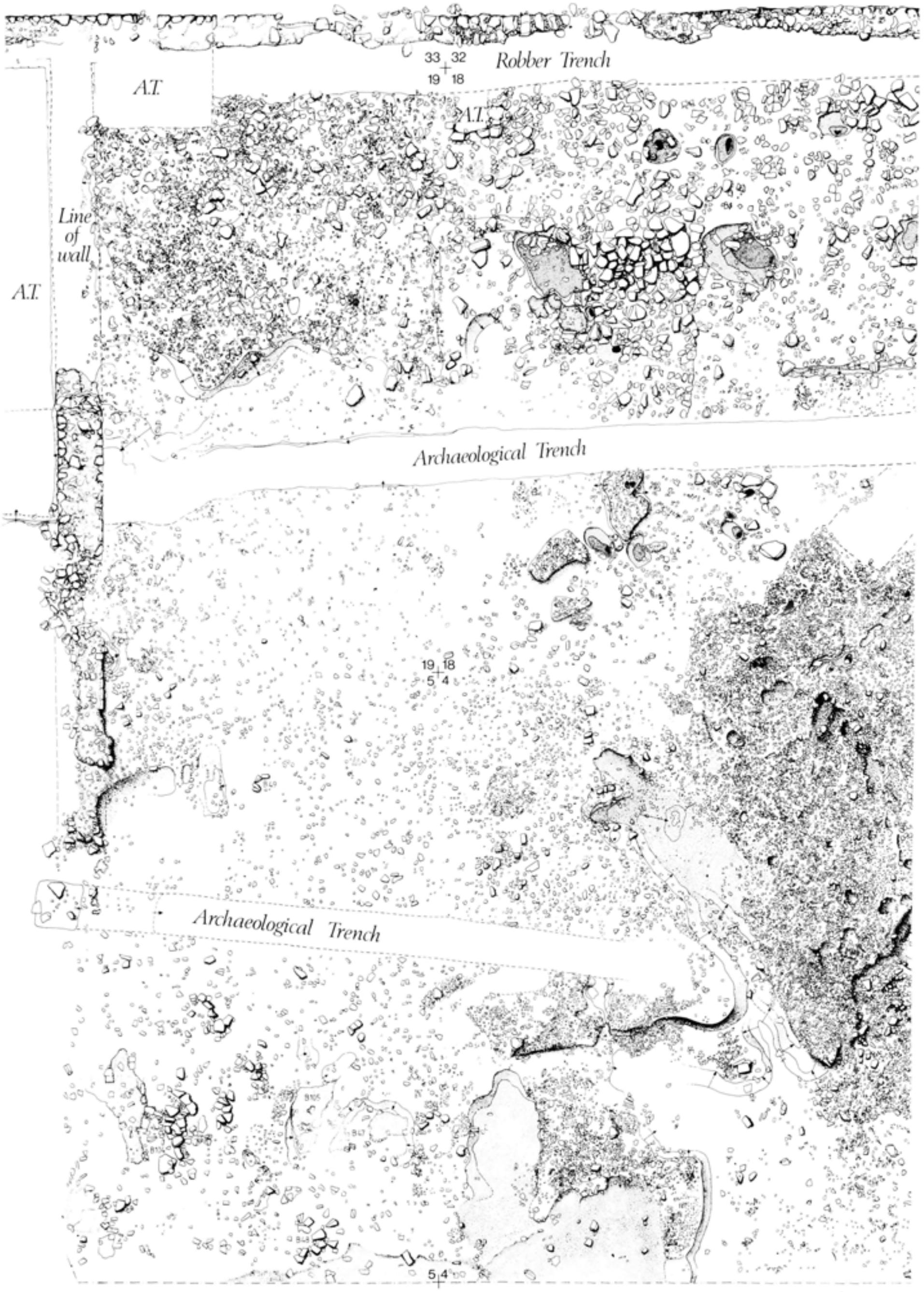
Precinct · Evidence Phase Z3



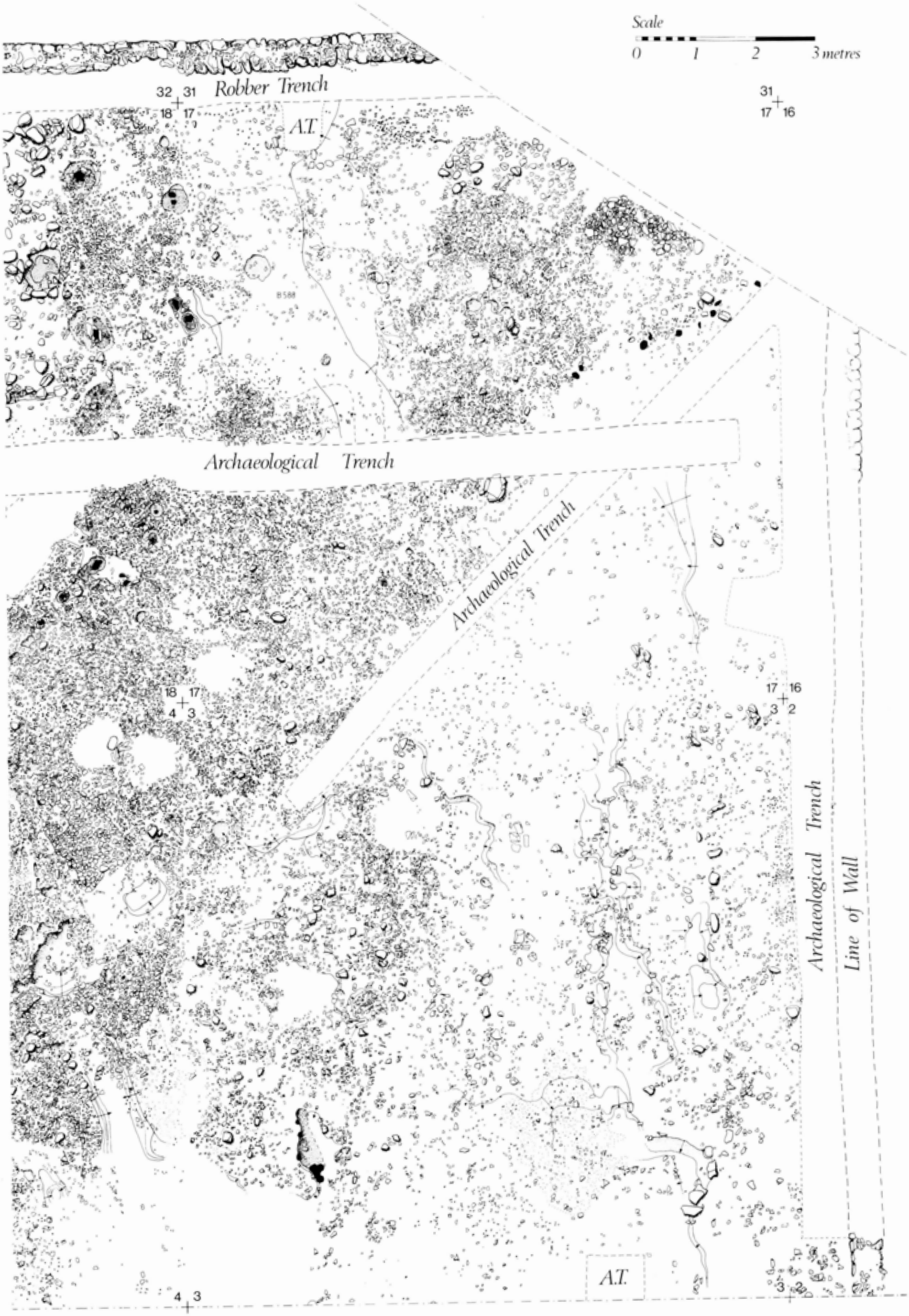

33 32
19 18
B108
B575
?70
B576
B583
?
?
19 18
5 4
B187
B188
?
?
B549
B283
B571
B552
B206
Fence
B43
B44
Pebble surface
B84
Pebble surface
B97
5 4

