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**The forts on Hadrian's Wall: a comparative analysis of the  
form and construction of some buildings**

**in three volumes**

**David J. A. Taylor**

**Volume 3**

**19 JUL 2000**



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A thesis submitted for the degree of Doctor of Philosophy in the Department of

Archaeology, University of Durham, 1999

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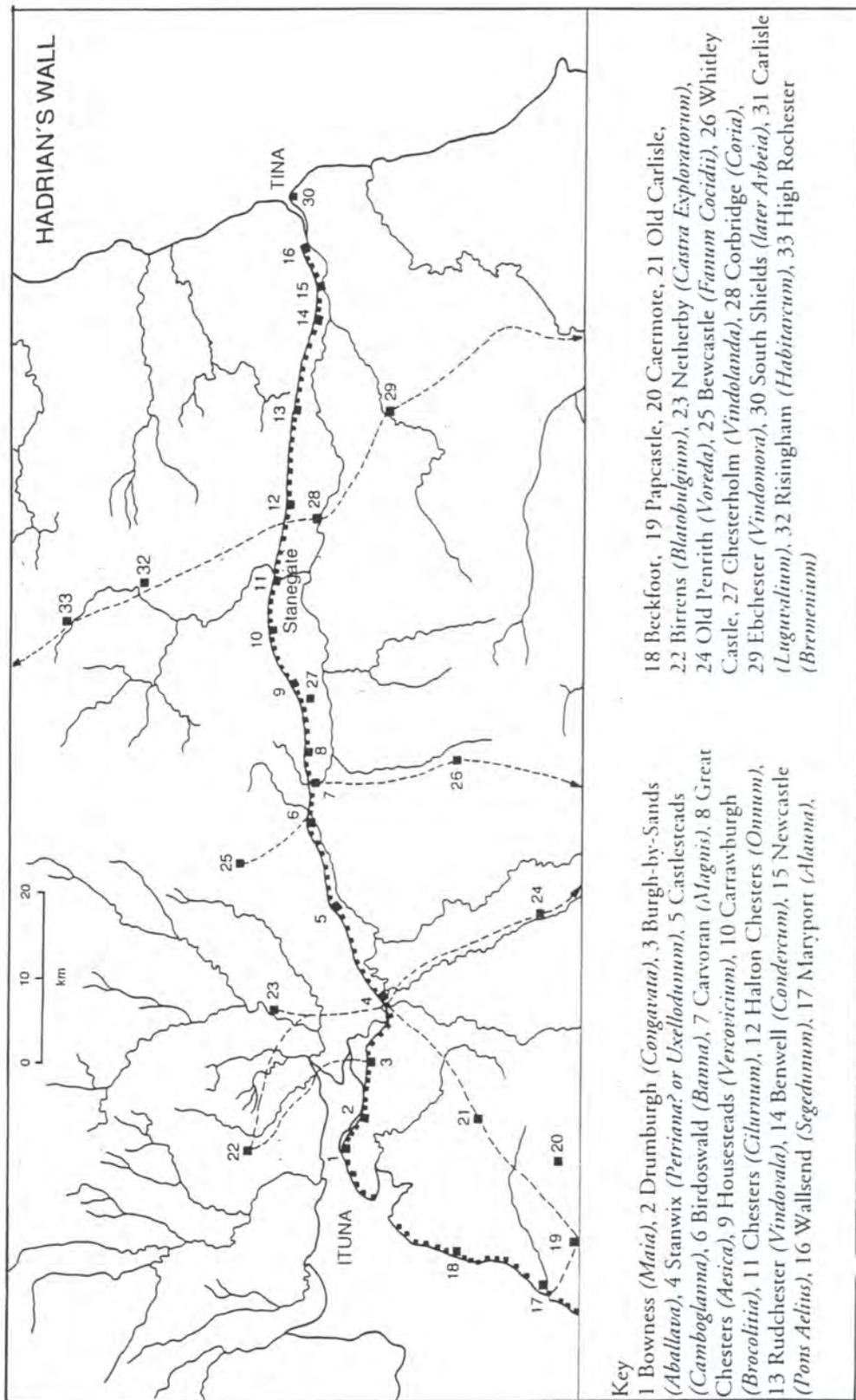


Fig. 1 Location Plan of Hadrian's Wall

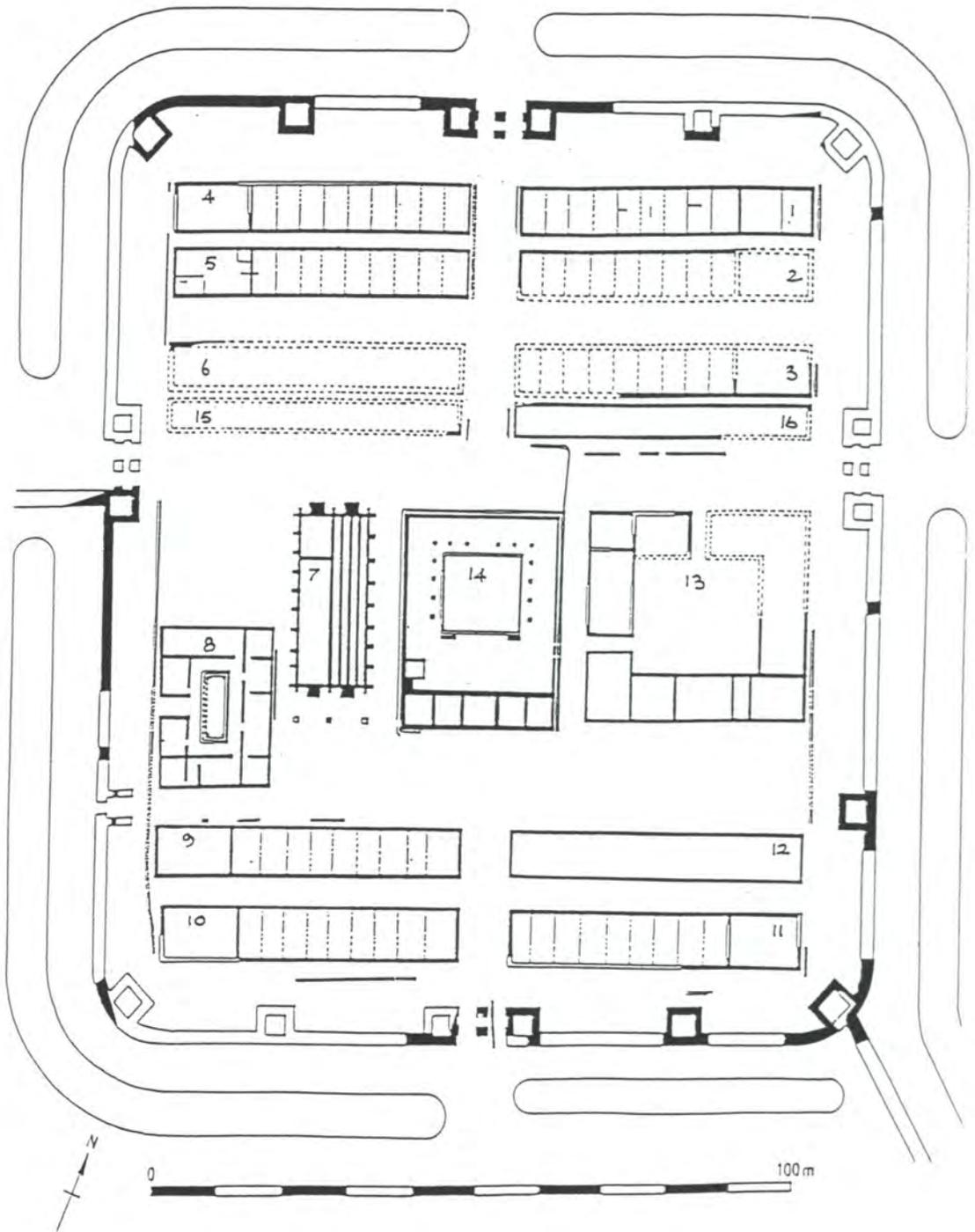
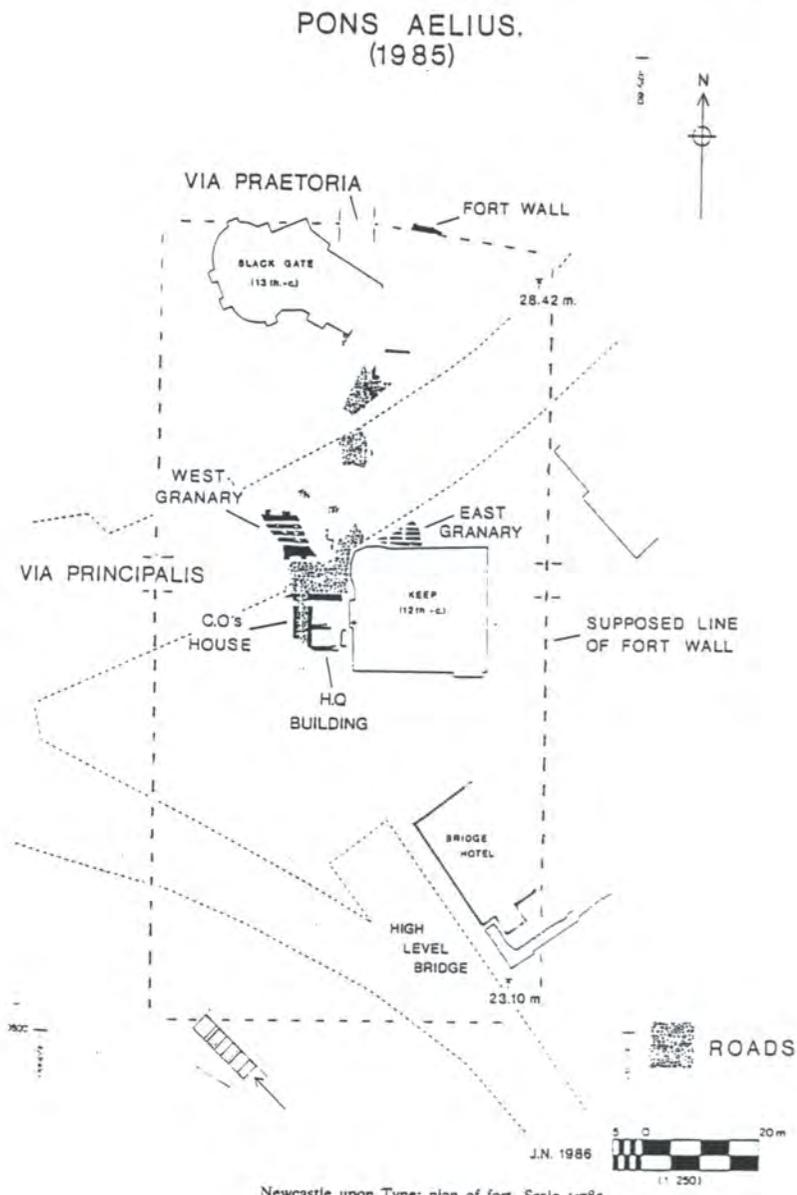


Fig. 2 Plan of the Roman fort at Wallsend



Newcastle upon Tyne: plan of fort. Scale 1:785.  
(Drawn by J. Nolan)