Precinct · Interpretation Phase Z3



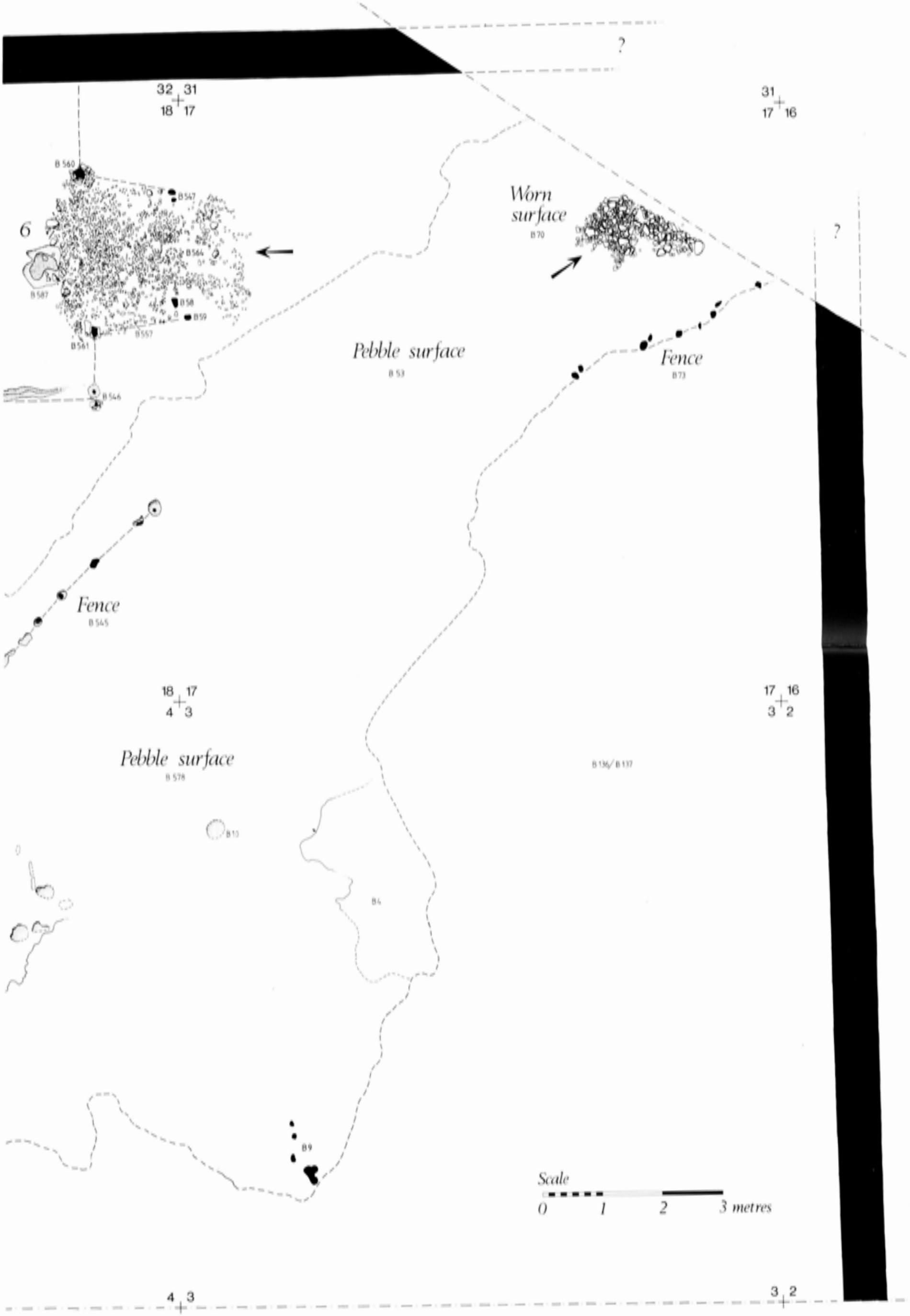

33 32
19 18
Robber Trench
A.T.
A.T.
Line of wall
A.T.
Archaeological Trench
19 18
5 4
Archaeological Trench
5 4