Fig. 3 Plan of the Roman fort at Newcastle-upon-Tyne

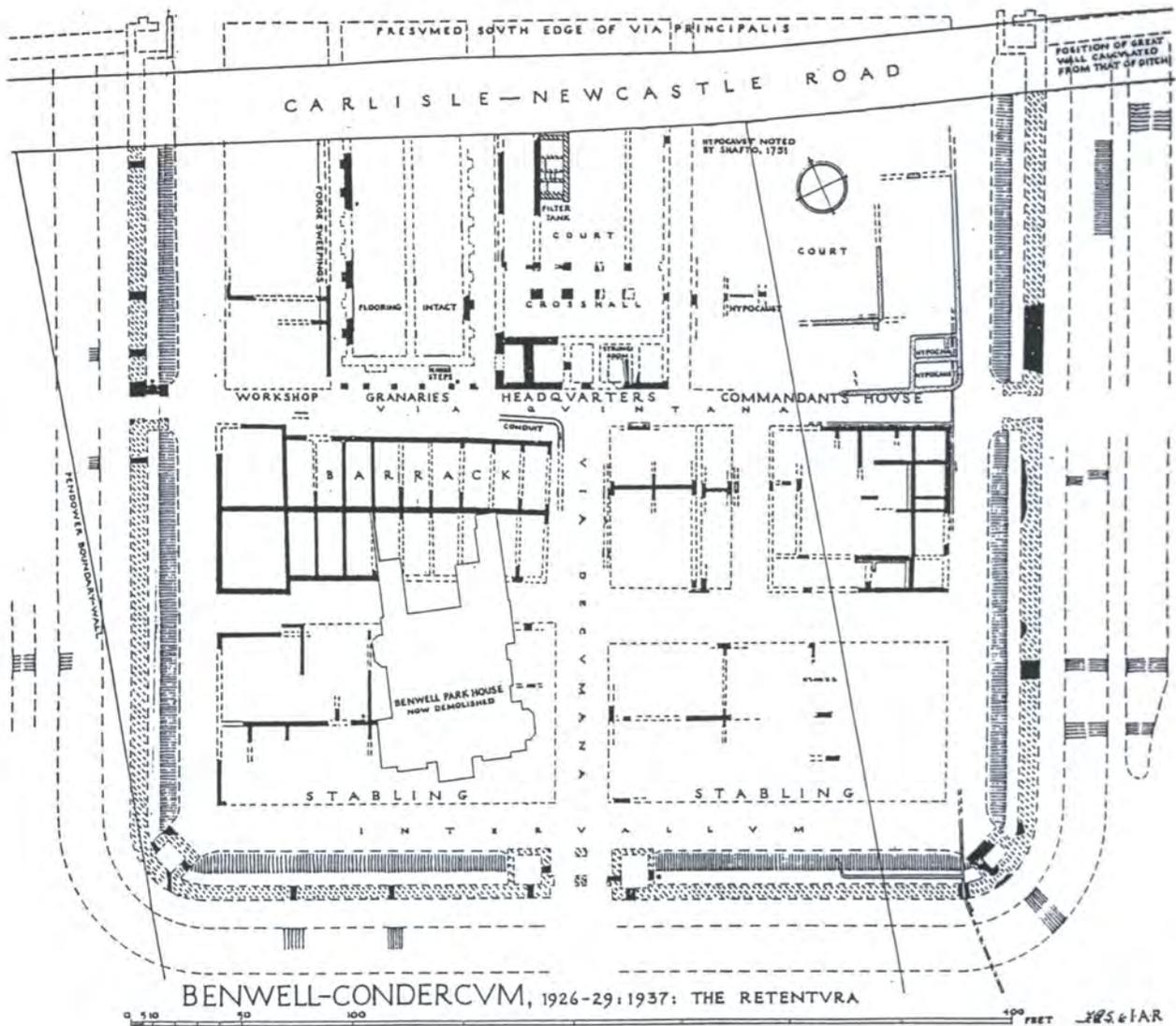


Fig. 4 Plan of the Roman fort at Benwell

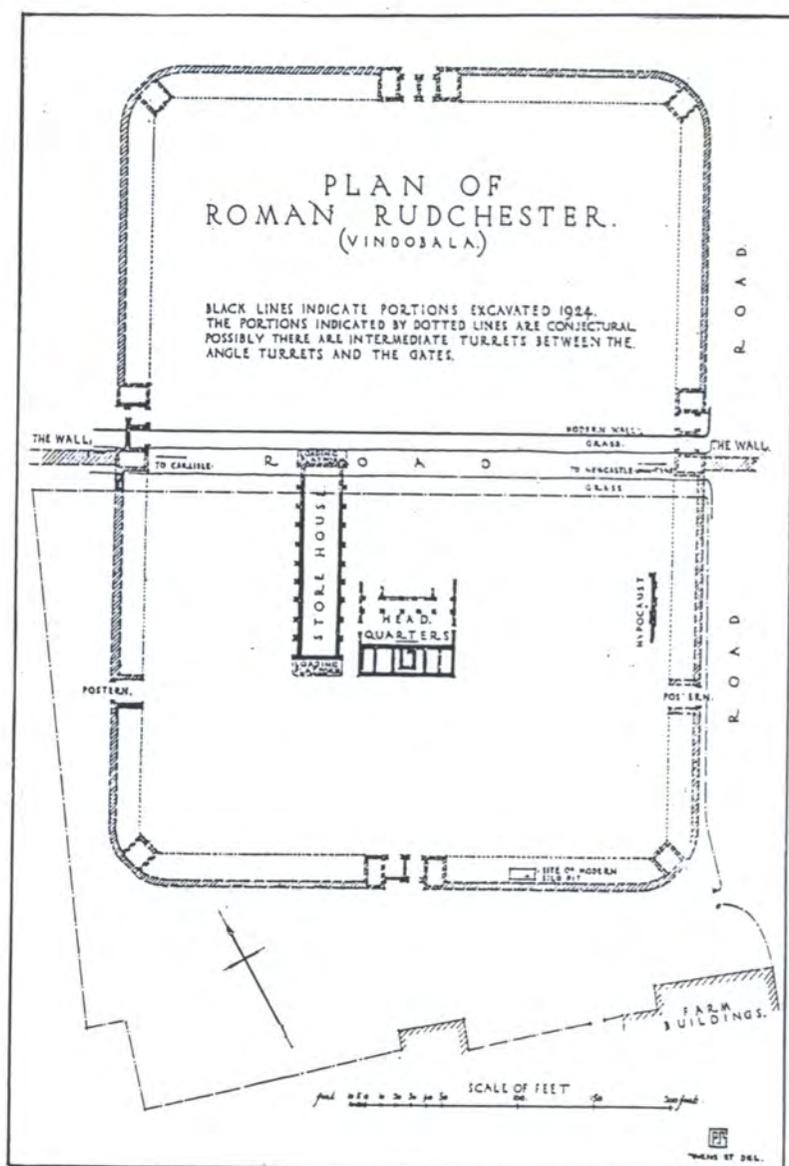


Fig. 5 Plan of the Roman fort at Rudchester

# HALTONCHESTERS 1956 - 1961

- SECOND CENTURY
- THIRD CENTURY
- ▨ LATE FOURTH CENTURY

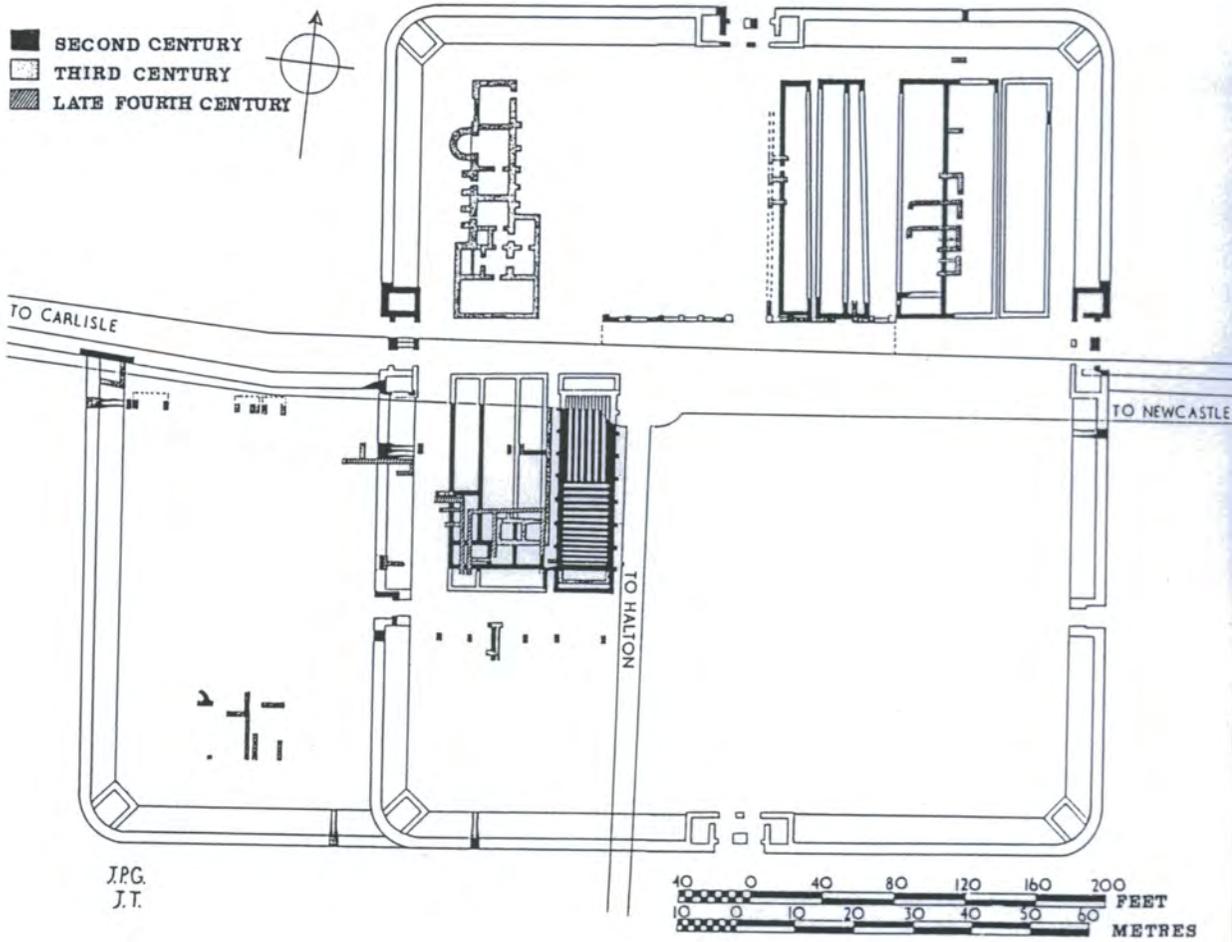


Fig. 6 Plan of the Roman Fort at Halton Chesters

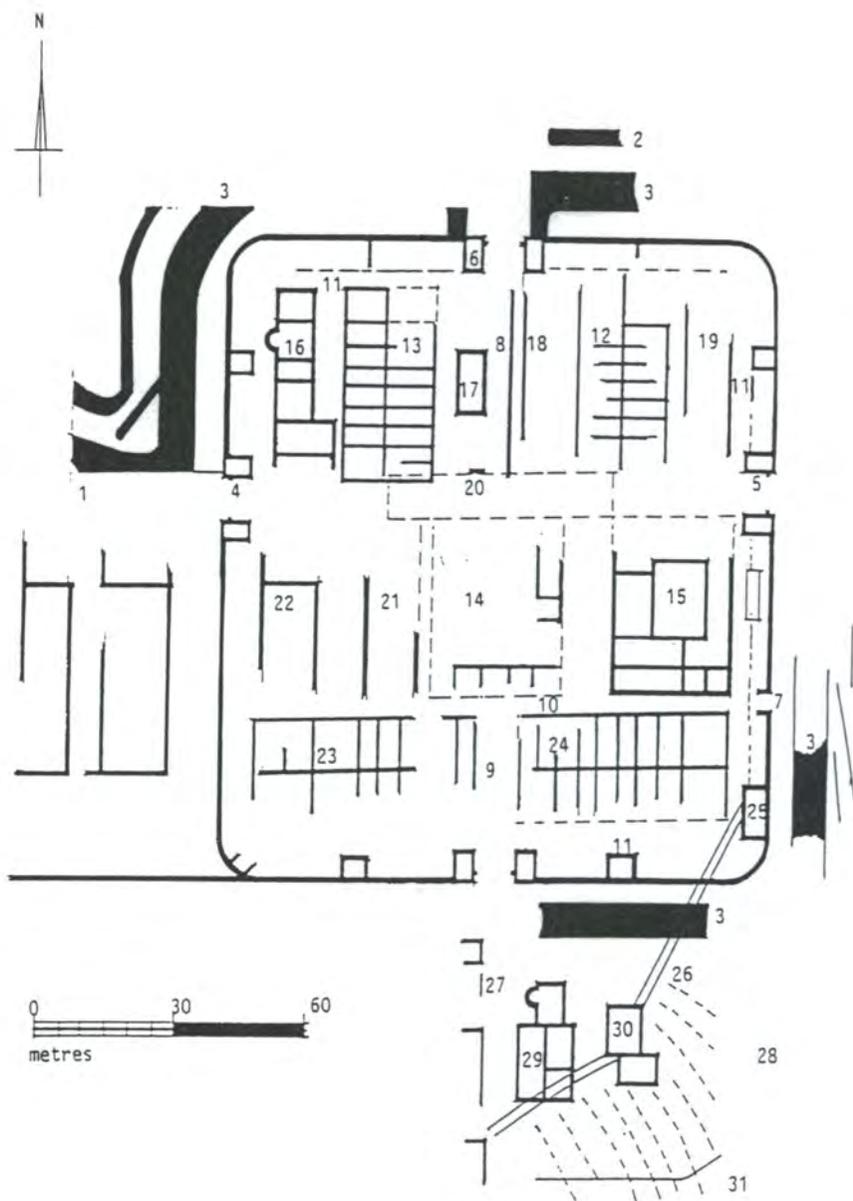
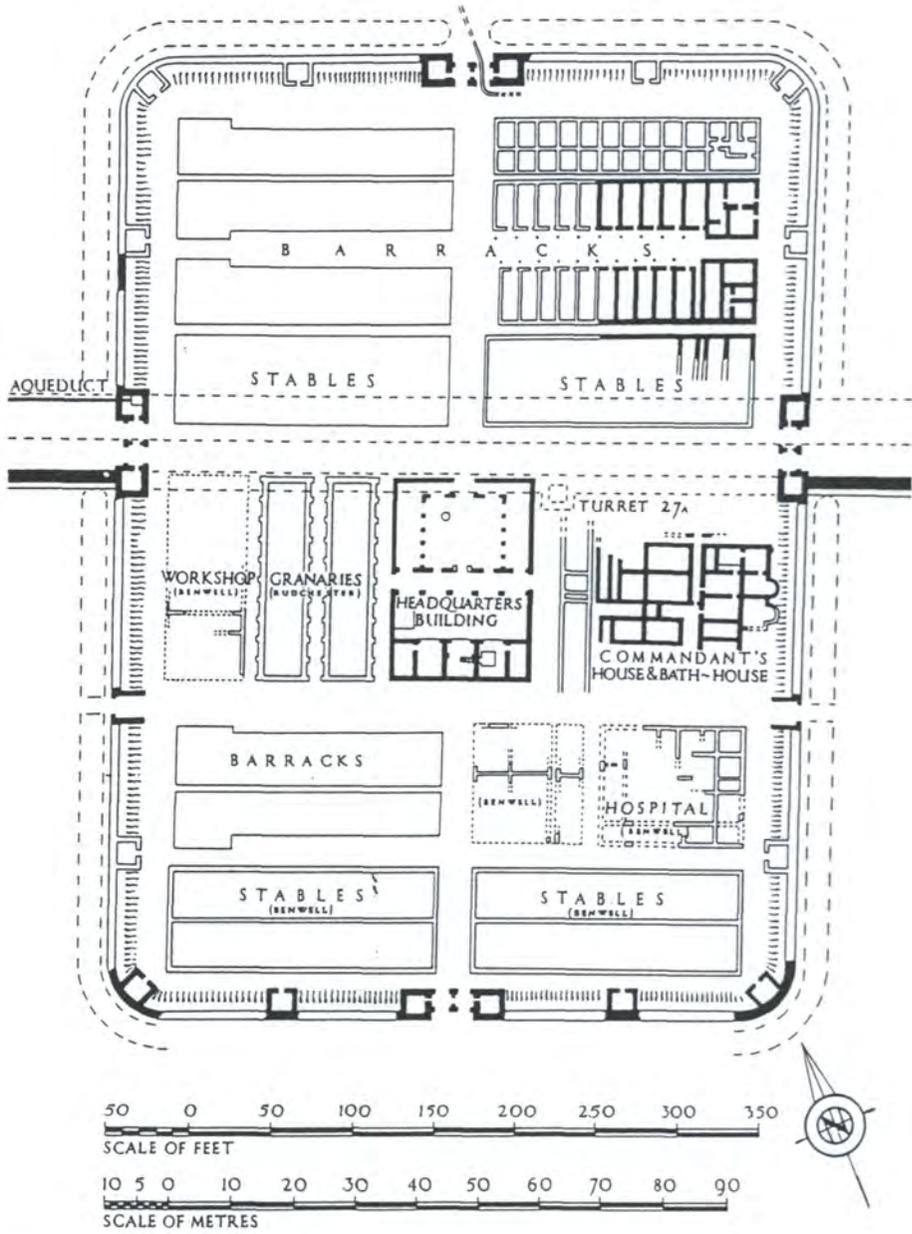


Fig. 7 Plan of the Roman Fort at Halton Chesters - Magnetometry Interpretation

Ground plan of fort



Visible walls are shown in solid black. The names in brackets are those of sister-forts supplying evidence for the outline plans of the buildings so marked.