Precinct • Evidence Phase Z4

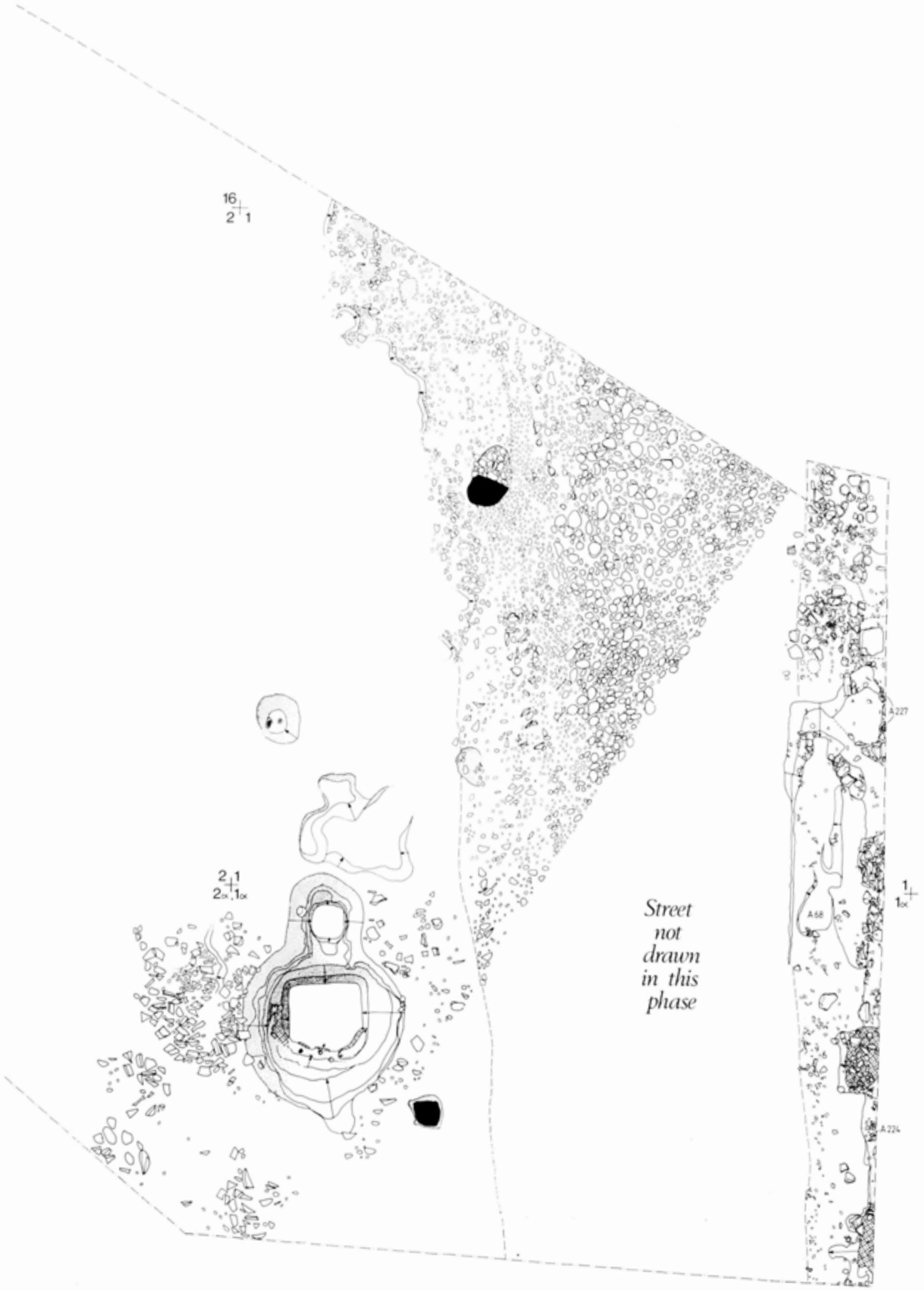



?shuttering
33+32
19 18
?planked floor
?planked floor
6
B574
B579
B116
B580
B581
B586
B587
B582
B585
B554
B554
B553
B118
B554
B551
Fence
B545
Pebble surface
B578
19+18
5+4
B 265
5+4