Fig. 8 Plan of the Roman fort at Chesters

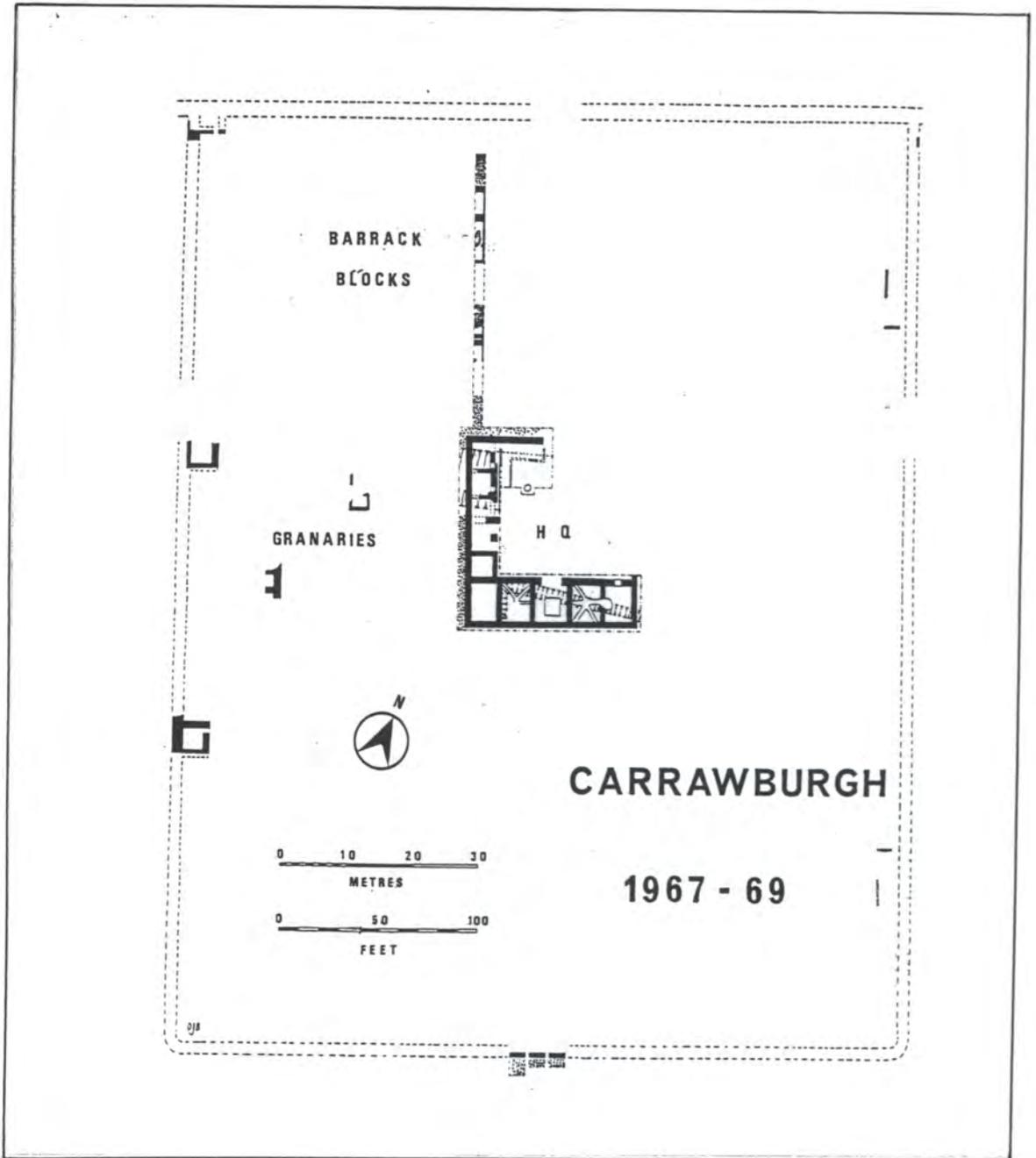


Fig. 9 Plan of the Roman Fort at Carrawburgh

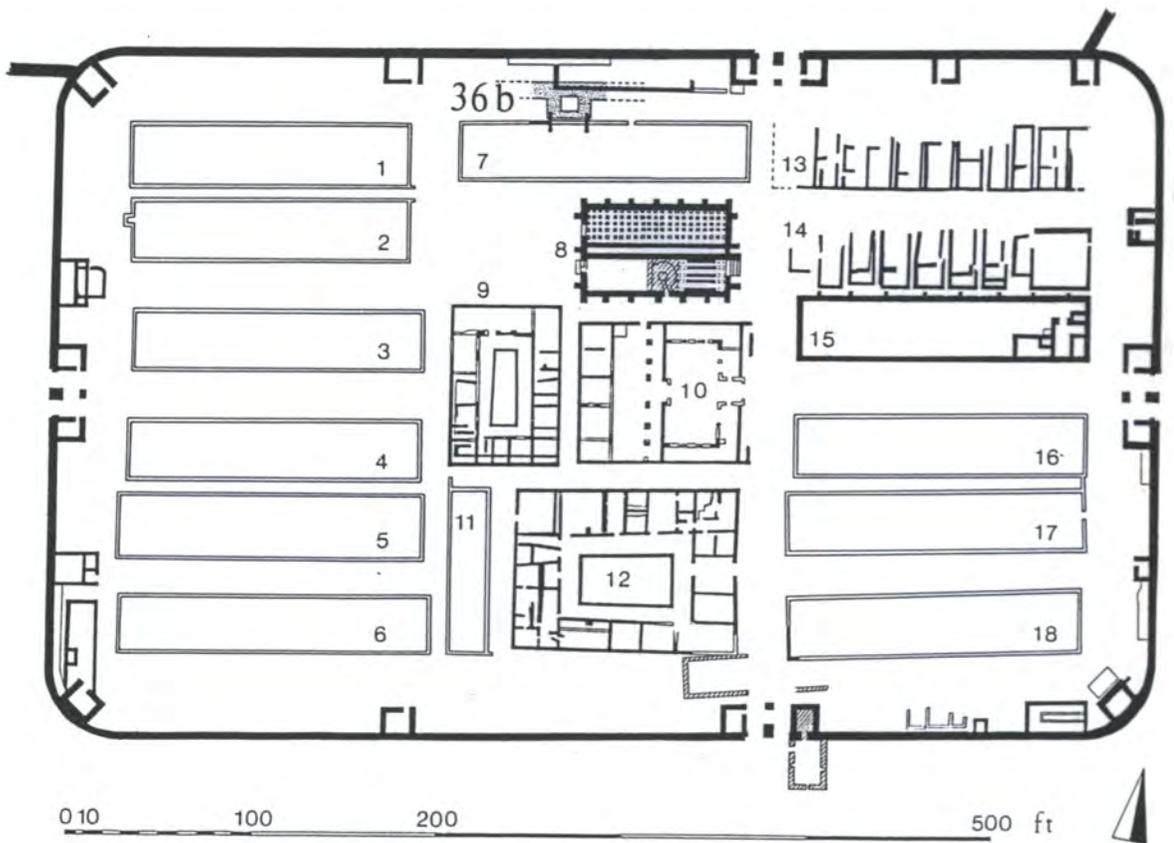


Fig. 10 Plan of the Roman Fort at Housesteads

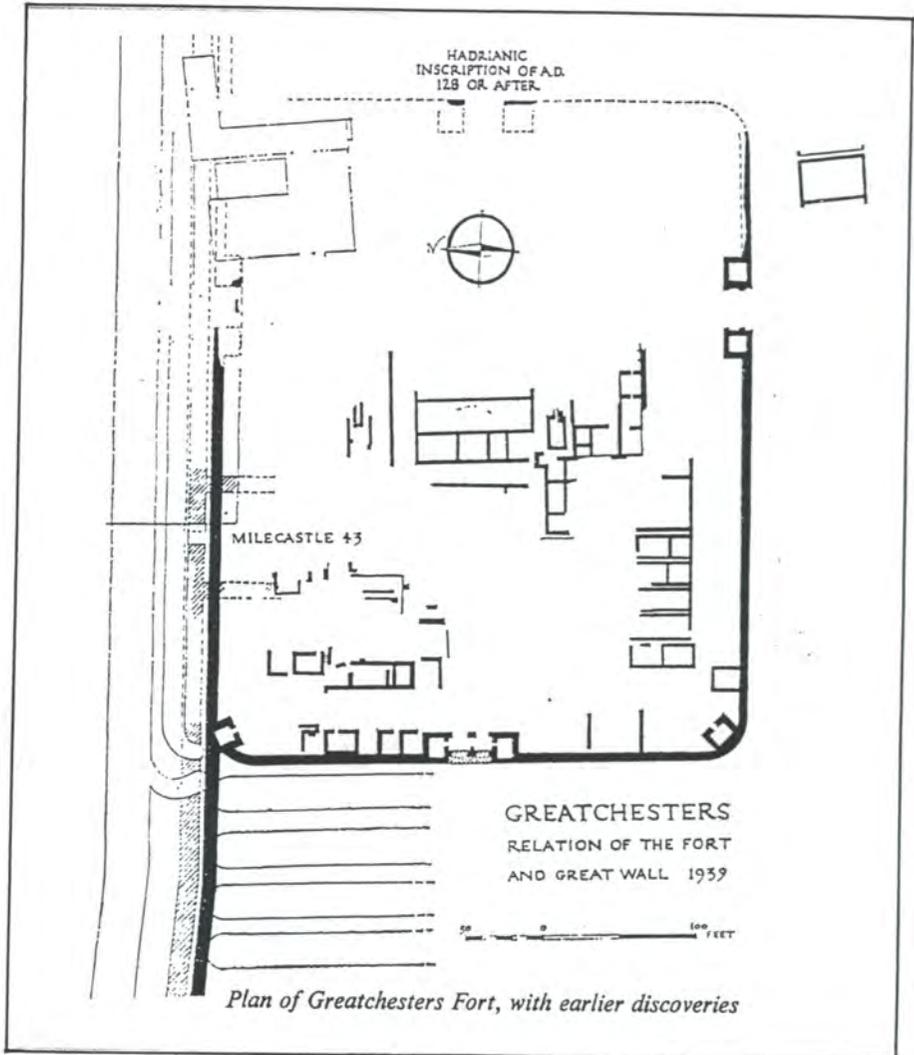


Fig. 11 Plan of the Roman Fort at Great Chesters

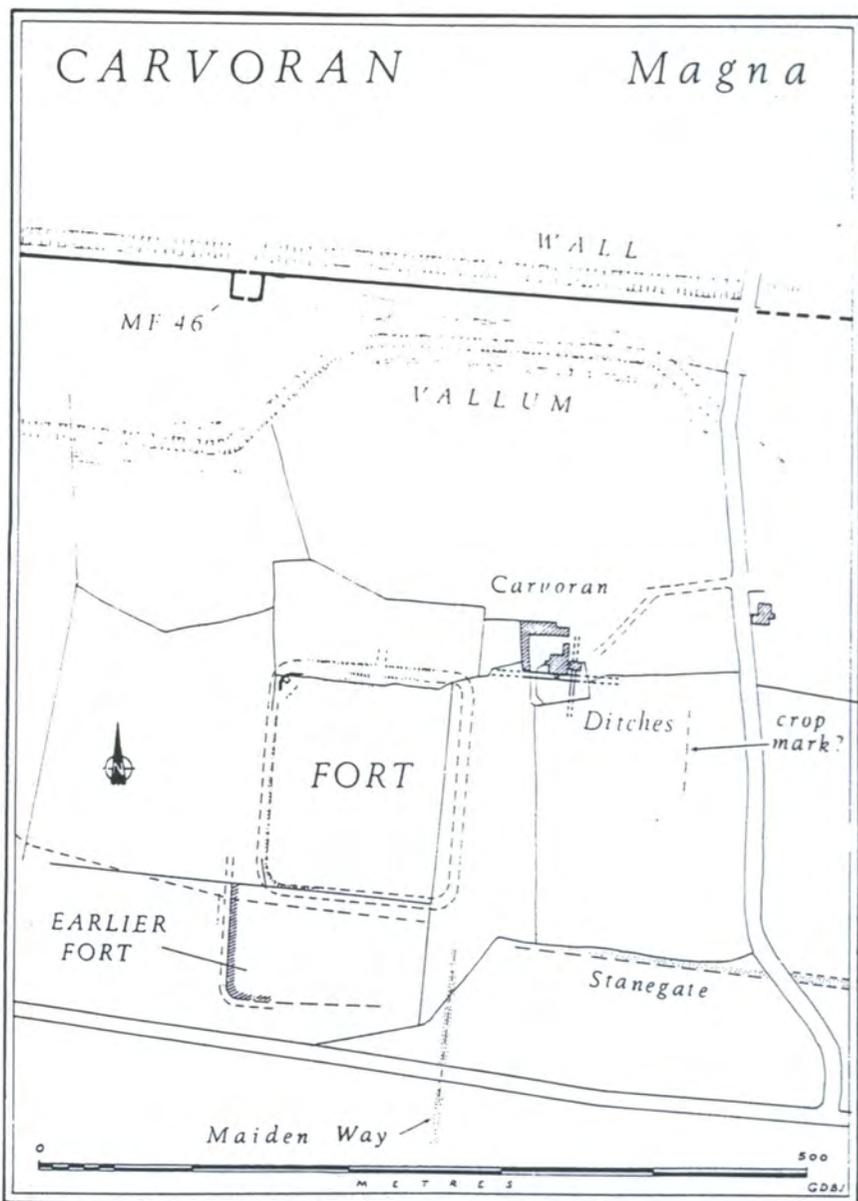


Fig. 12 Plan of the Roman Fort at Carvoran

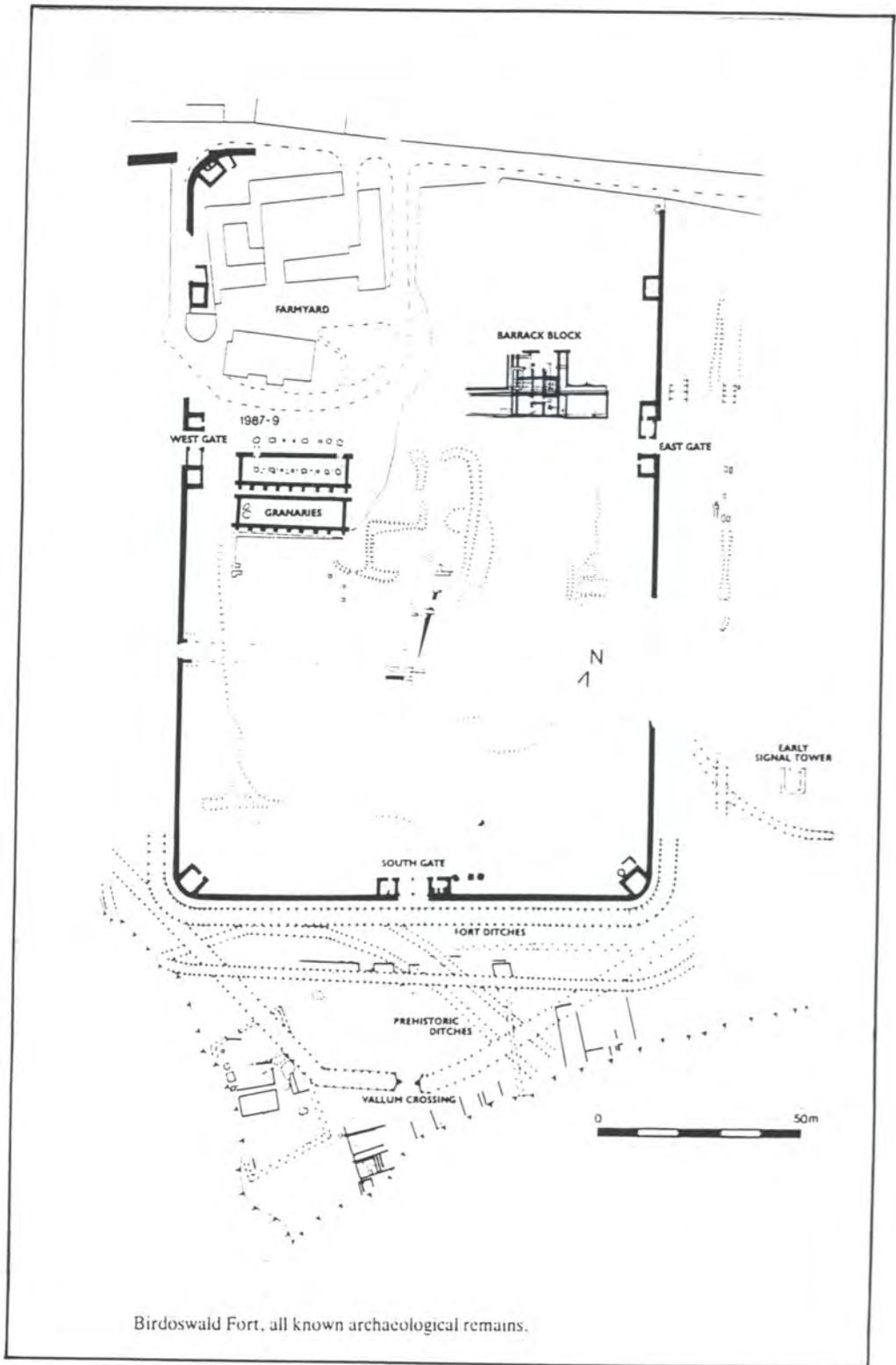


Fig. 13 Plan of the Roman Fort at Birdoswald

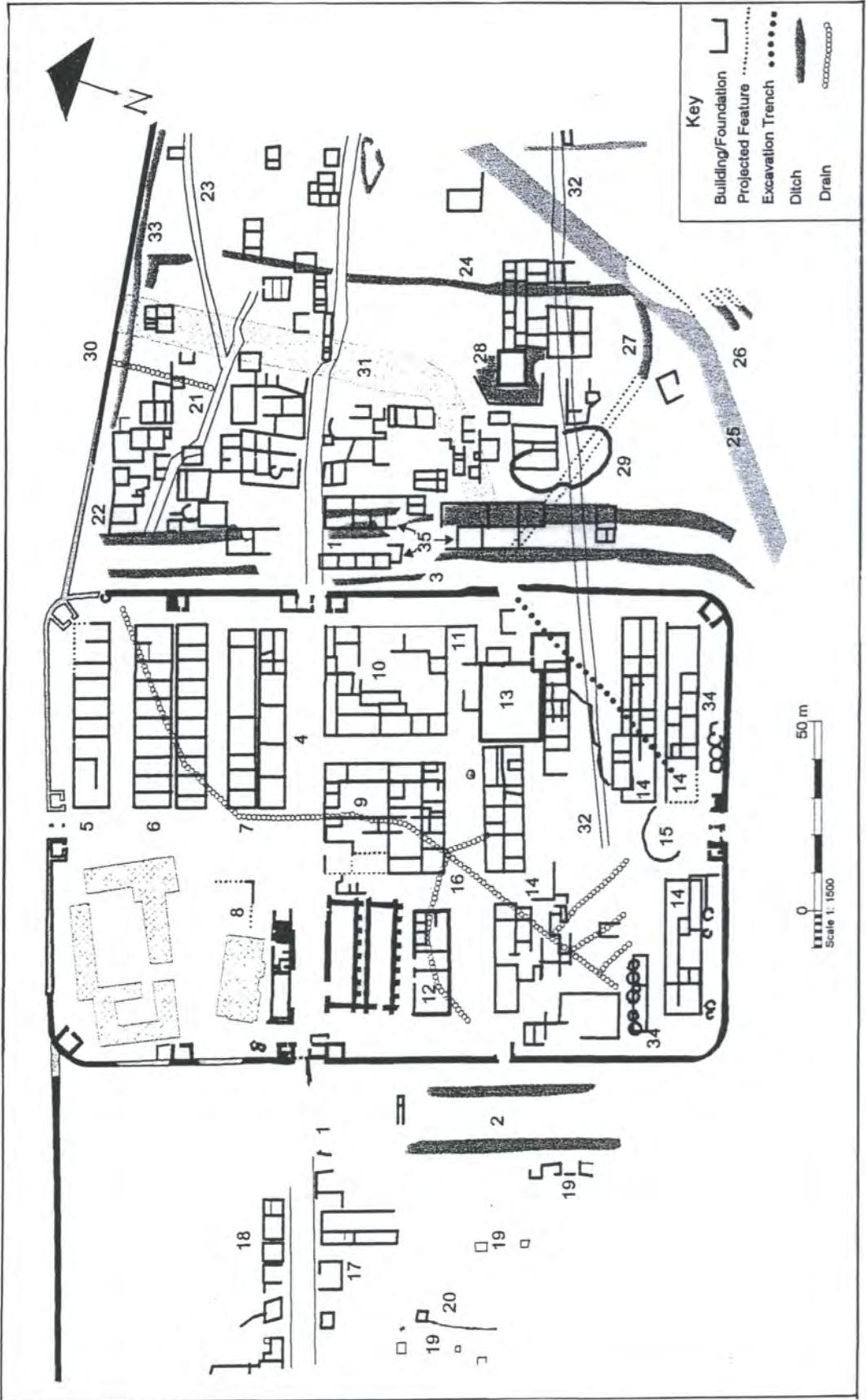


Fig. 14 Plan of the Roman Fort at Birdoswald. Magnetometry interpretation

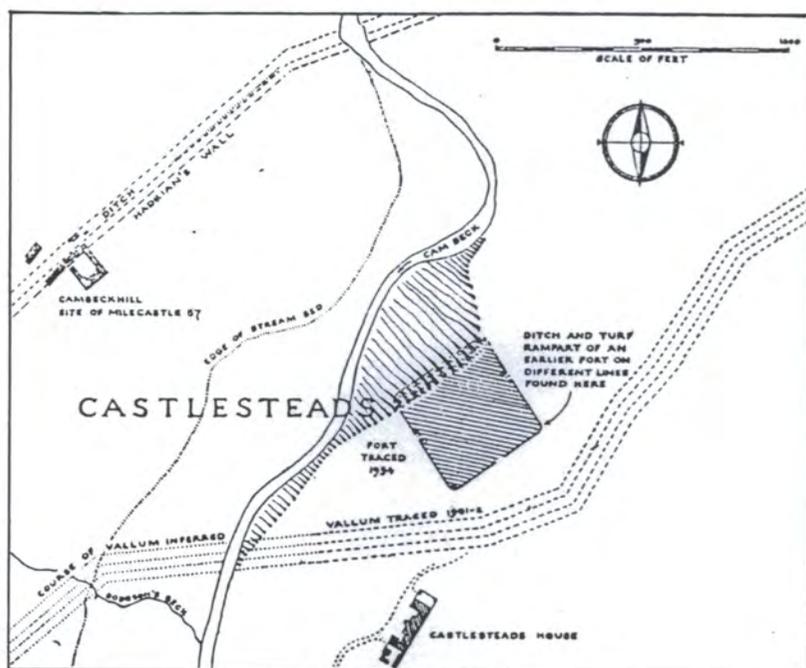
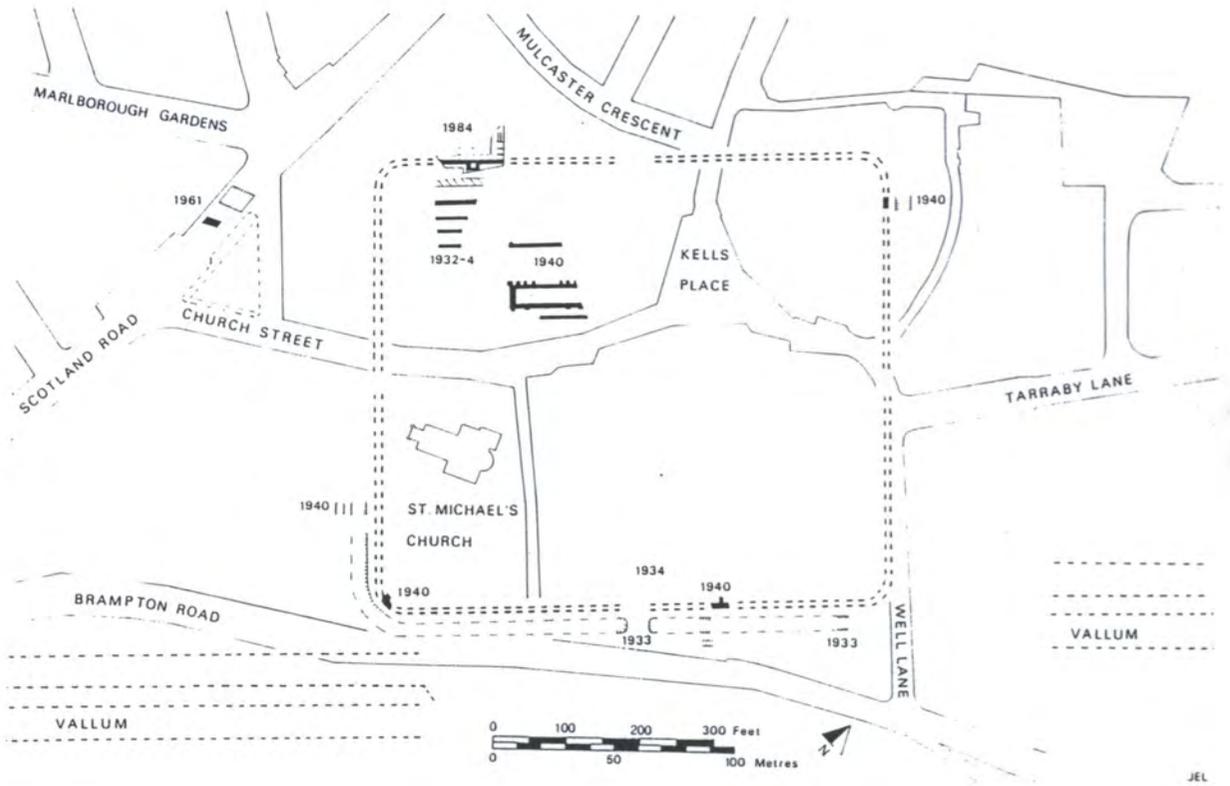