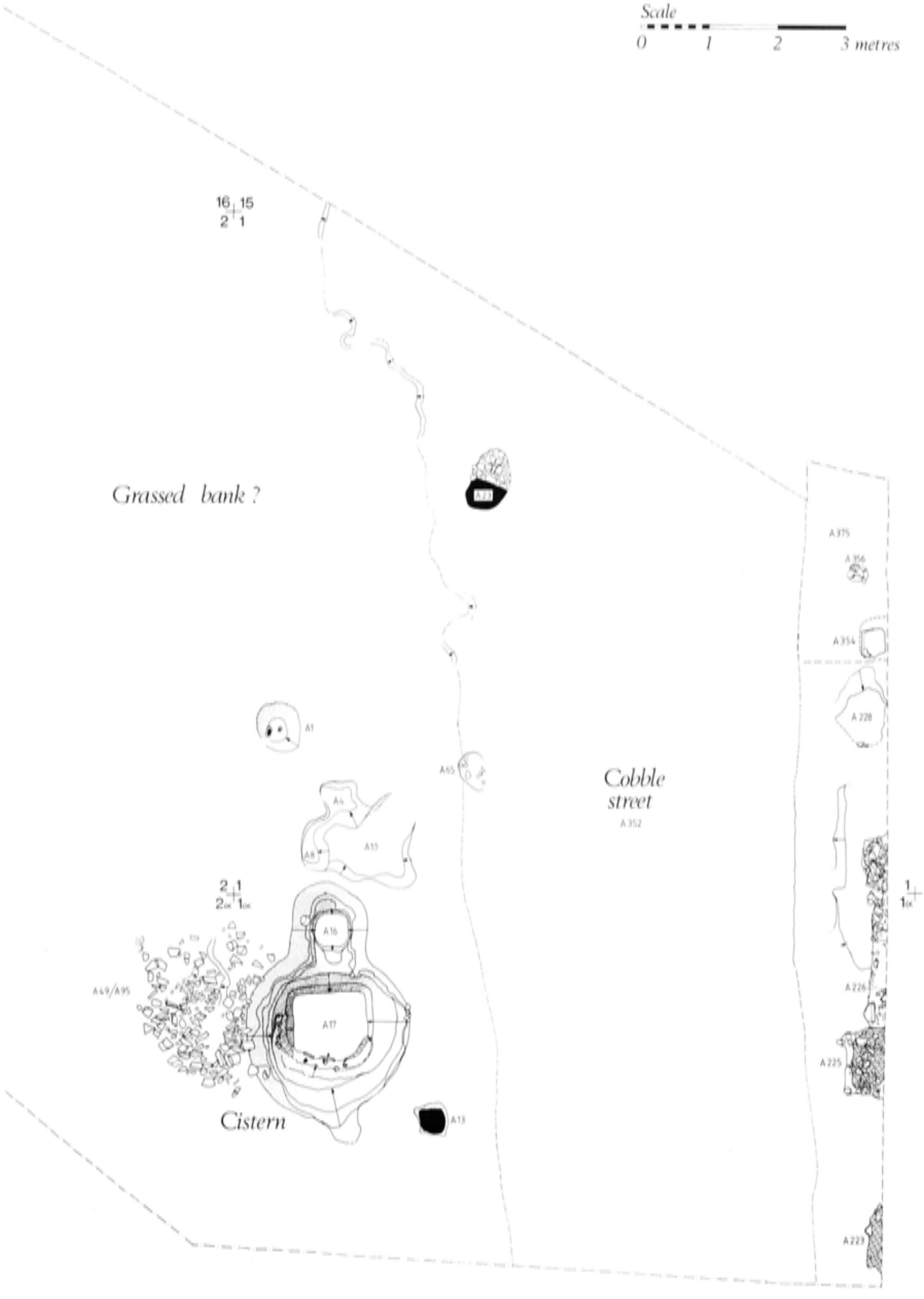
Precinct • Interpretation Phase Z4



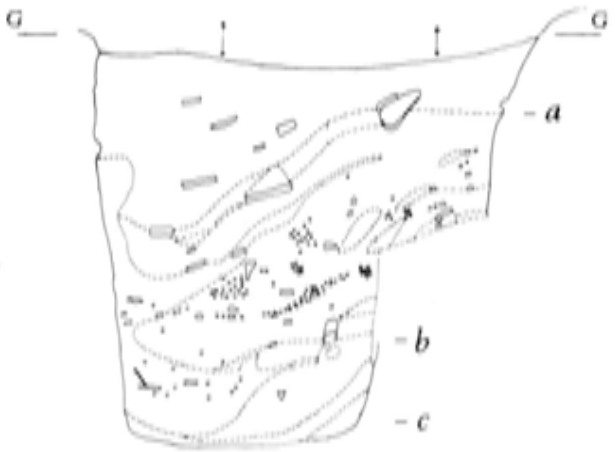
North-South Street and Frontages · Evidence Phase Z