Fig. 15 Plan of the Roman Fort at Castlesteads



JEL

Fig. 16 Plan of the Roman Fort at Stanwix

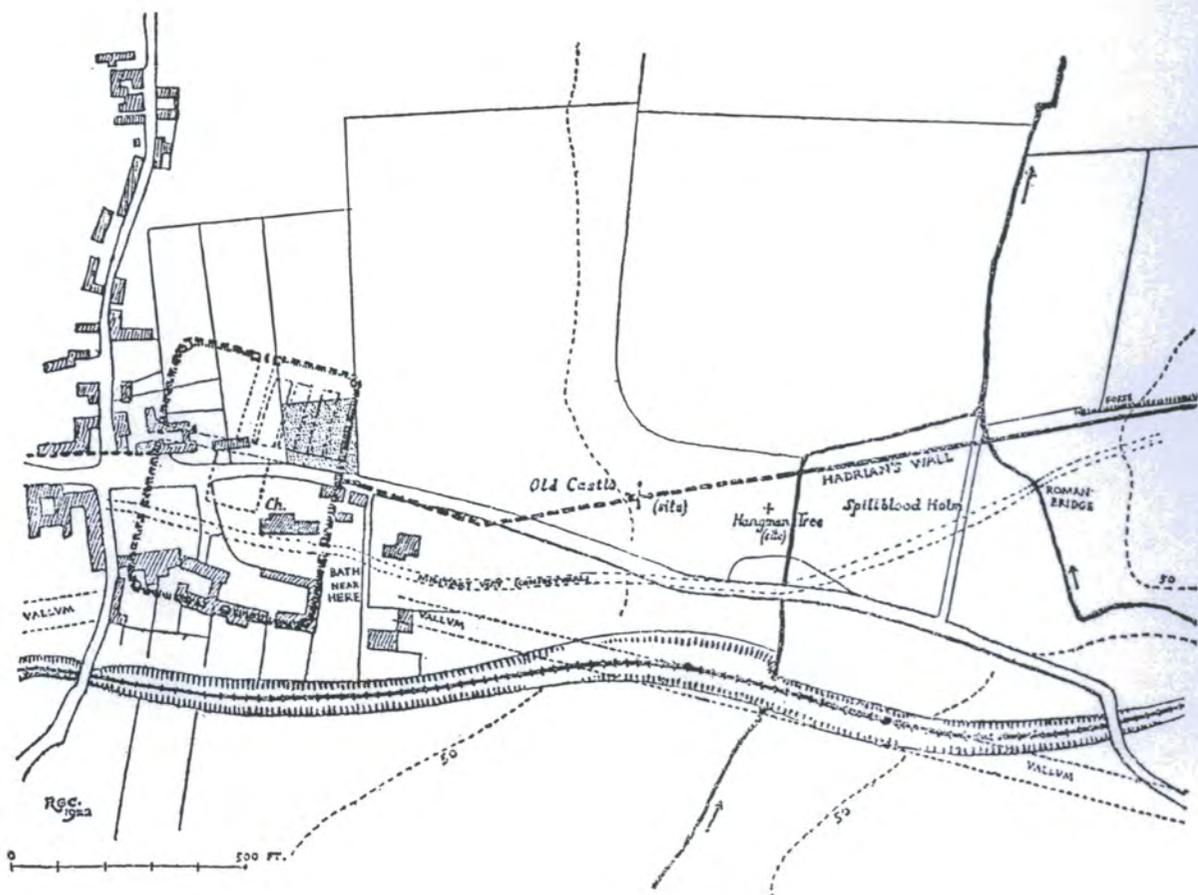


Fig. 17 Plan of the Roman Fort at Burgh-by-Sands

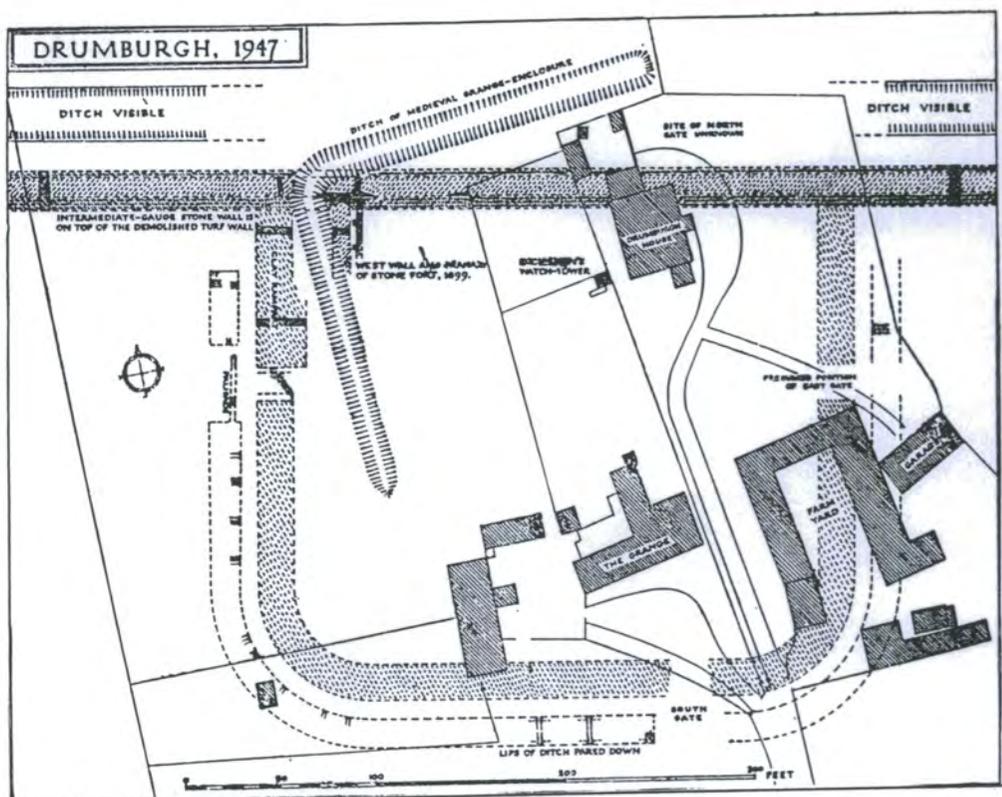


Fig. 18 Plan of the Roman Fort at Drumburgh

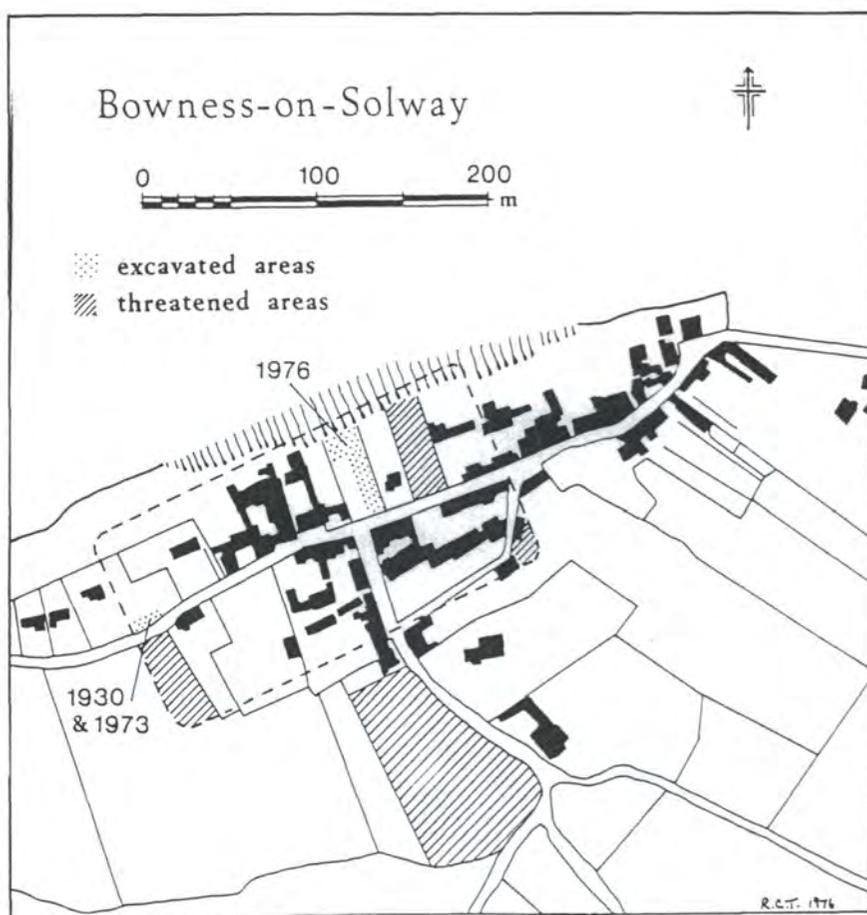


Fig. 19 Plan of the Roman Fort at Bowness-on-Solway

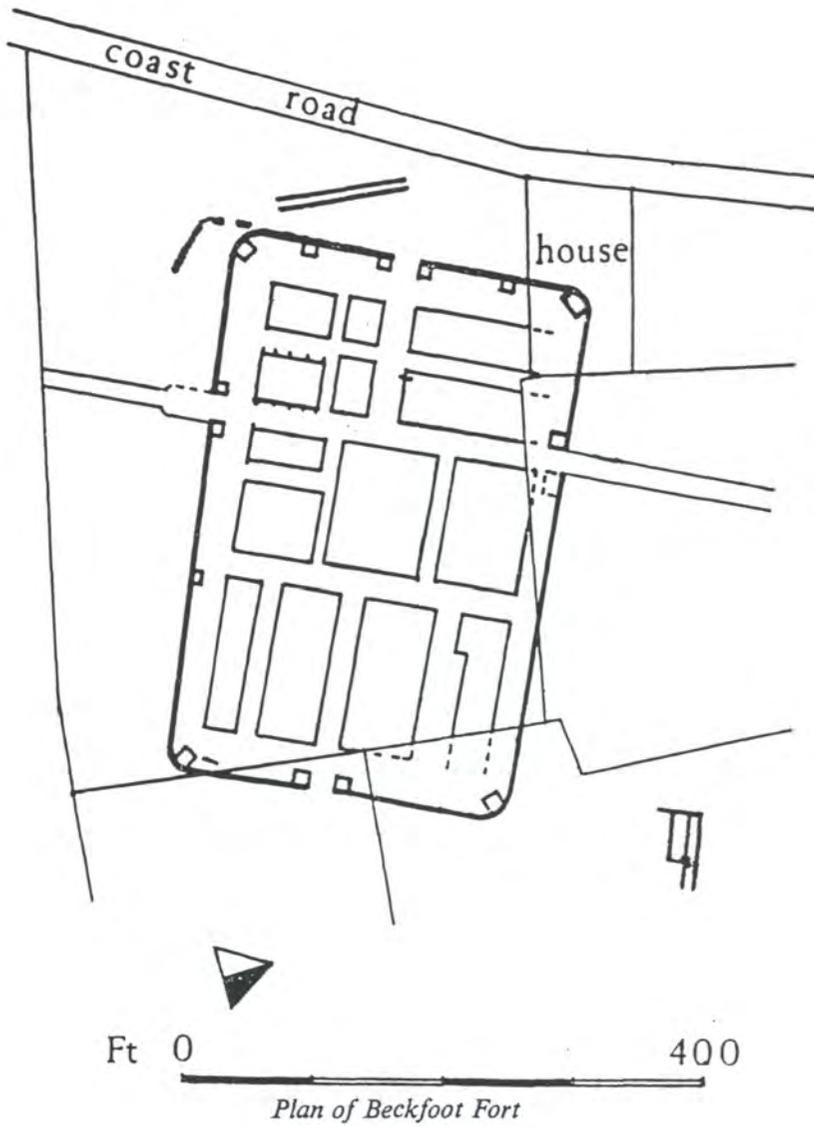


Fig. 20 Plan of the Roman Fort at Beckfoot

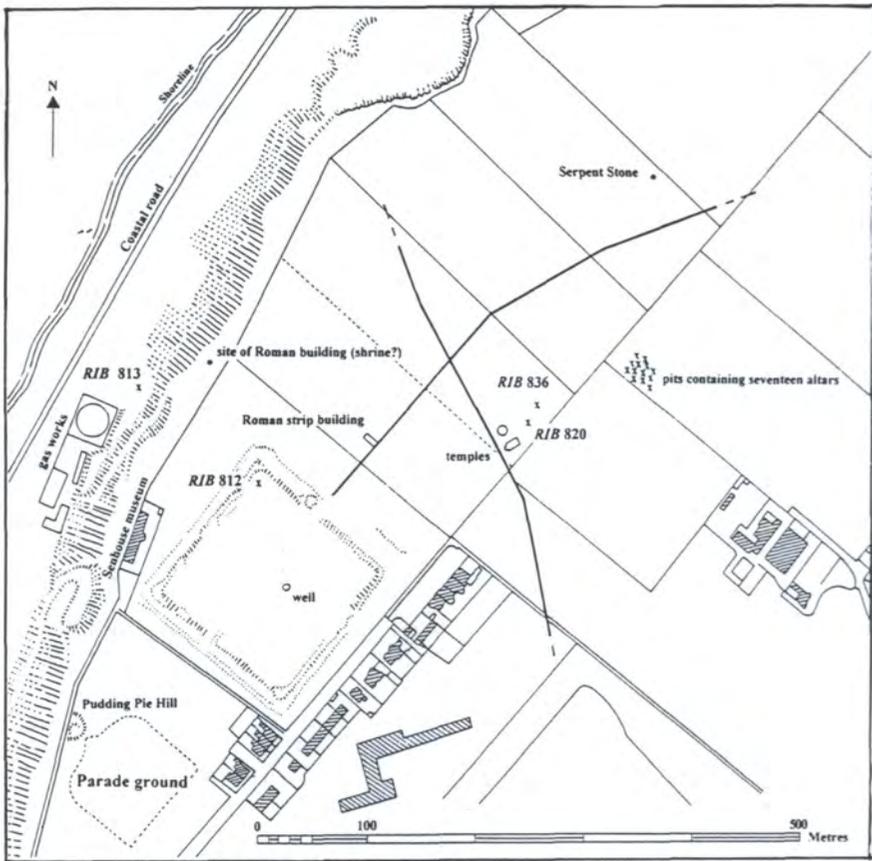


Fig. 21 Plan of the Roman Fort at Maryport

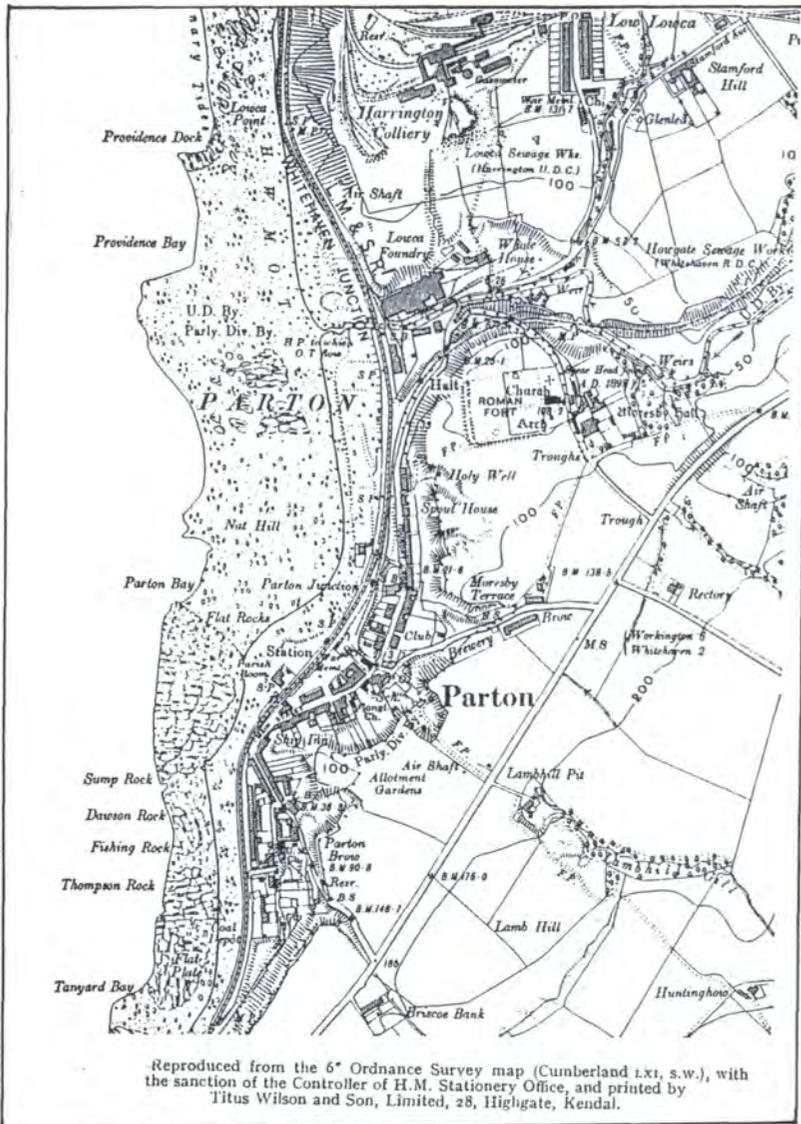
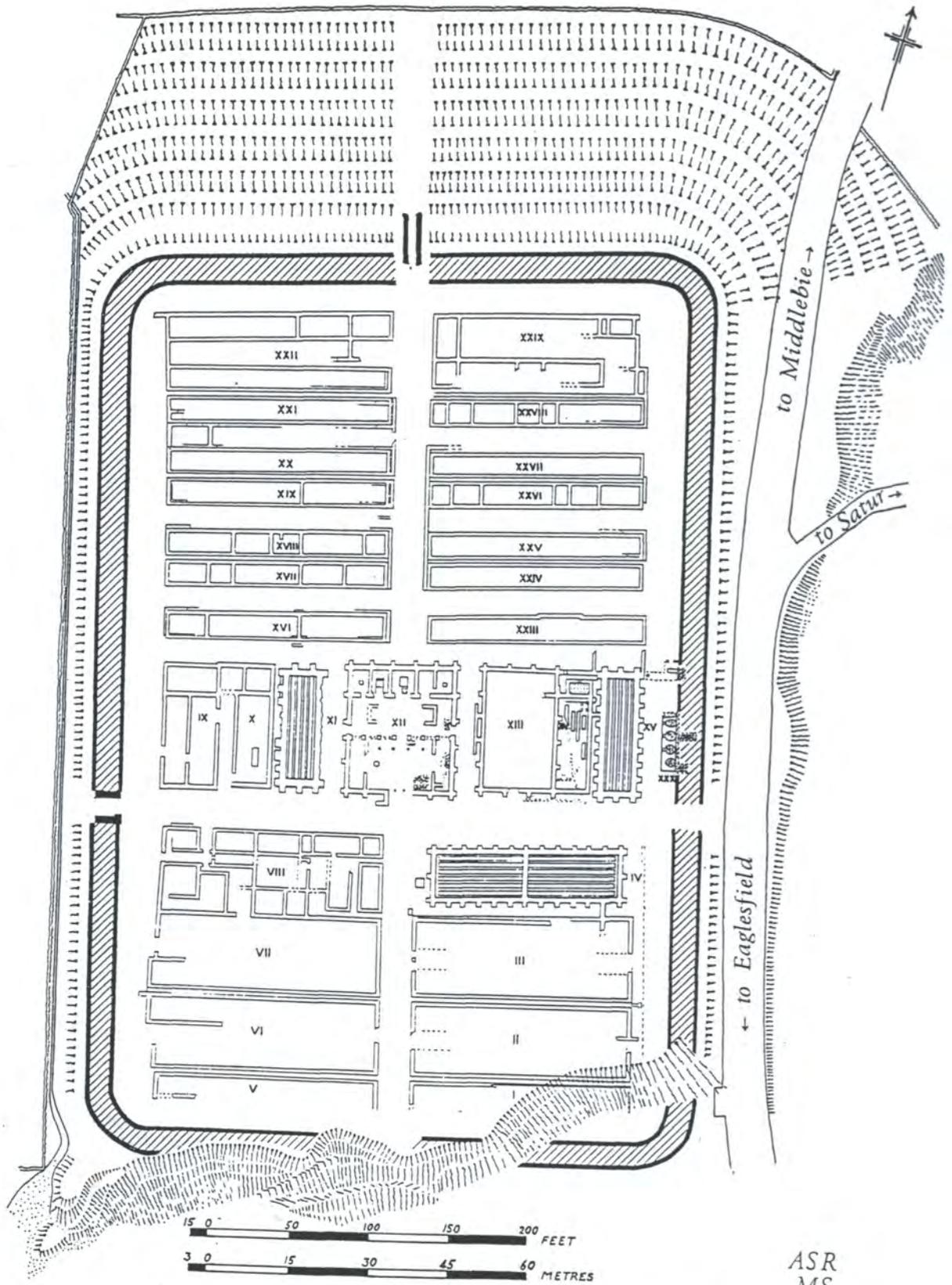


Fig. 22 Plan of the Roman Fort at Moresby



-Plan of Fort at Birrens. Based on 1895 Plan, with line of rampart added from 1962-67 excavations.

ASR  
MS

Fig. 23 Plan of the Roman Fort at Birrens

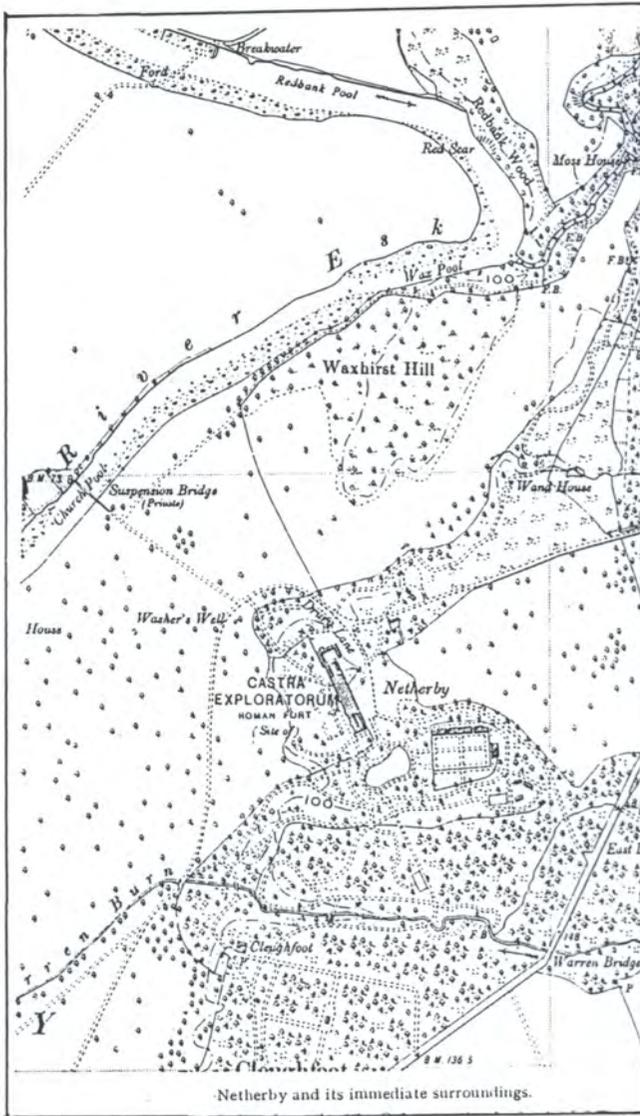


Fig. 24 Plan of the Roman Fort at Netherby

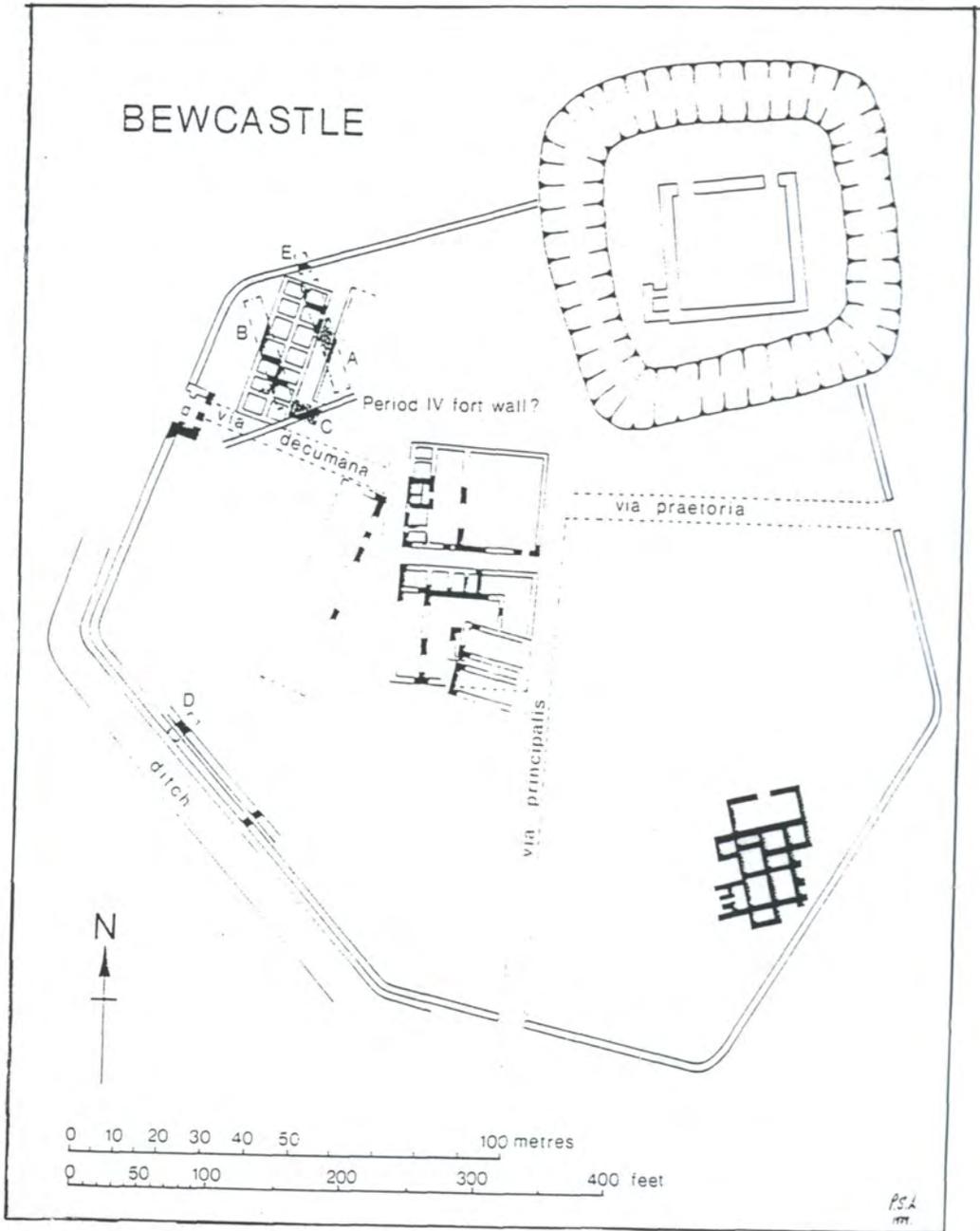
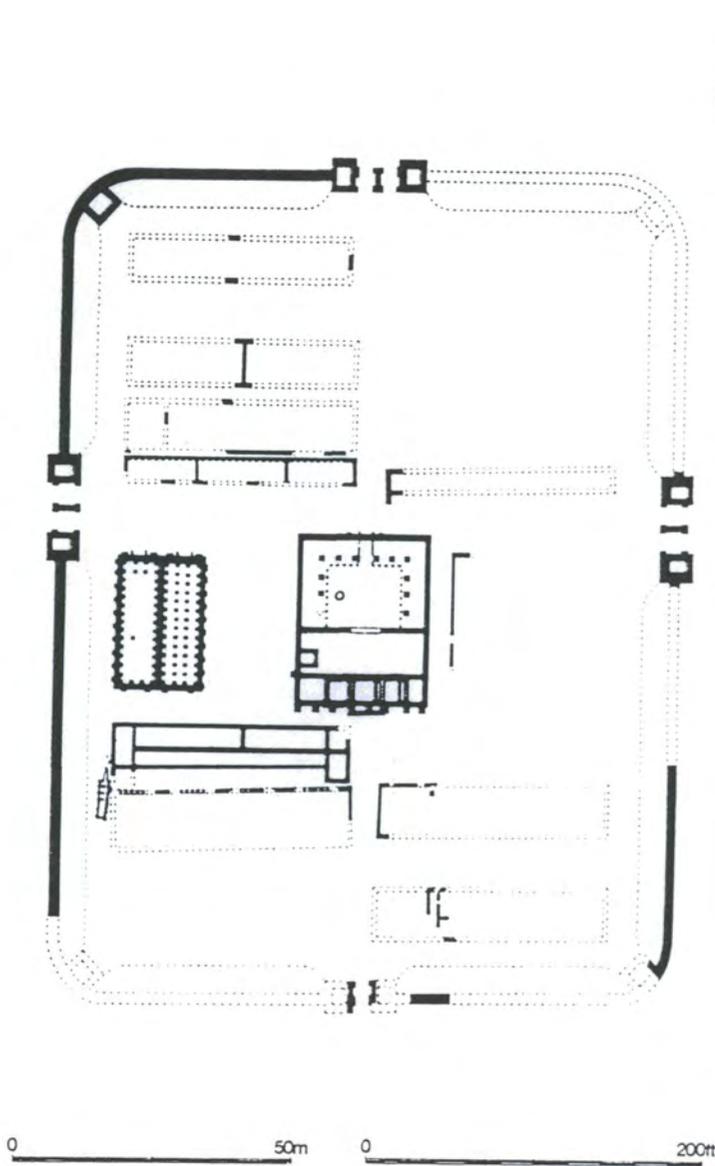


Fig. 25 Plan of the Roman Fort at Bewcastle



South Shields, the Antonine date fort.

Fig. 26 Plan of the Roman Fort at South Shields

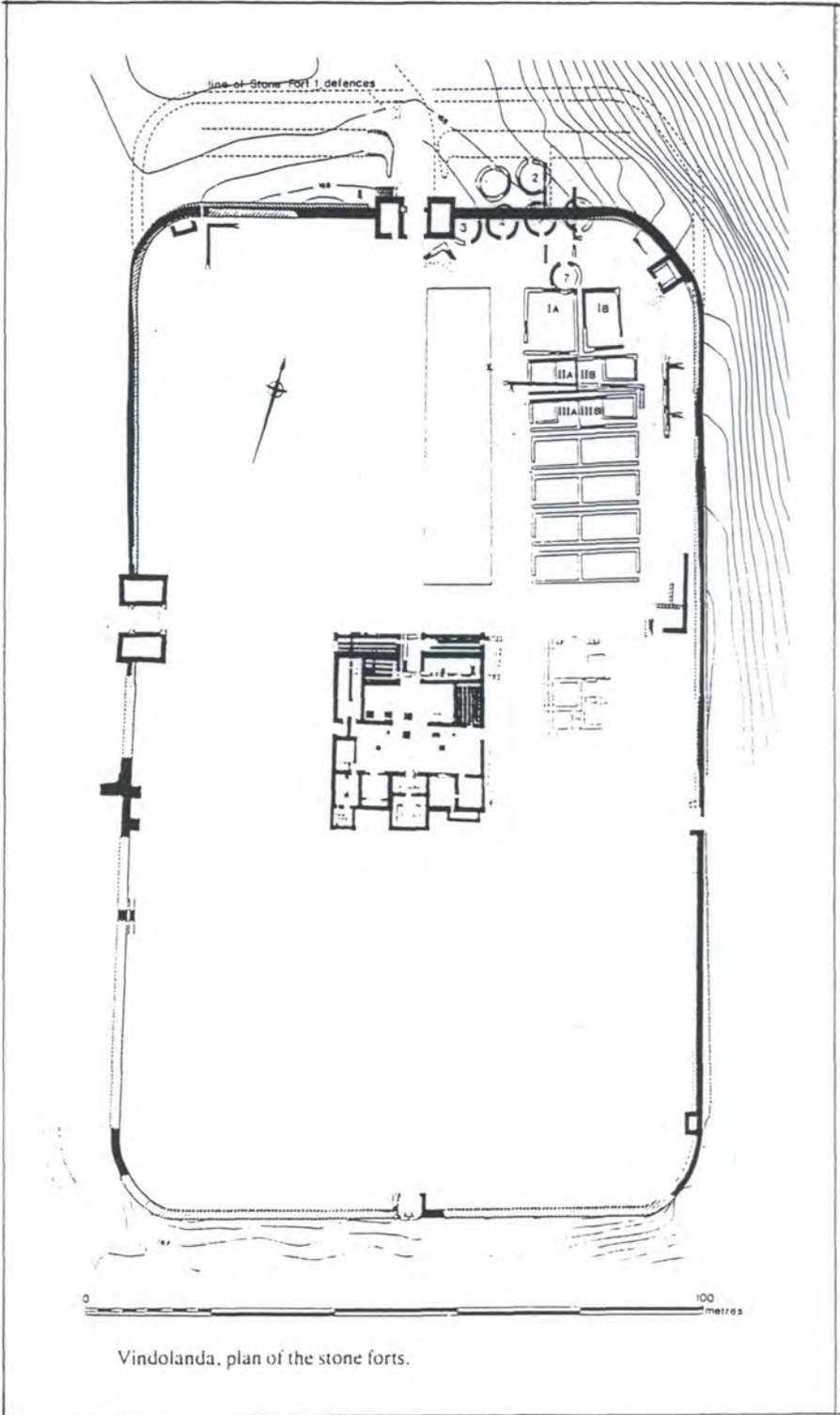


Fig. 27 Plan of the Roman Fort at Chesterholm

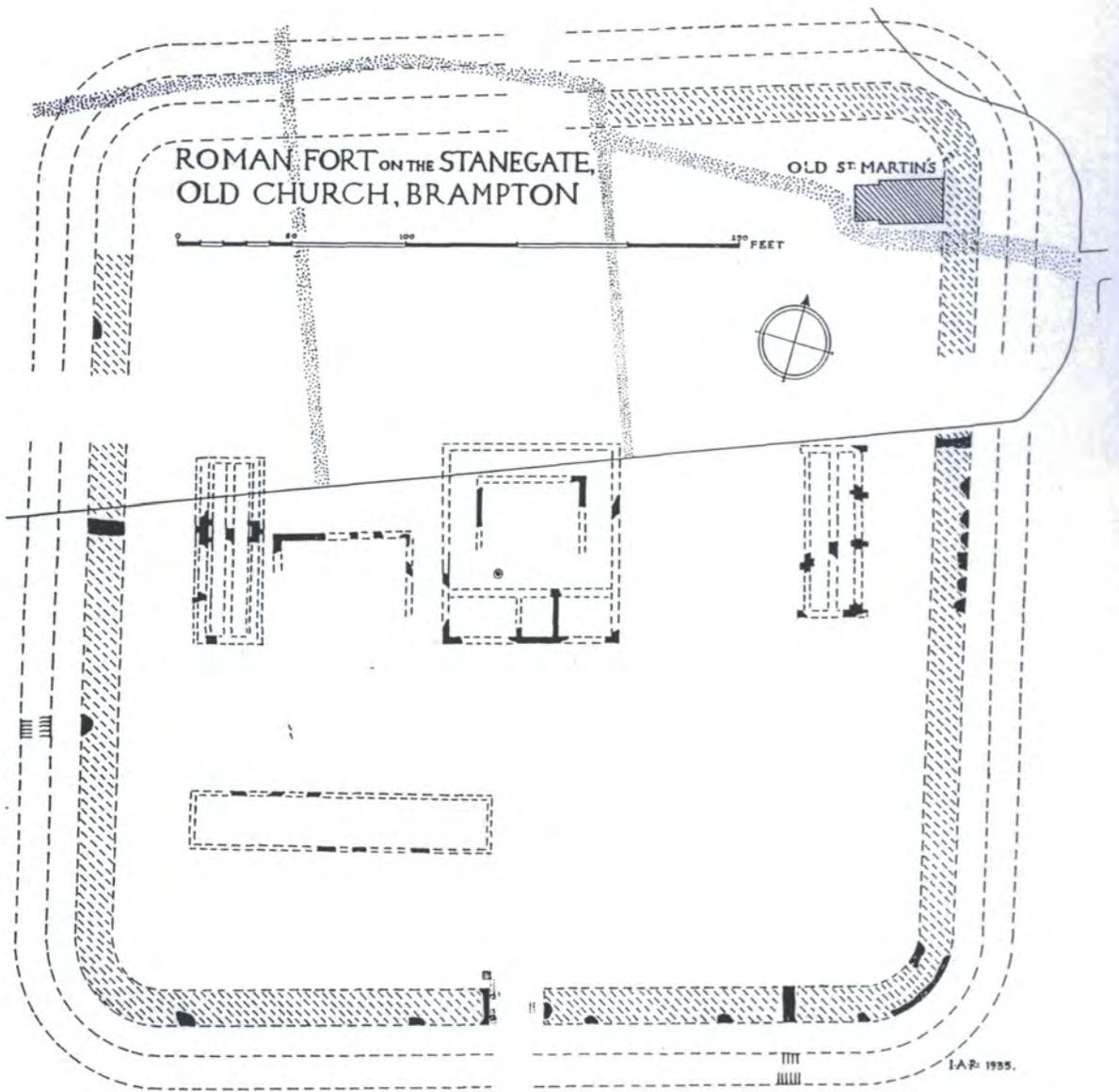
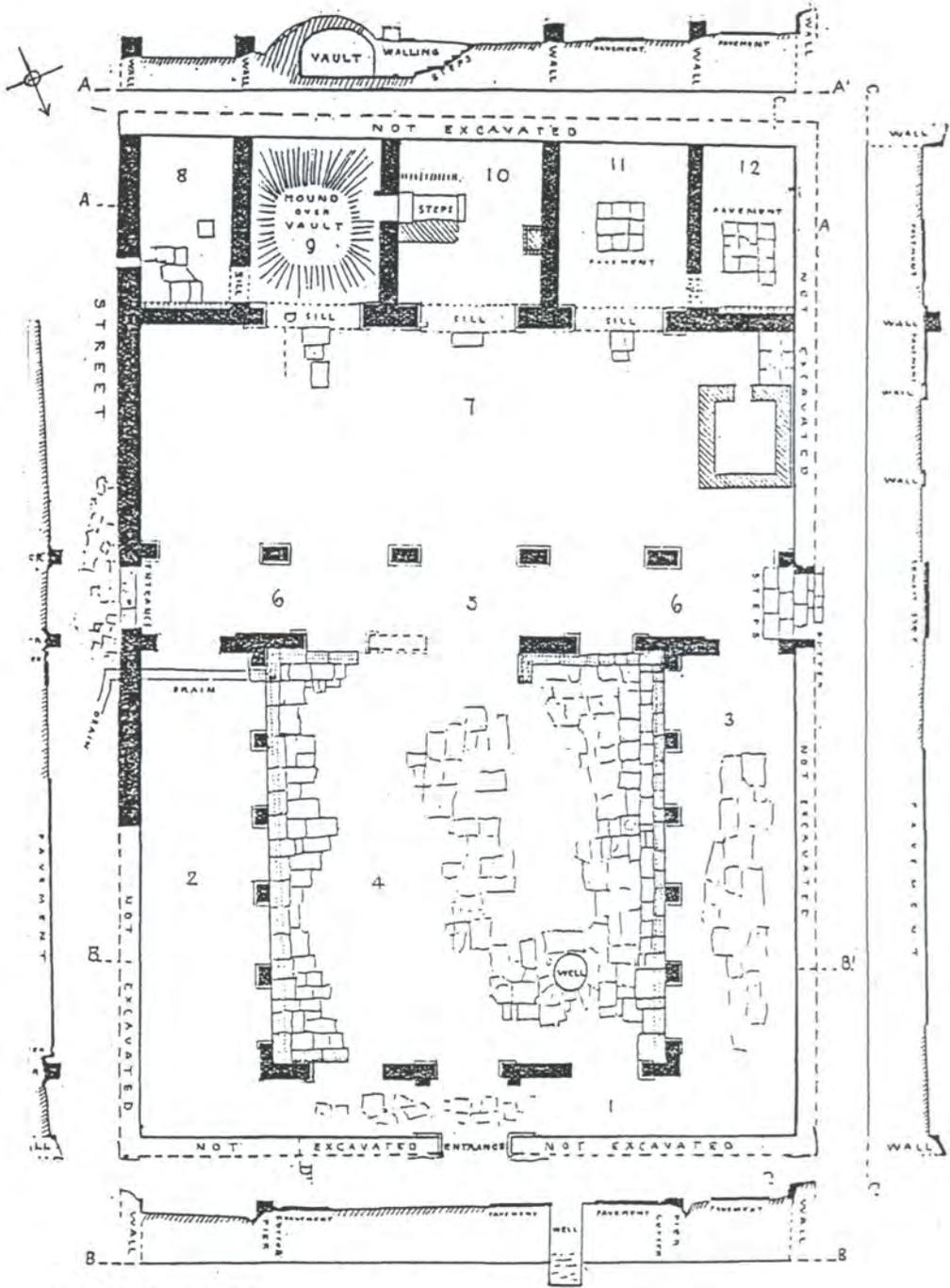


Fig. 28 Plan of the Roman Fort at Old Church, Brampton



THE PRÆTORIUM. AT CHESTERS [CILVRNVM]

T. H. HOODSON AND E. HOODSON 1949

Fig. 29 Plan of the *principia*, Chesters

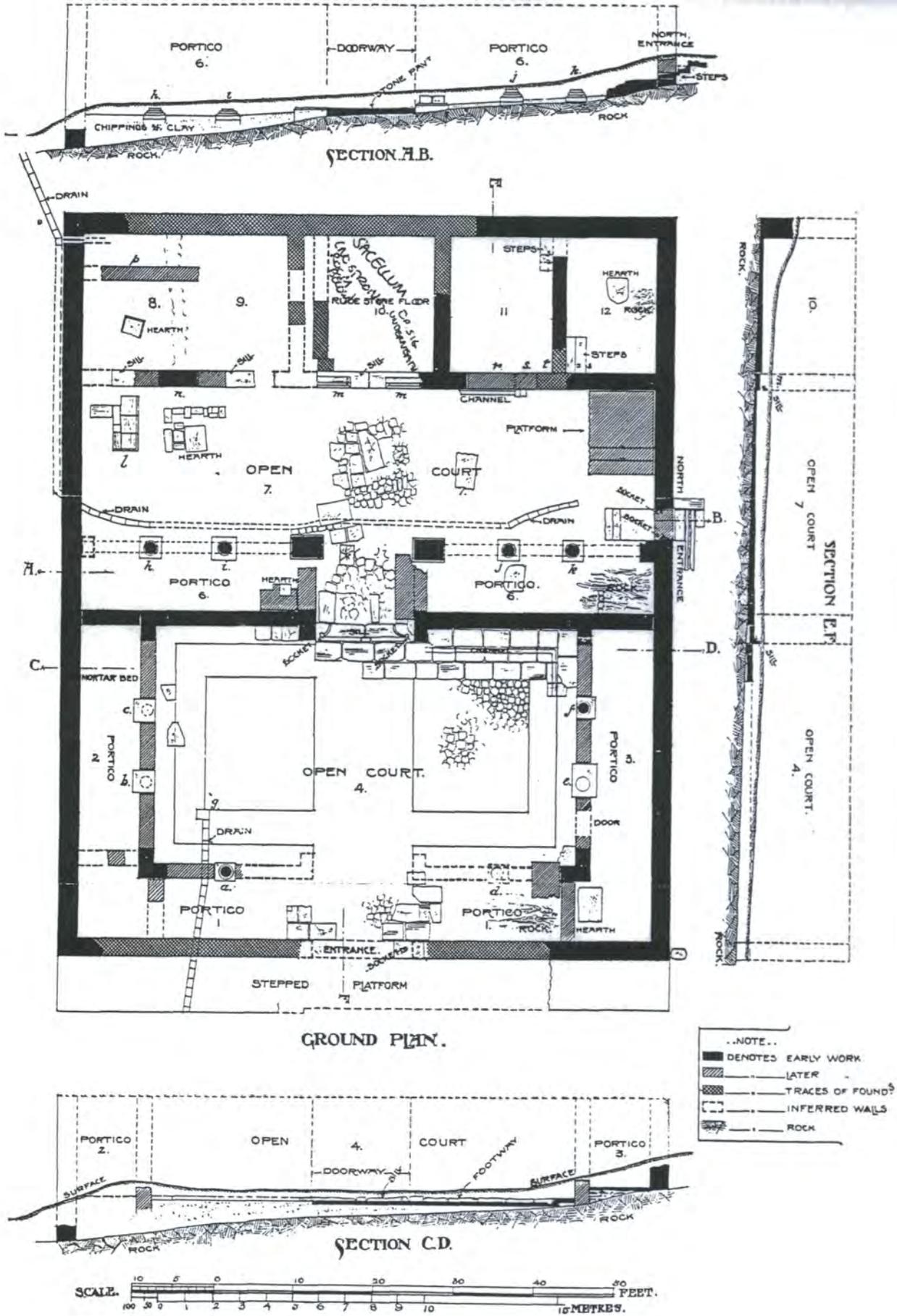
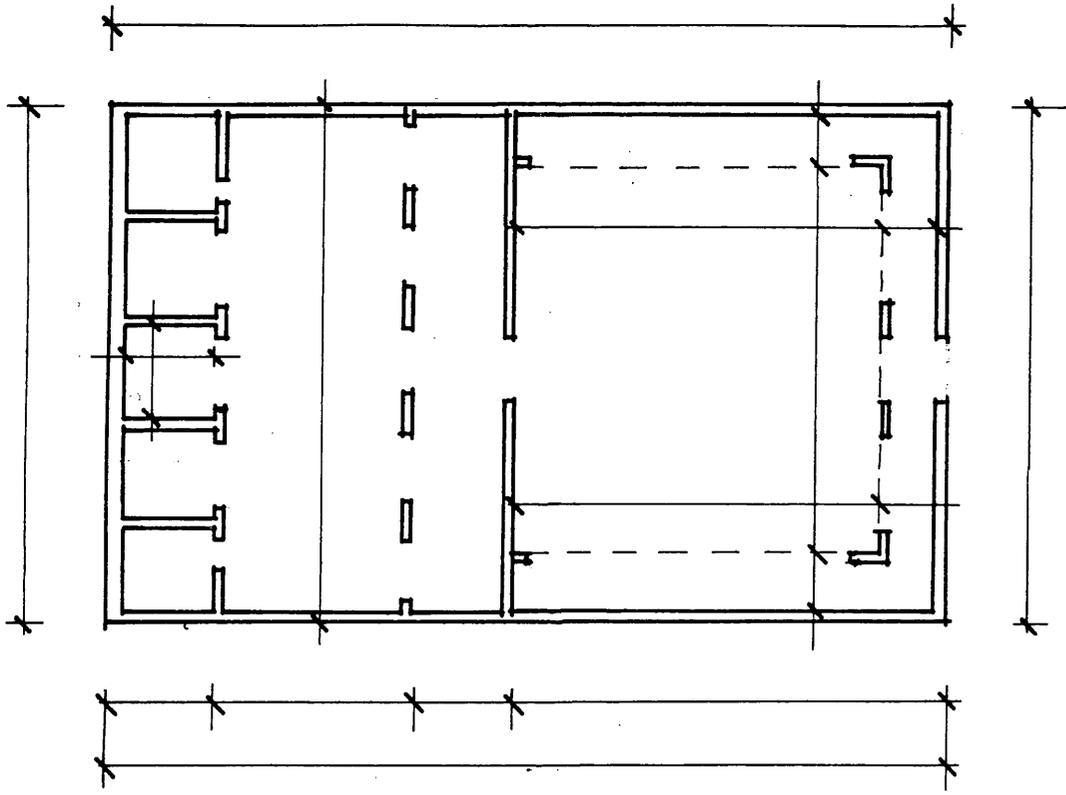
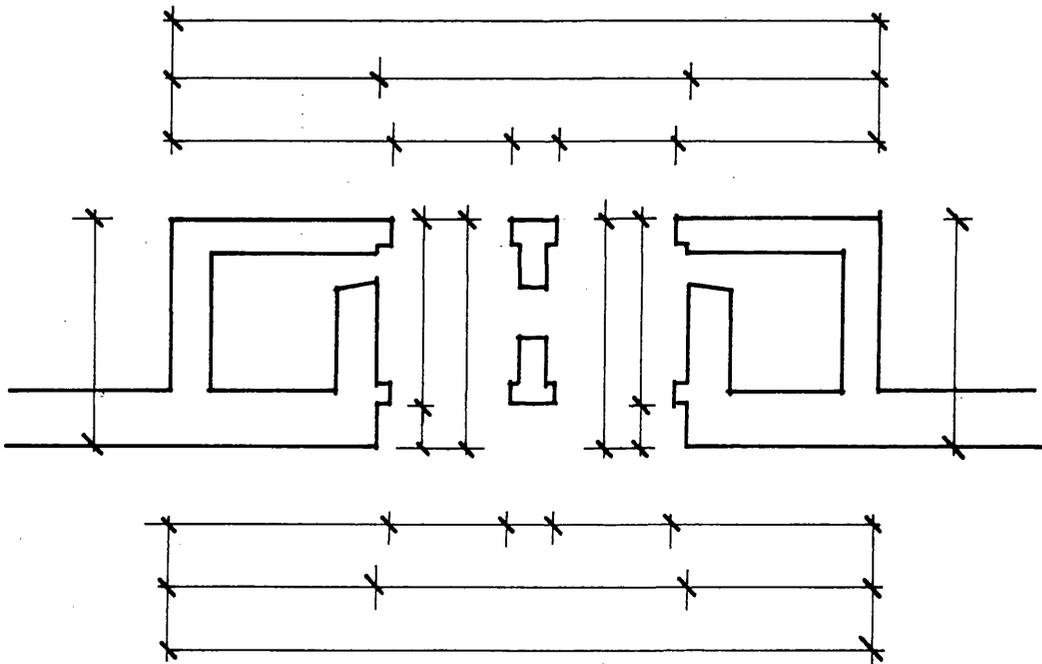


Fig. 30 Plan of the *principia*, Housesteads

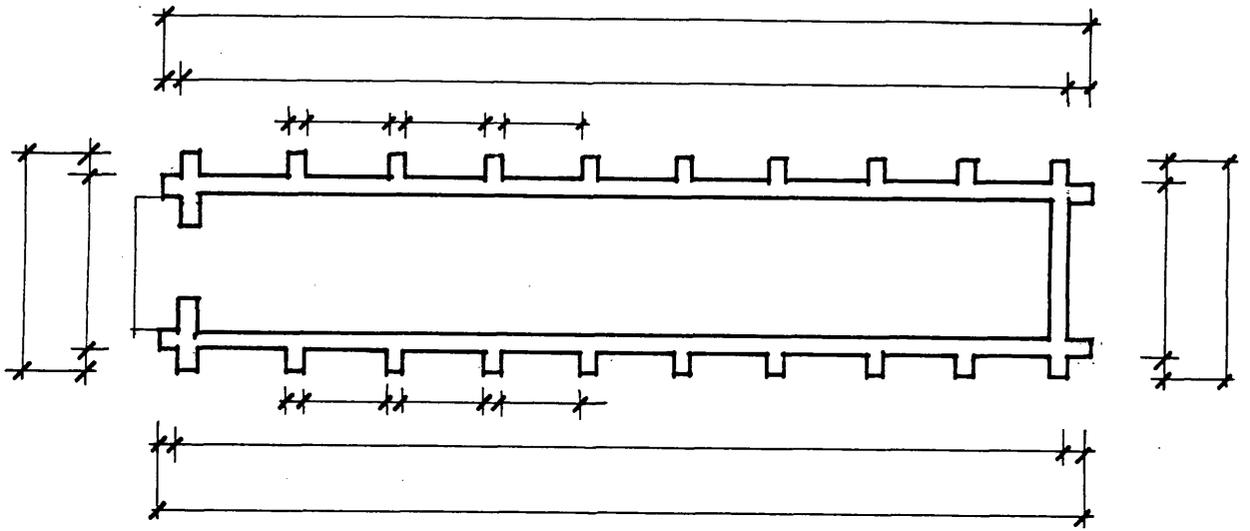


A principia

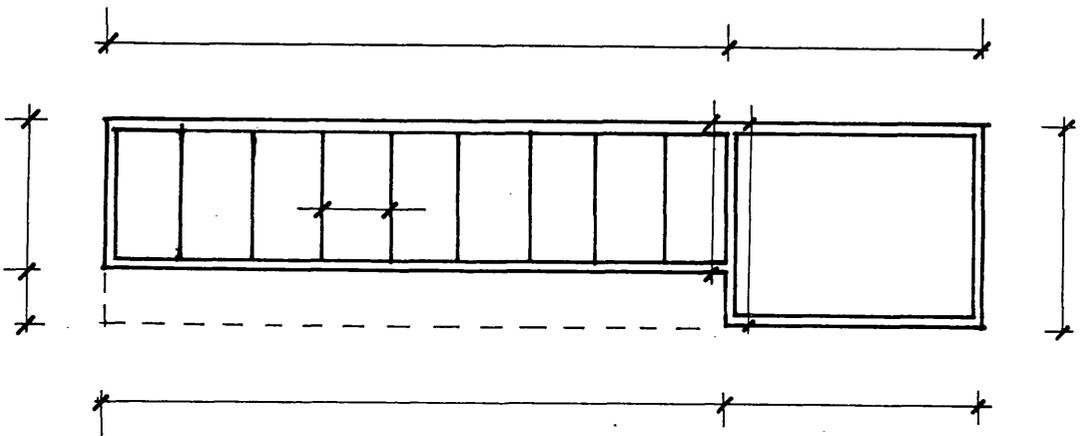


A gate

Fig. 31 Diagrammatic floor plans showing position of tabulated dimensions, *principia* and gates