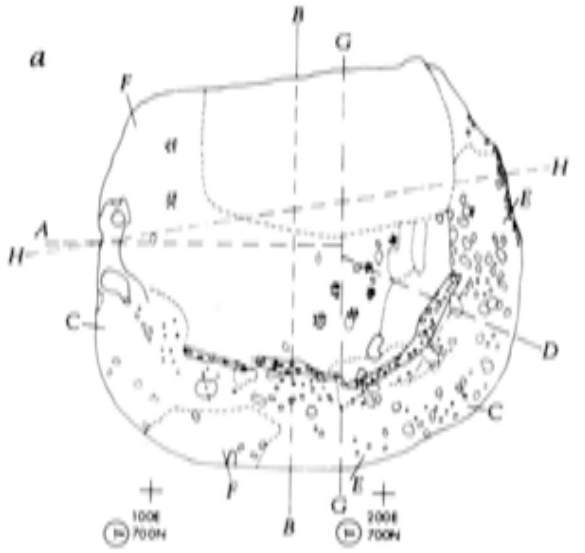


North-South Street and Frontages - Interpretation Phase Z



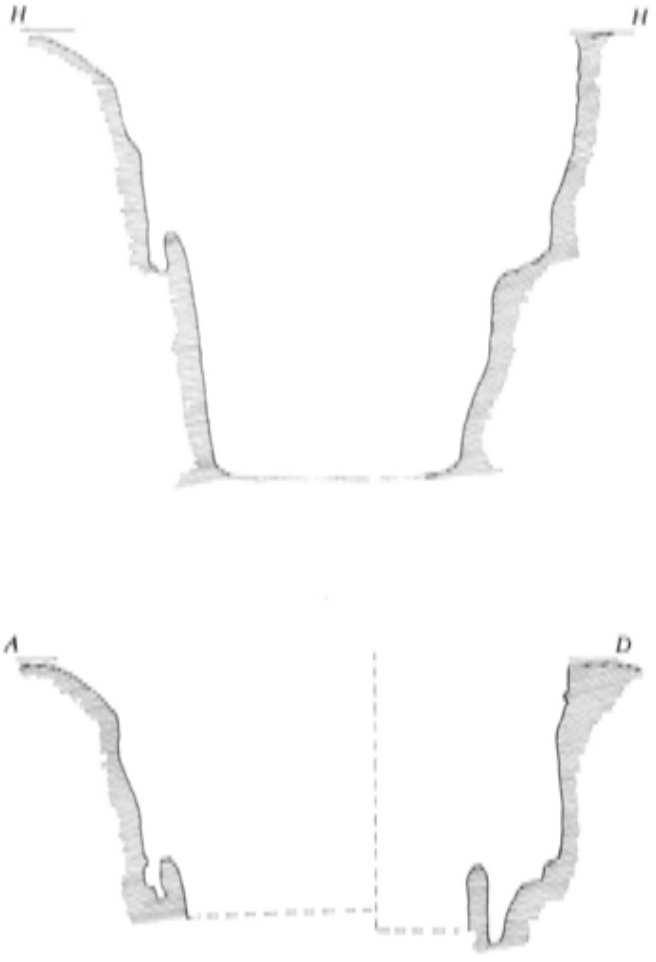
Dissection of Cistern A17



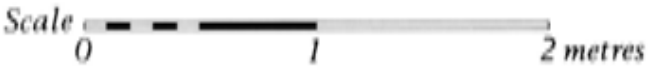








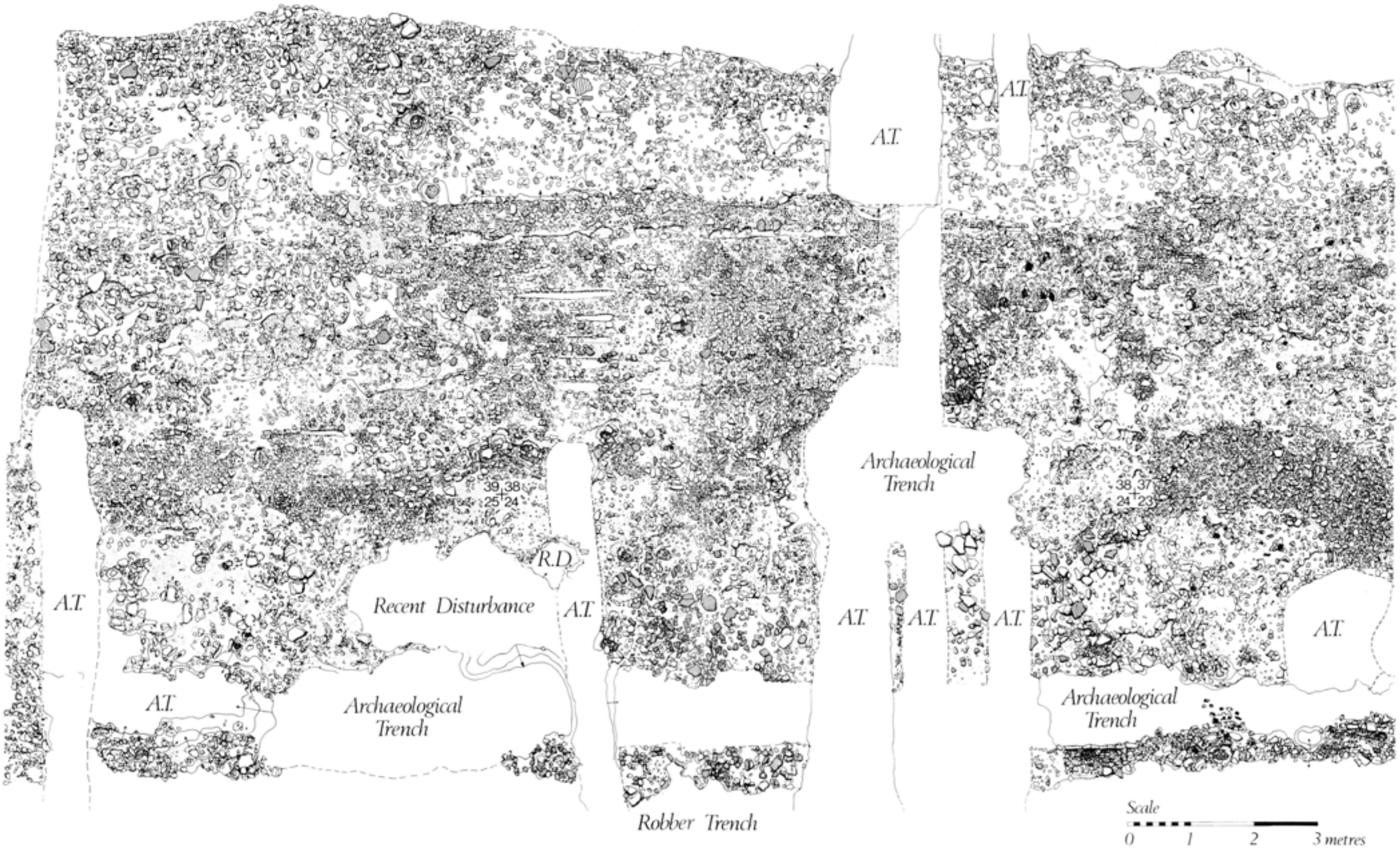