A granary



A barrack

Fig. 32 Diagrammatic floor plans showing position of tabulated dimensions, granaries and barracks

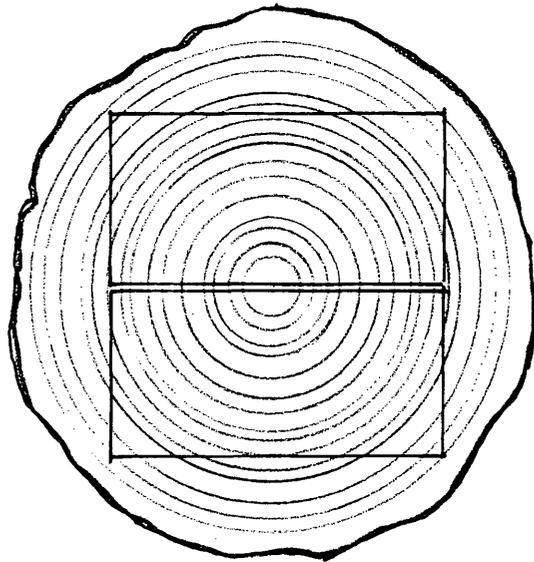


Fig. 33 Section through a log showing a halved timber

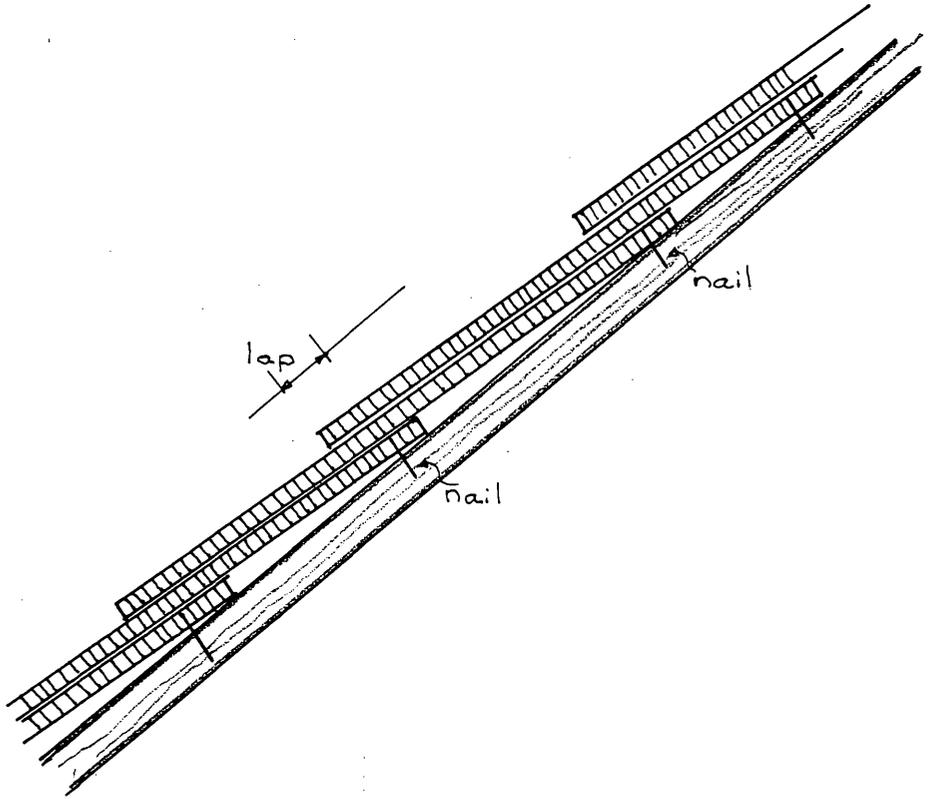
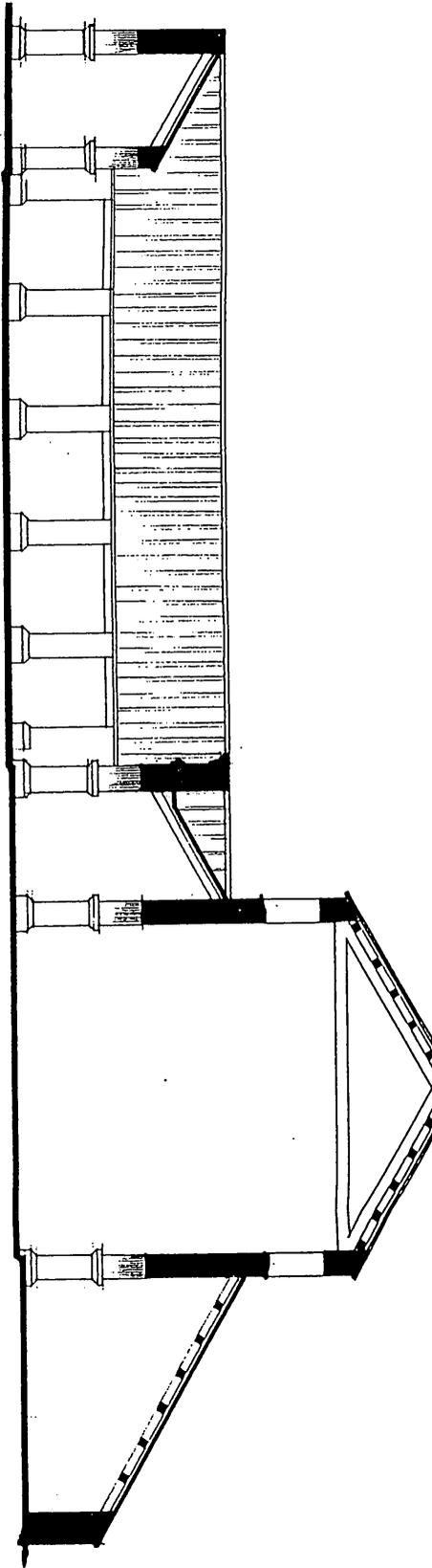
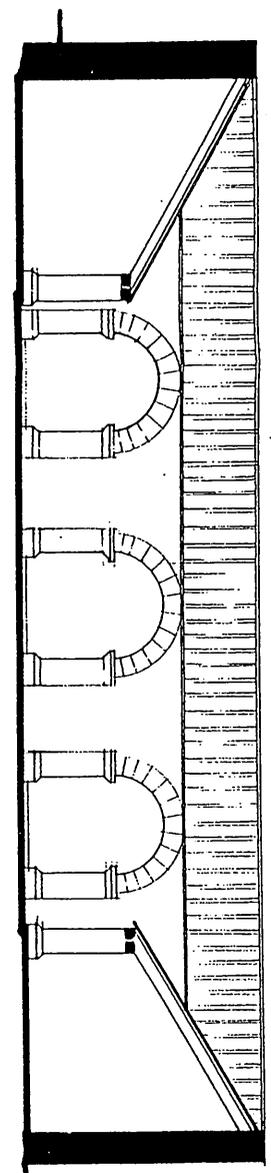


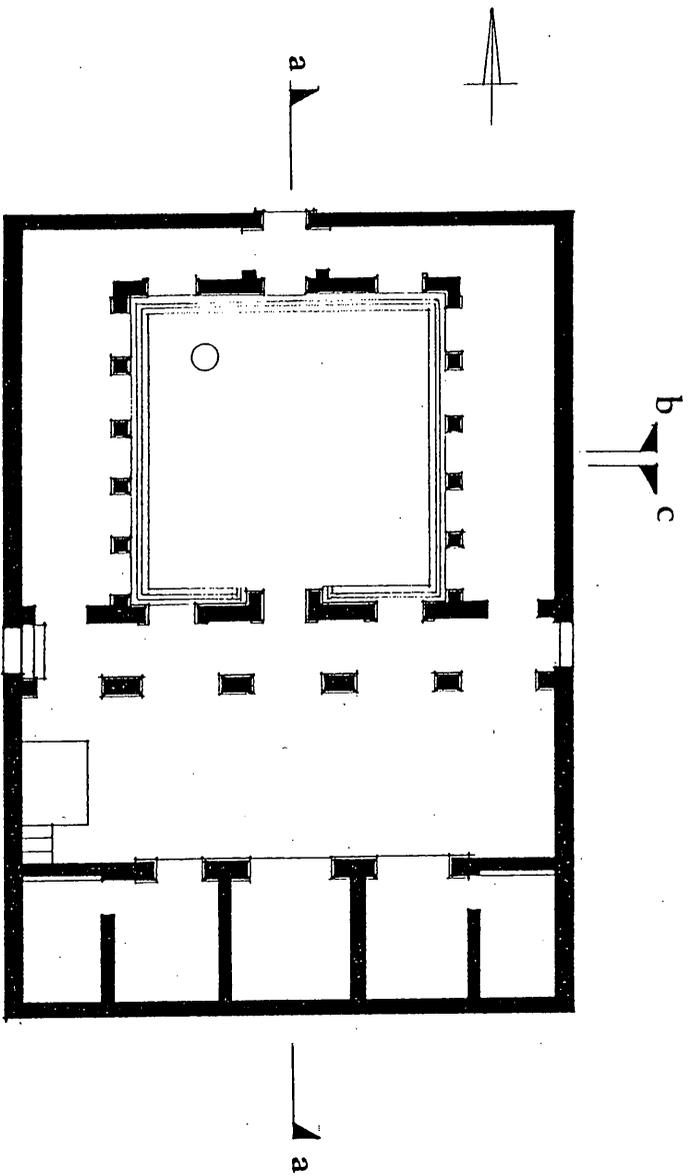
Fig. 34 Section through a slated roof covering showing lap



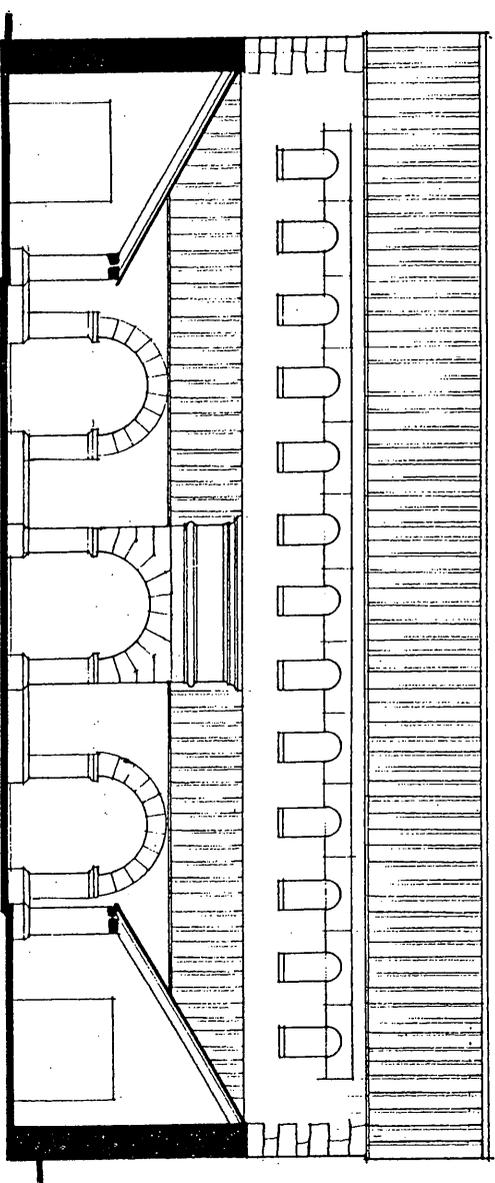
Section a a



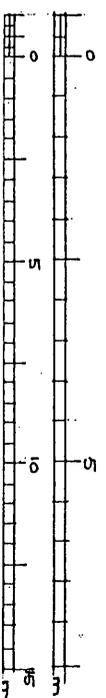
Section b b

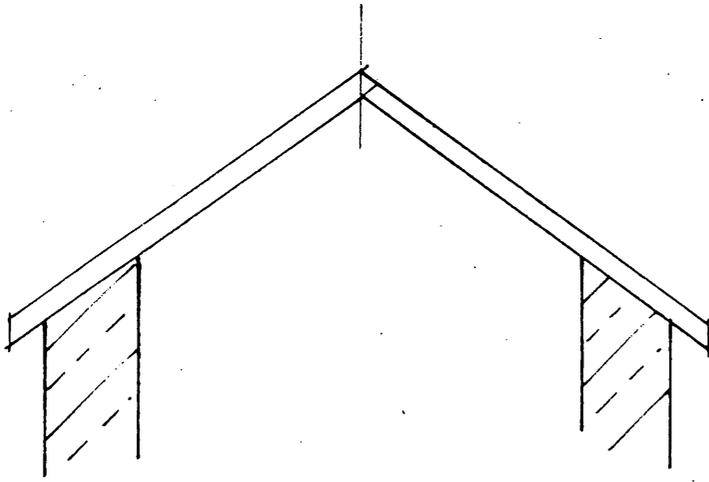


Plan

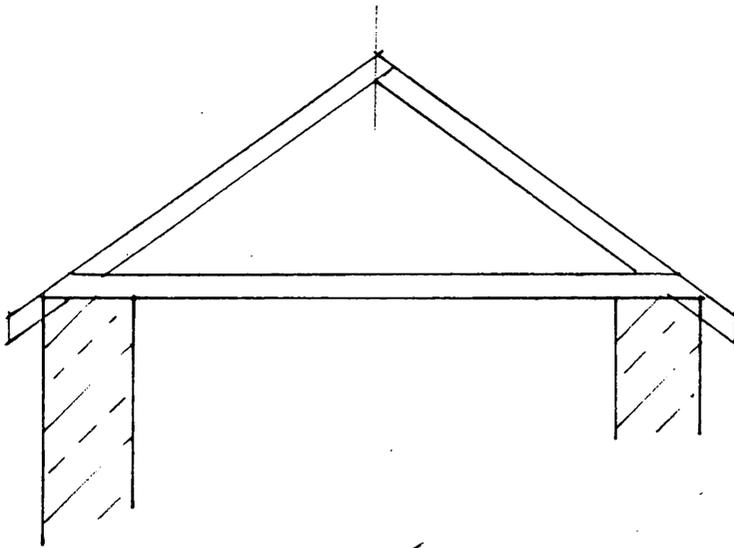


Section c c

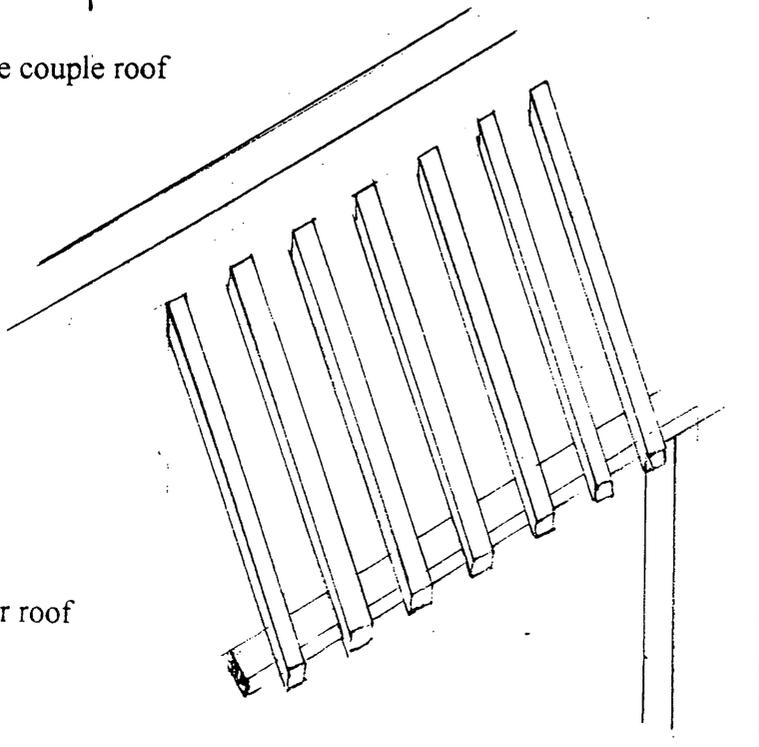




A couple roof

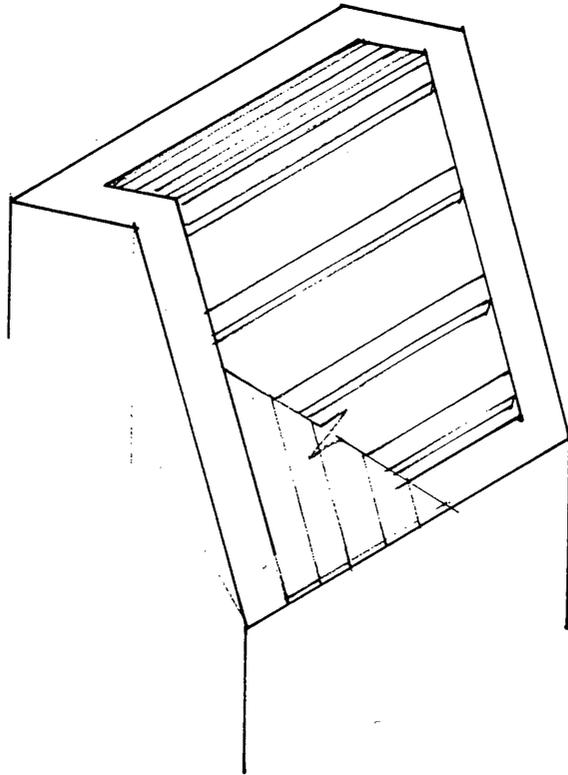


A close couple roof

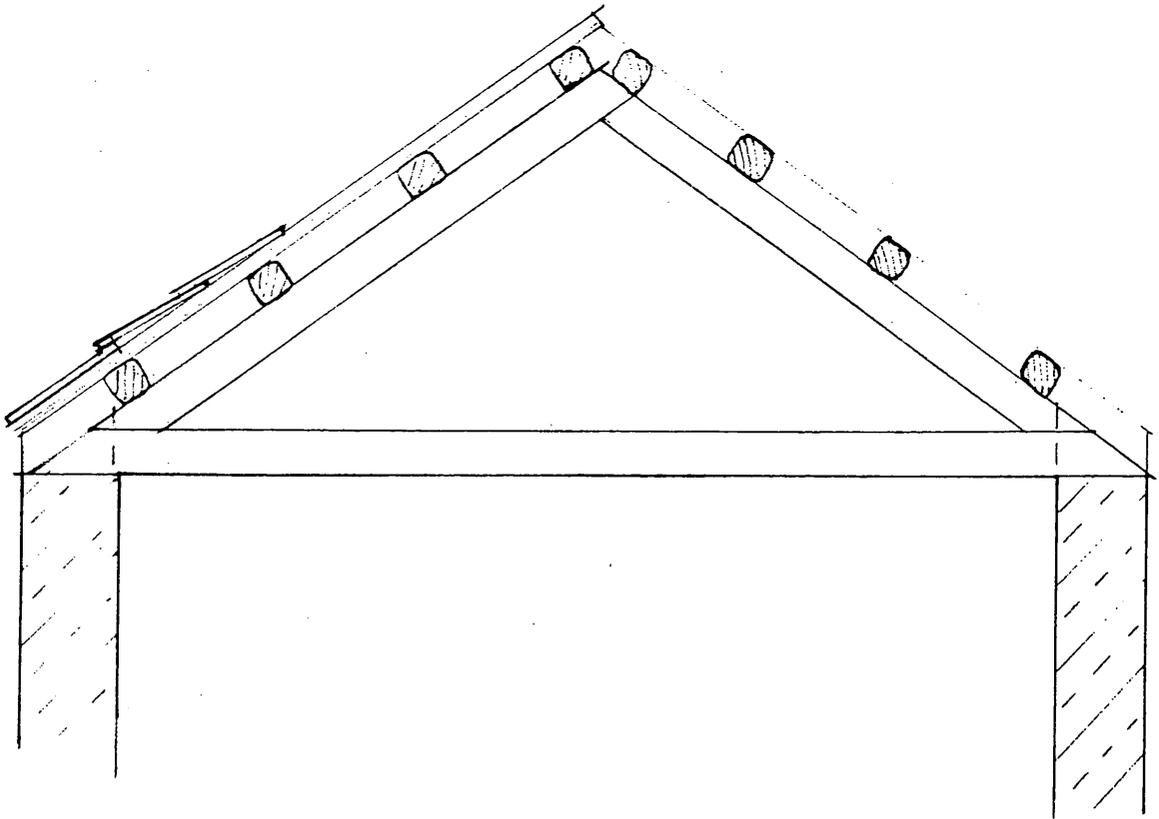


A rafter roof

Fig. 36 Roof forms: couple, close couple and rafter roofs

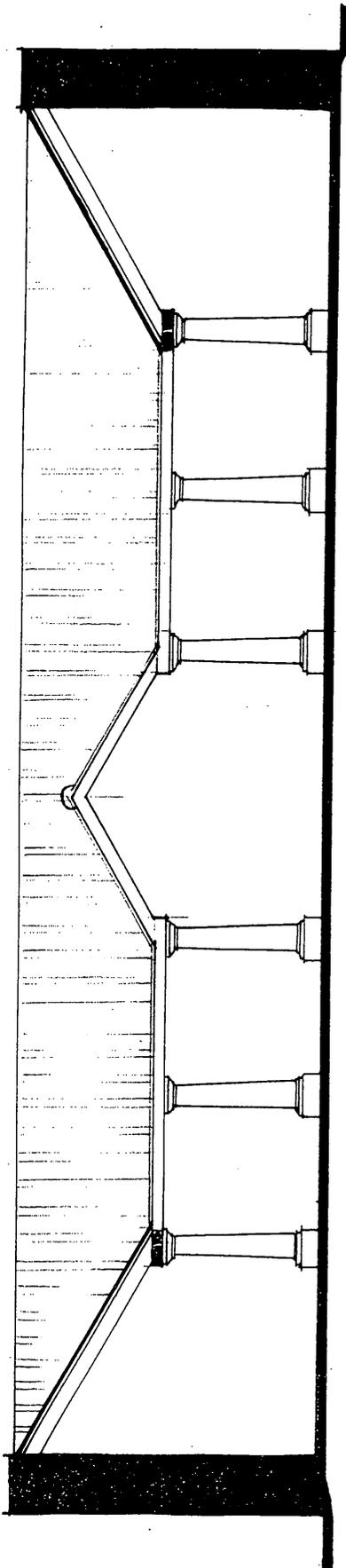


A purlin roof

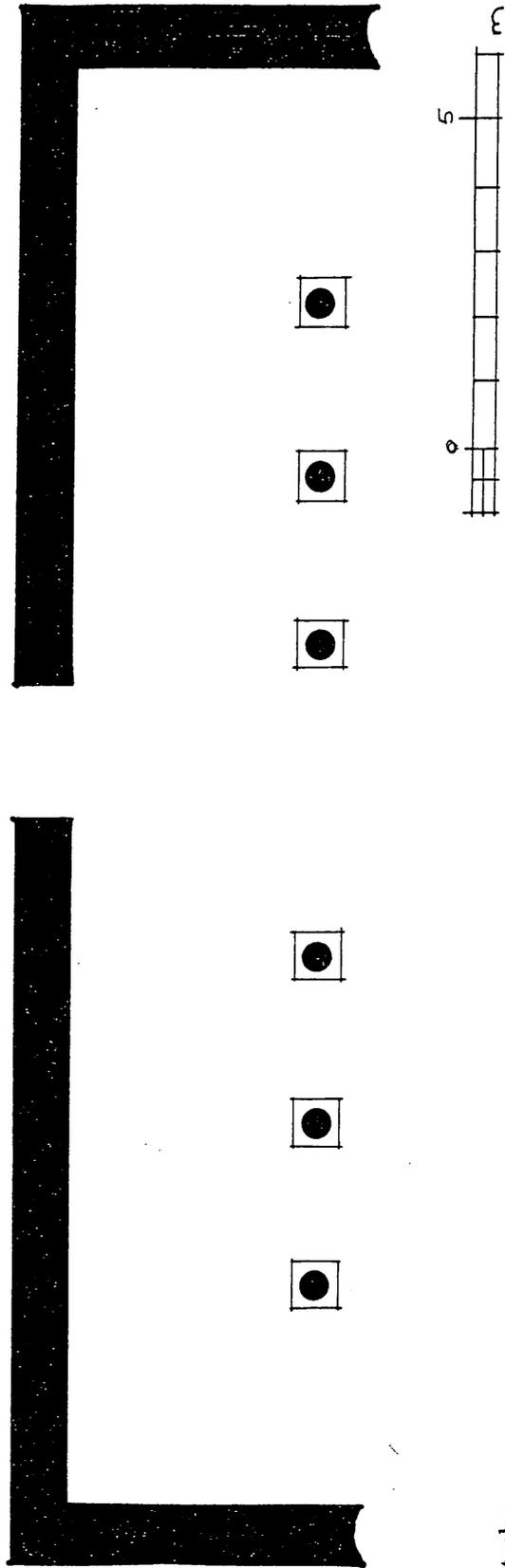


Roof truss

Fig. 37 Purlin roof and truss



North elevation



Part plan

Fig. 38 Reconstruction of northern ambulatory and entrance into courtyard, Wallsend

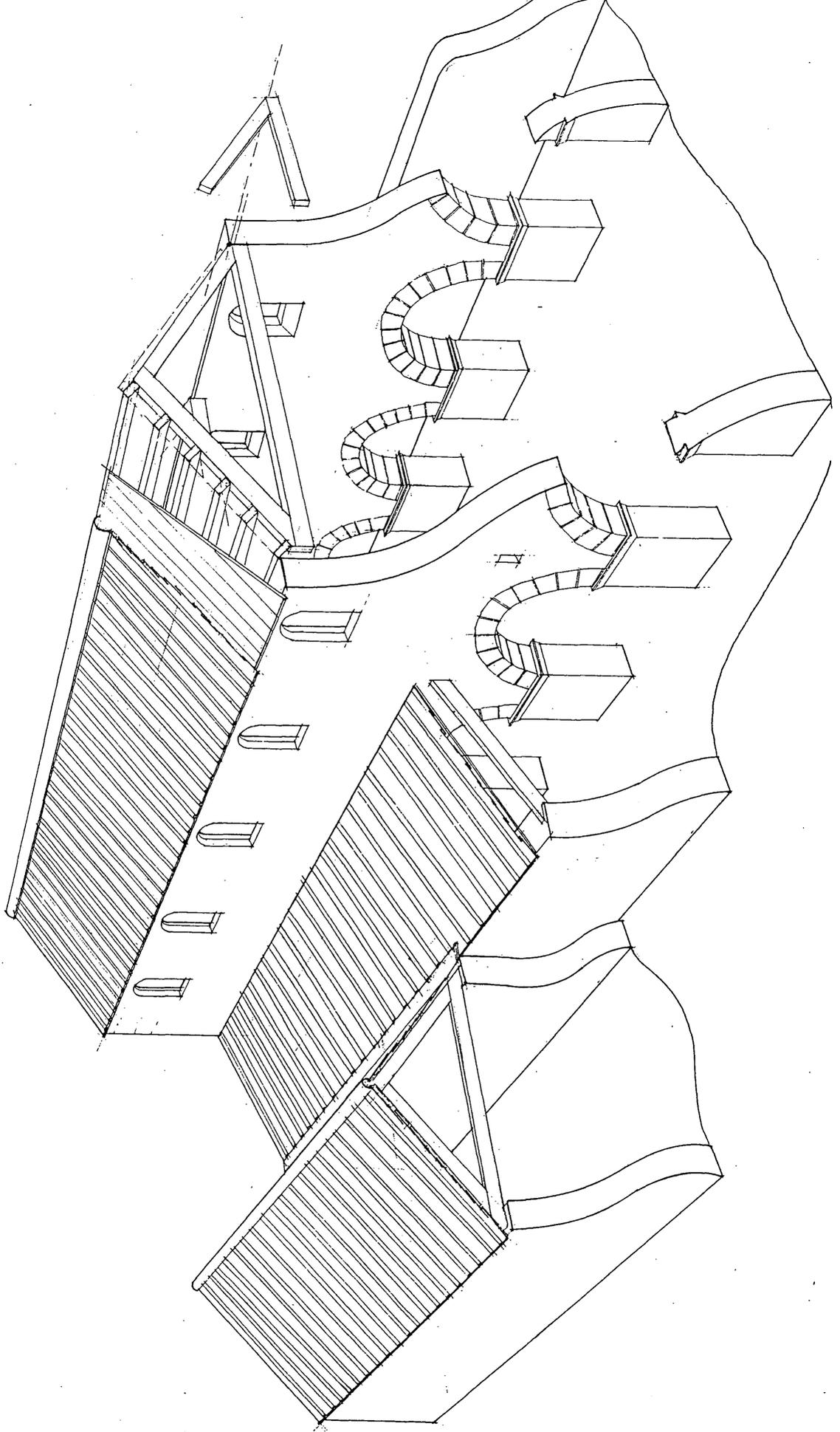
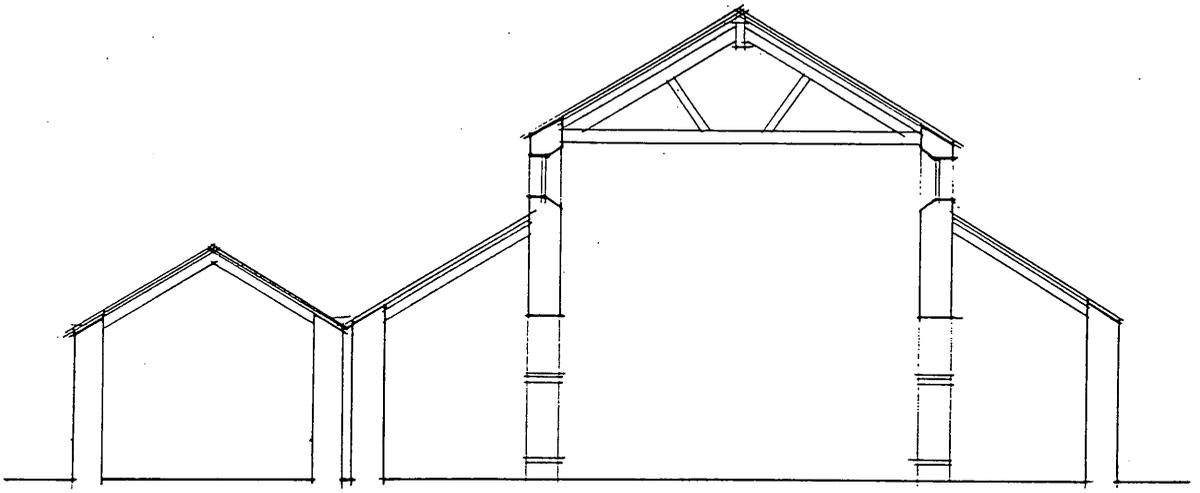
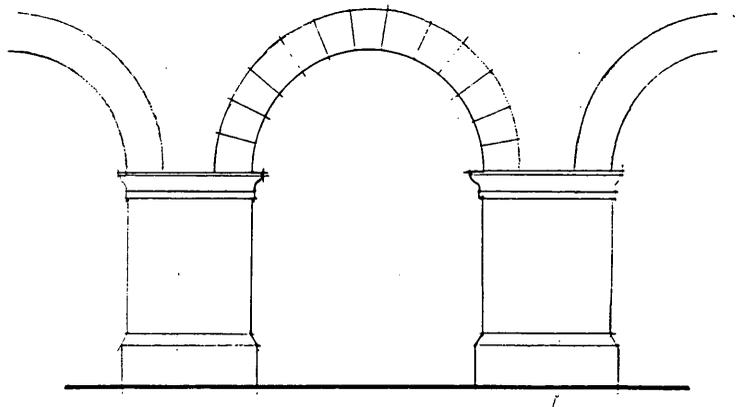
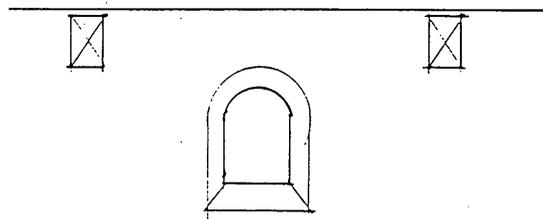
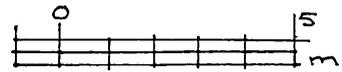


Fig. 39 Reconstruction of the *basilica*, Birdoswald



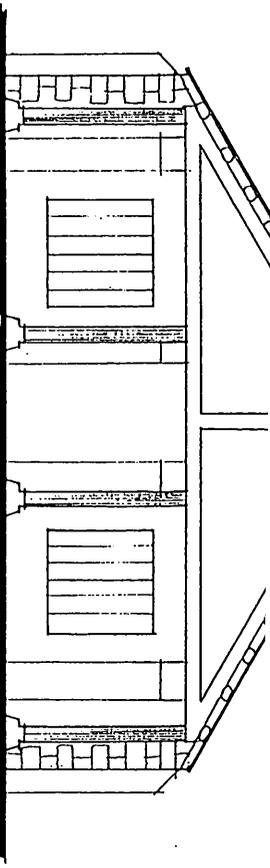
Cross section



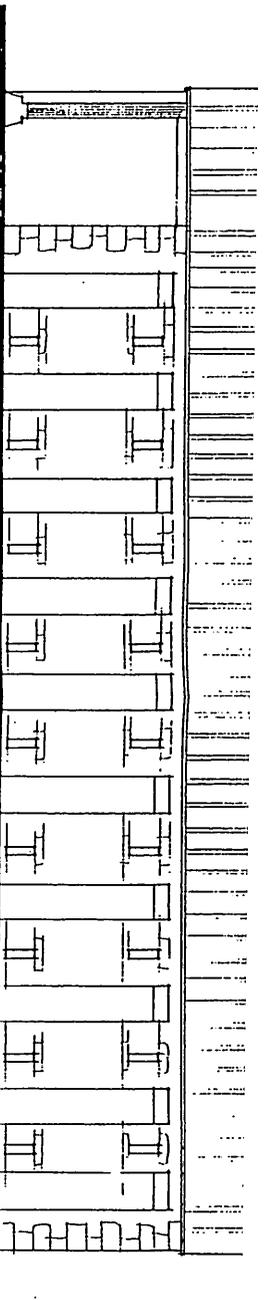
Part sectional elevation of arcade



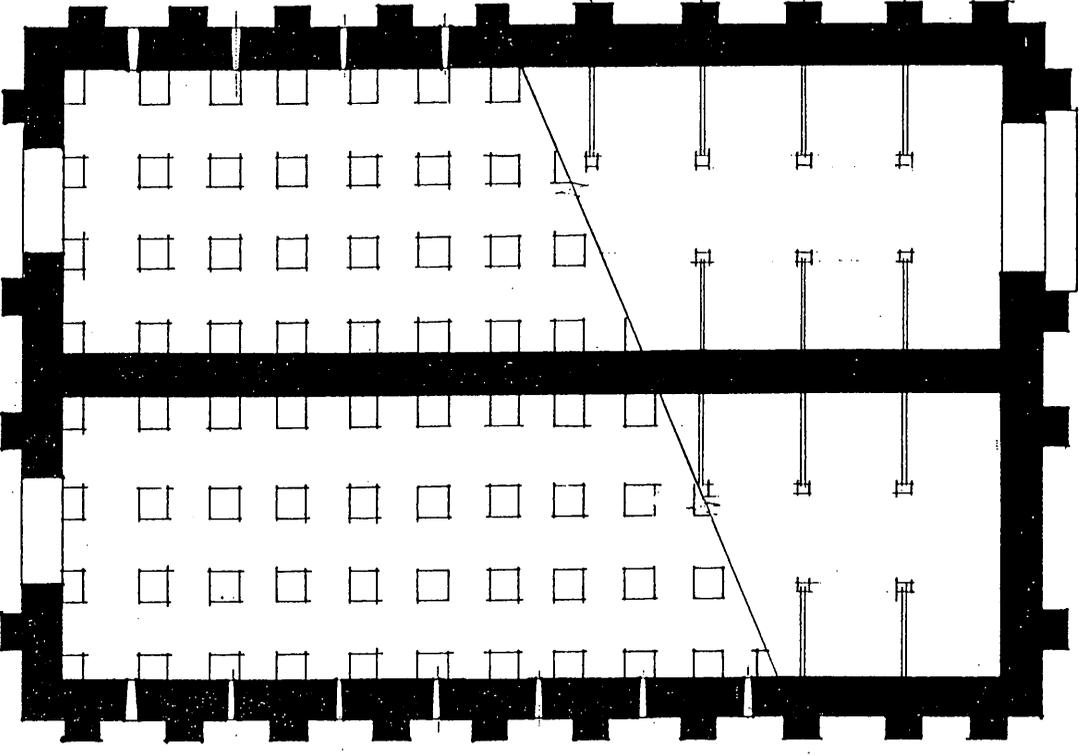
Fig. 40 Reconstruction of the *basilica*, Birdoswald: section and part elevation of arcade