North Portico and North Aisle - Evidence Phase Post-Z



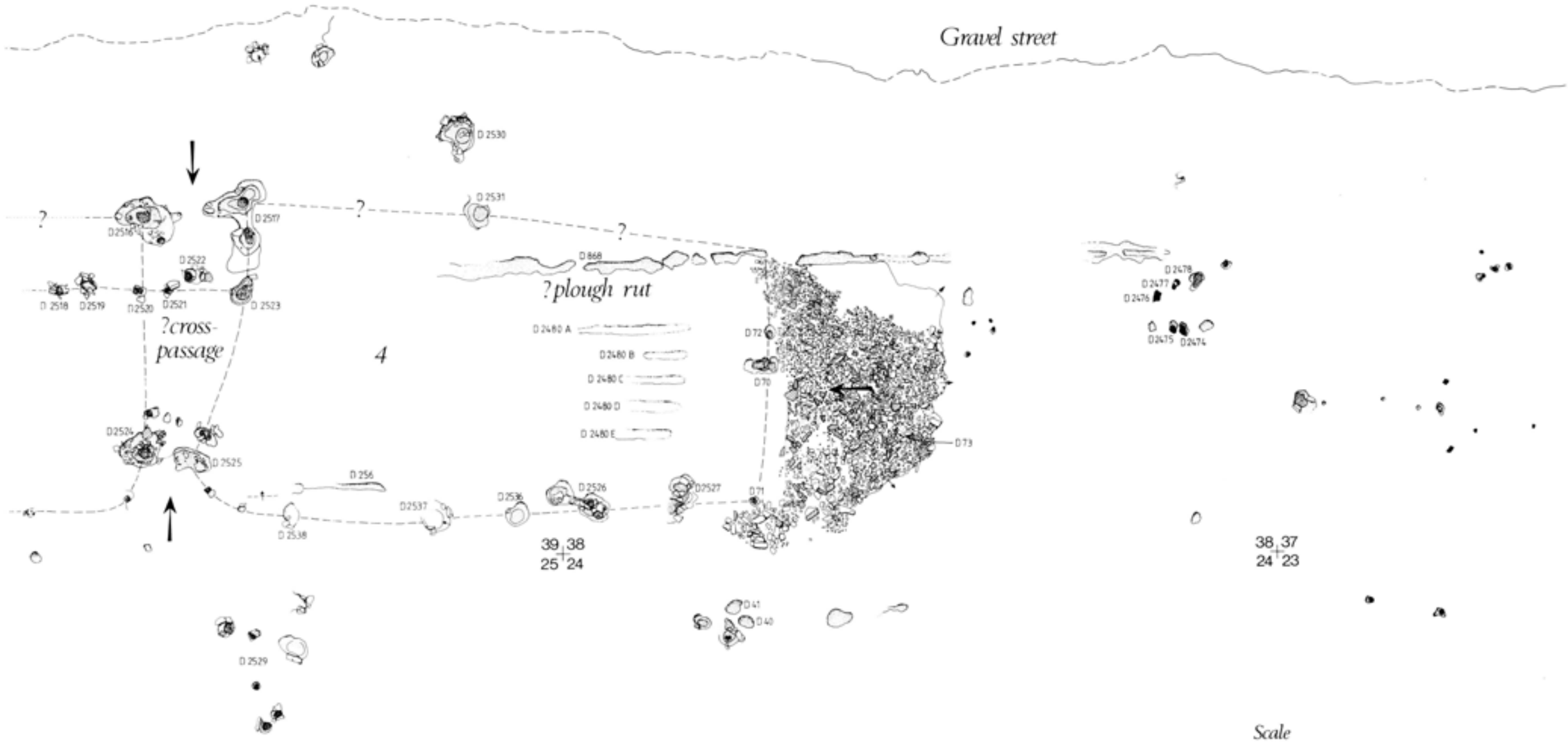
North Portico and North Aisle · Evidence Phase Post-Z



North Portico and North Aisle · Interpretation Phase Post Z



North Portico and North Aisle · Interpretation Phase Post Z



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Front cover
Excavation on progress in 1972

Frontispiece
Four headed motif from jasper intaglio (context D208, scale 4:1, see also *Fig 331)*