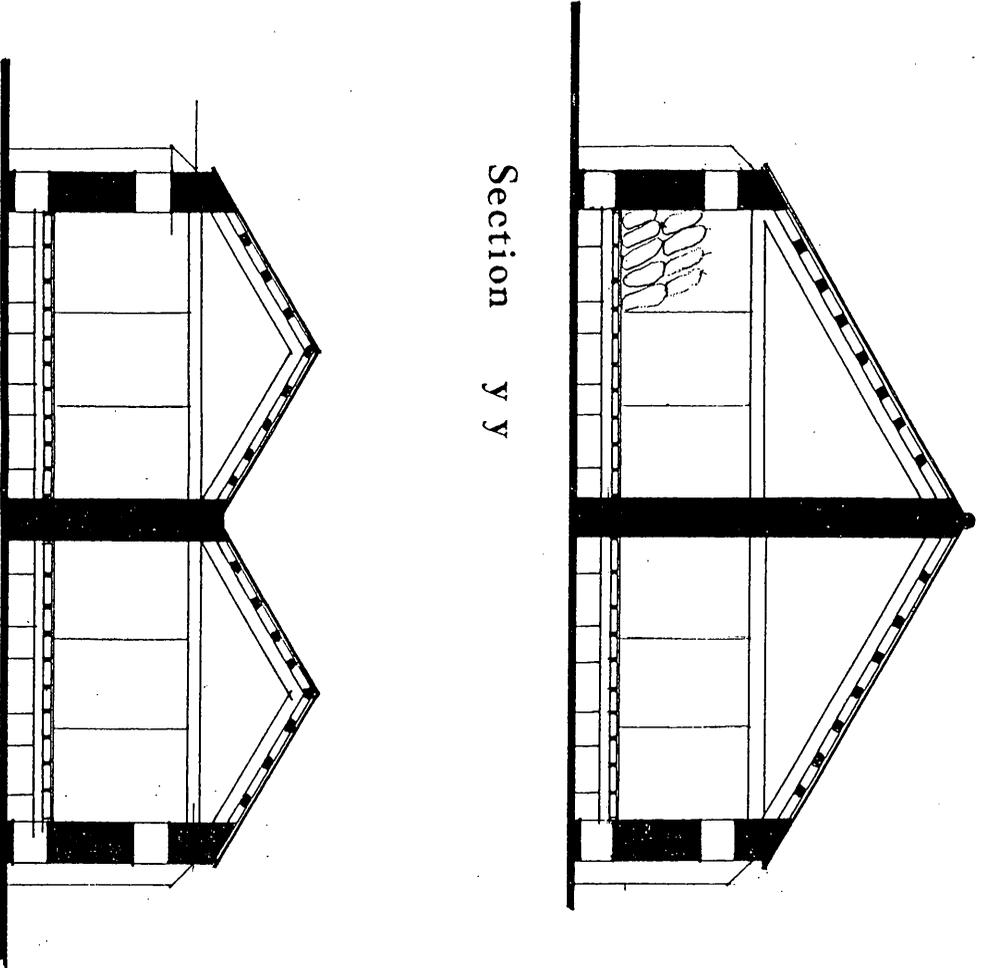
Front Elevation



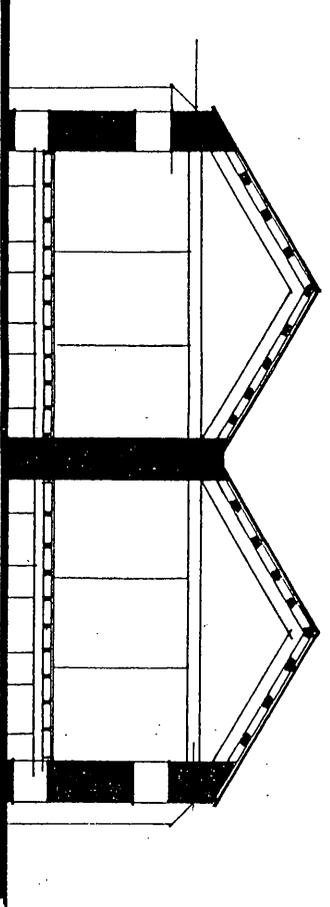
Side Elevation



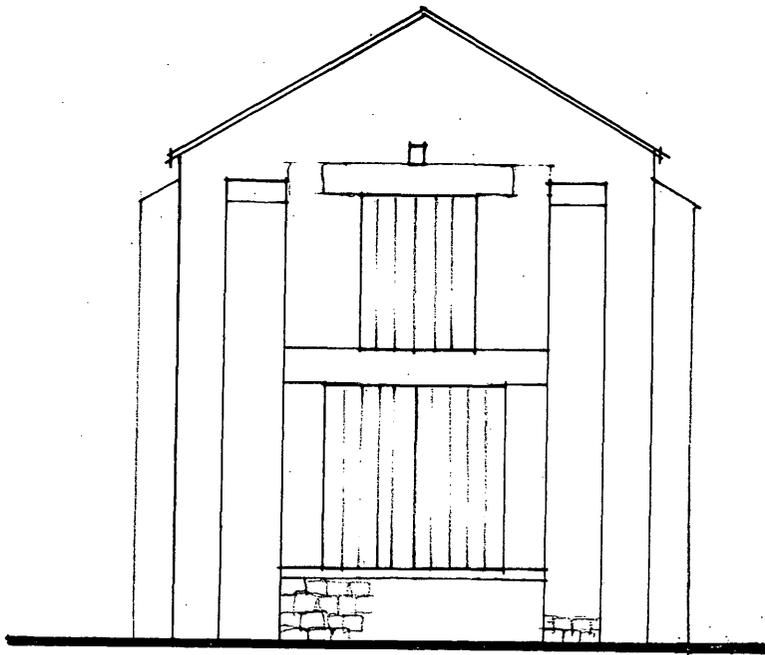
Plan



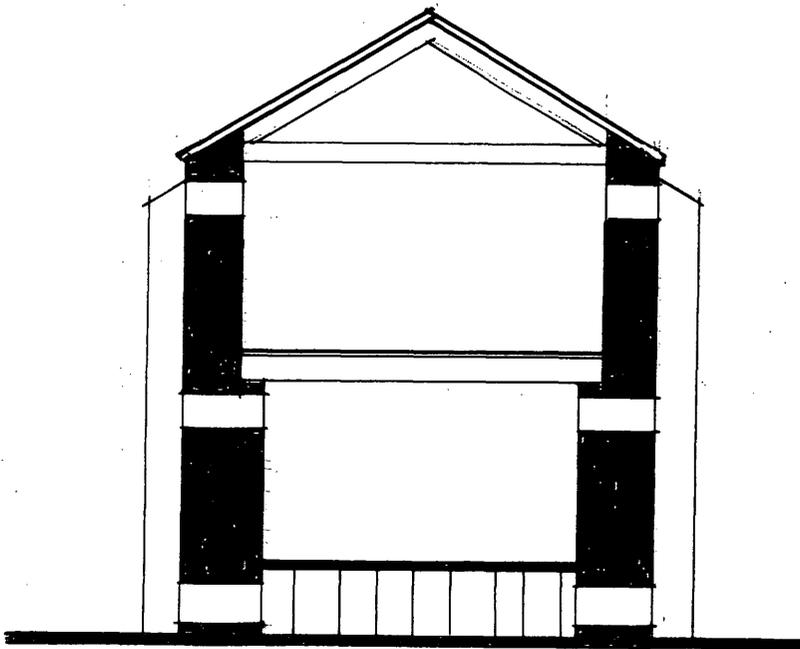
Section y y



Alternative Section y y



Gable elevation



Section

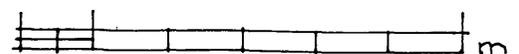
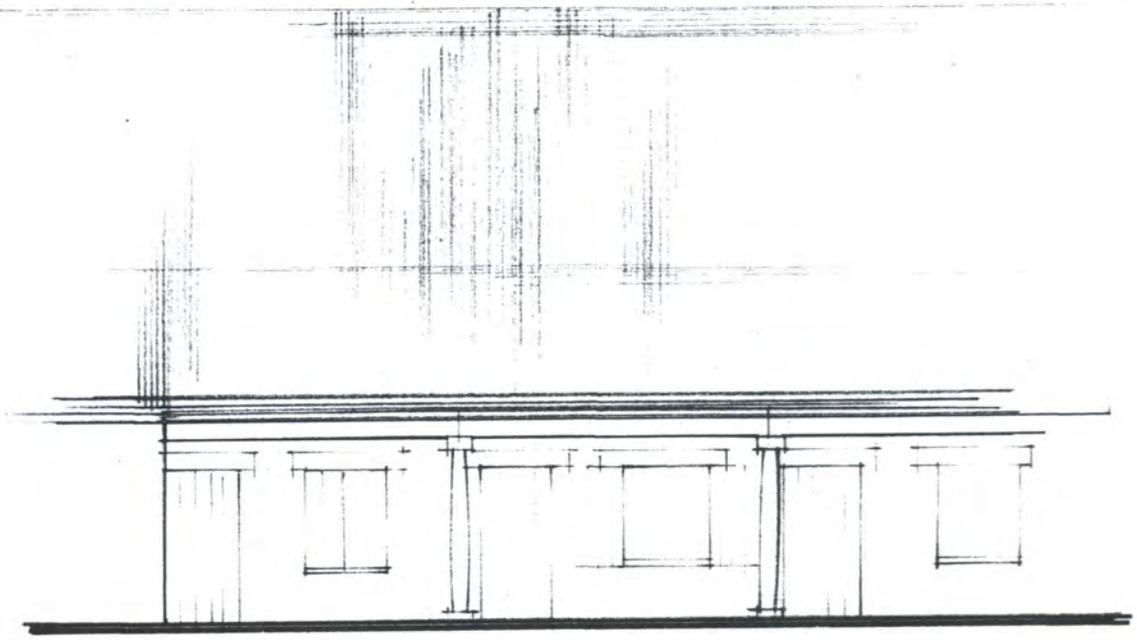
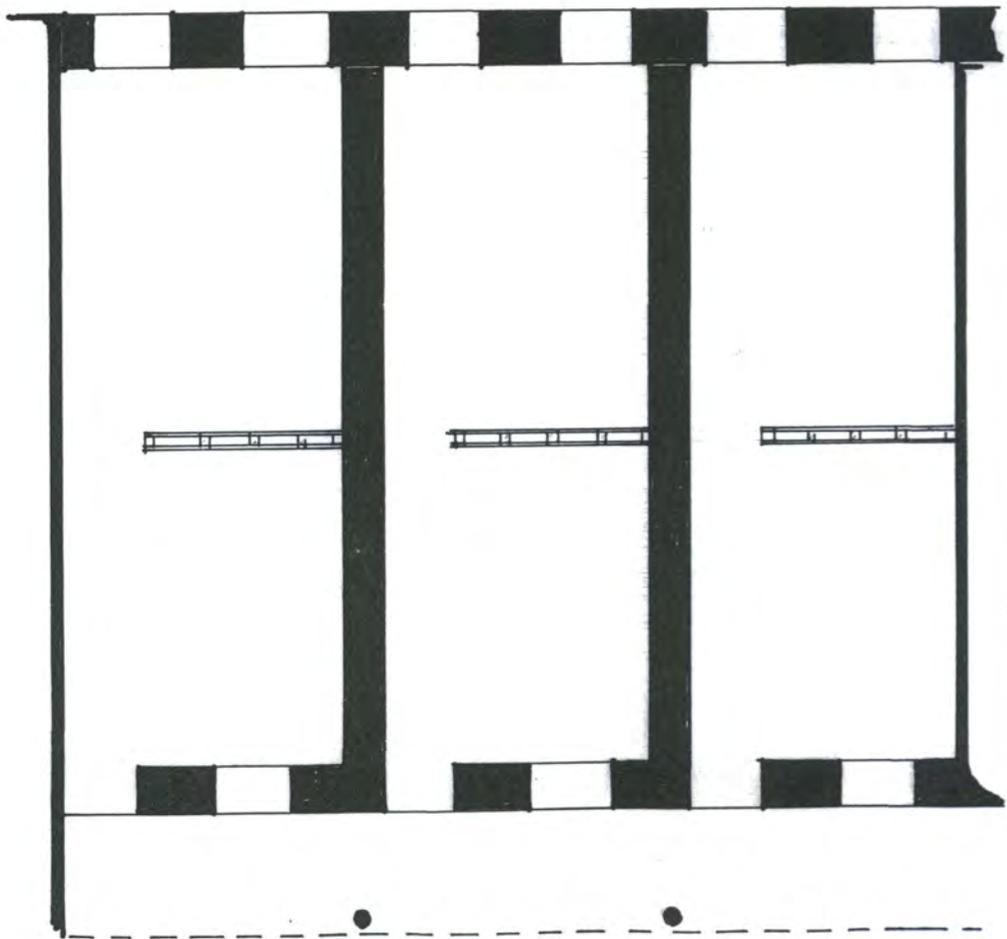


Fig. 42 Section through a Severan granary at South shields, showing introduction of a first floor with access above the loading bay



Part front elevation



Part plan

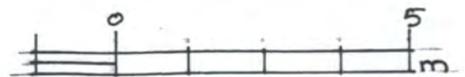
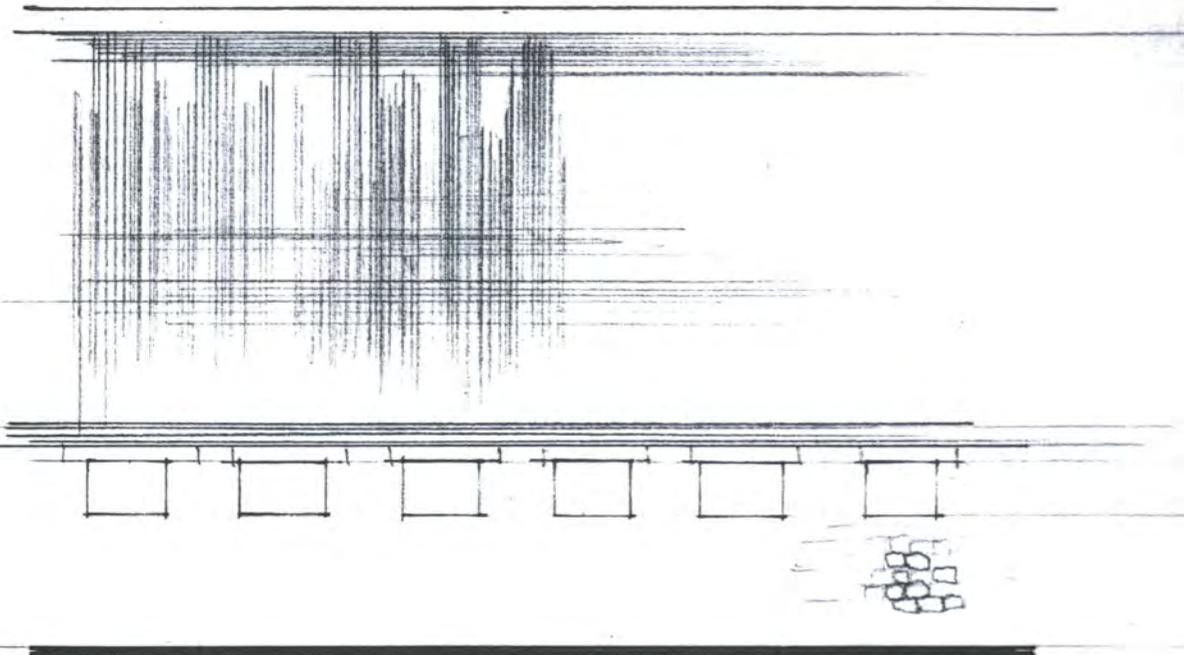
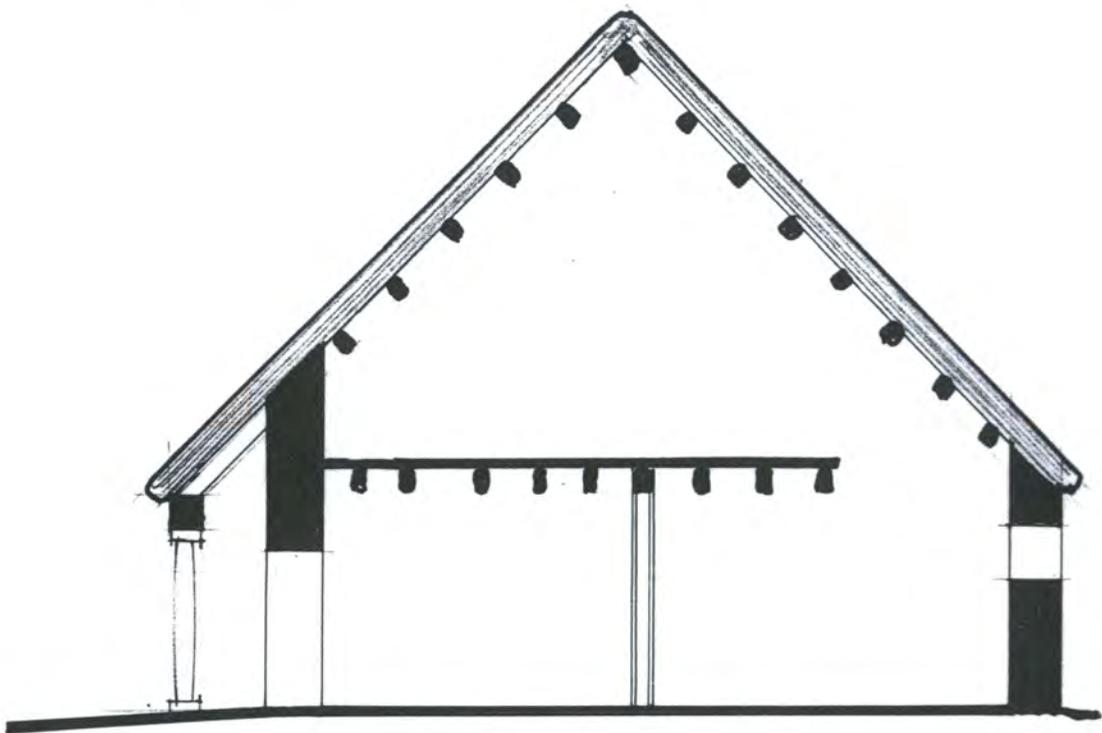


Fig. 43 Part plan and elevation of reconstructed barrack block



Part rear elevation



Section

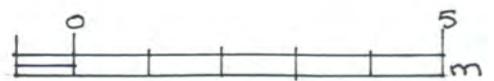
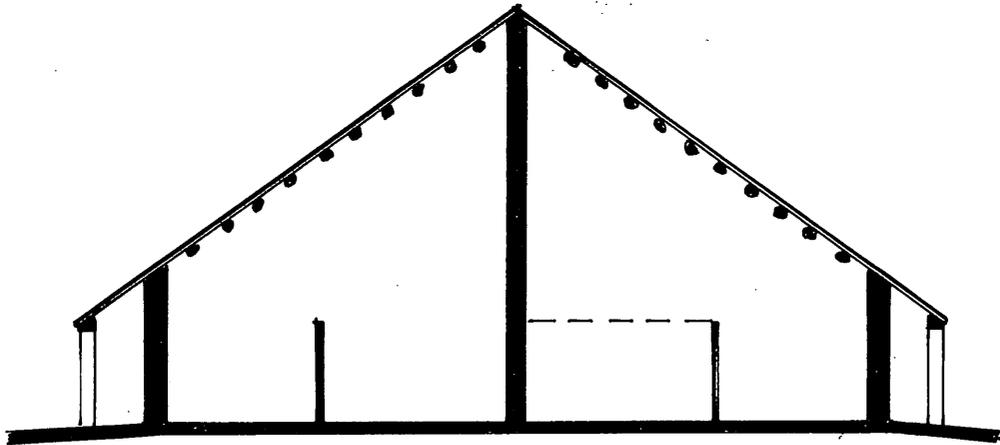
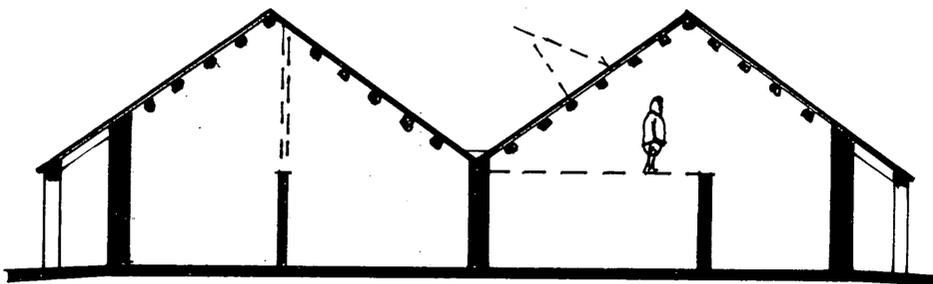


Fig. 44 Part elevation and section of reconstructed barrack block



Double pitched roof over double barrack



Two double pitches roofs over double barrack

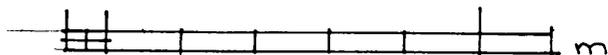


Fig. 45 Section through typical barrack block showing alternative roof forms

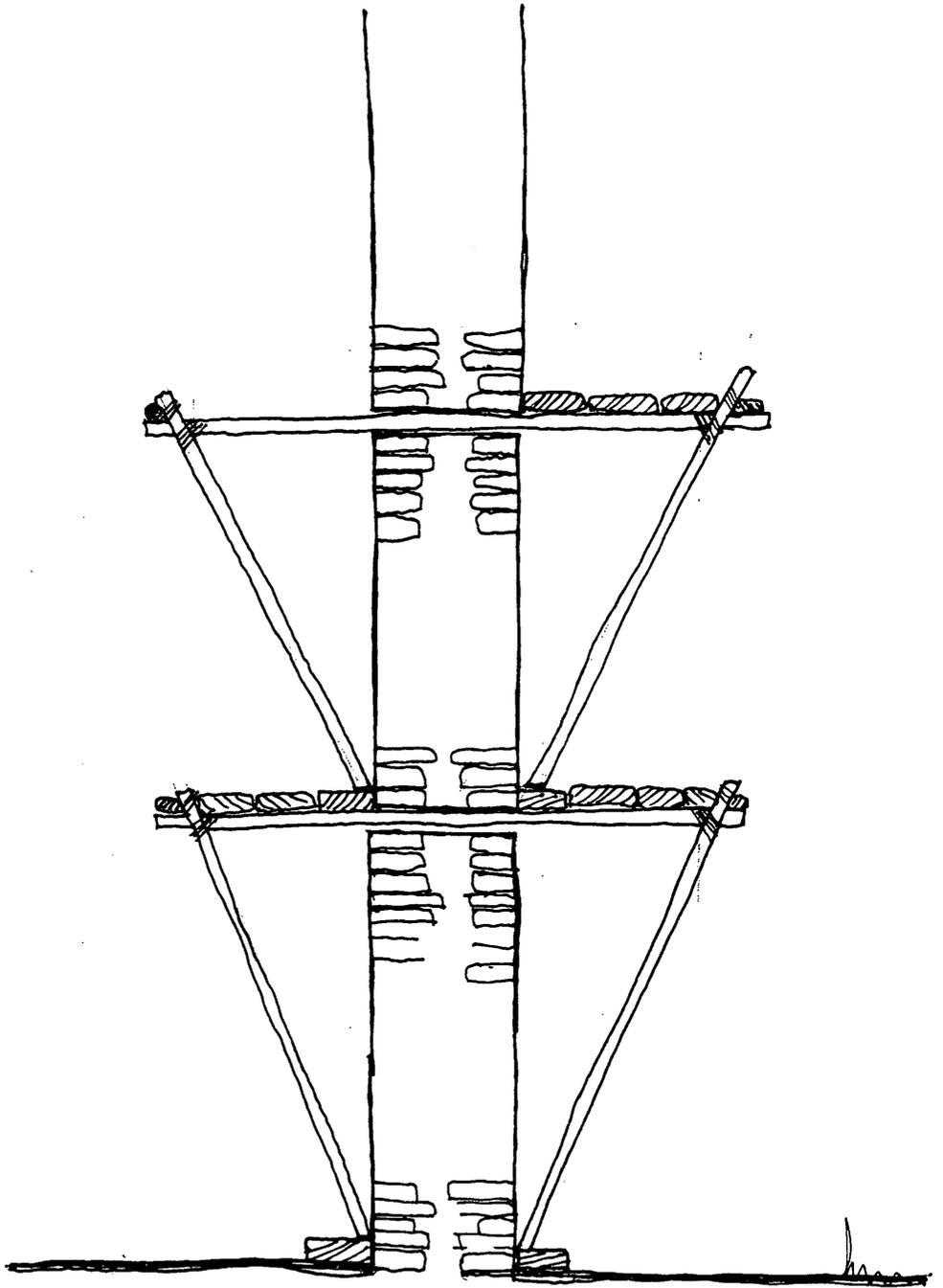
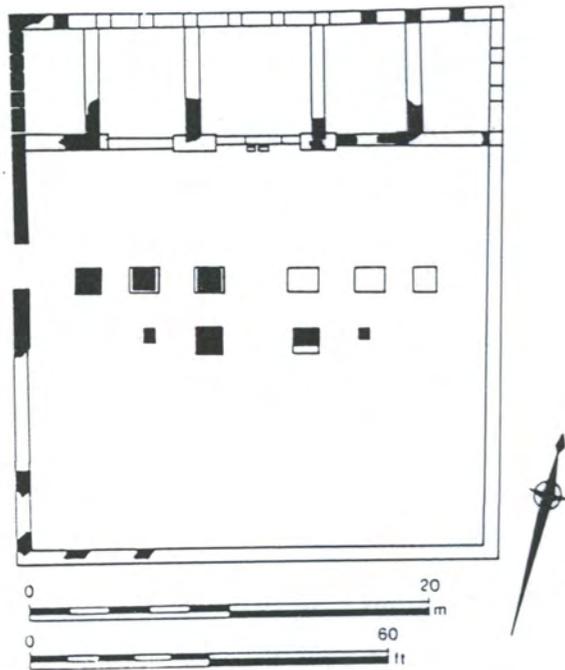
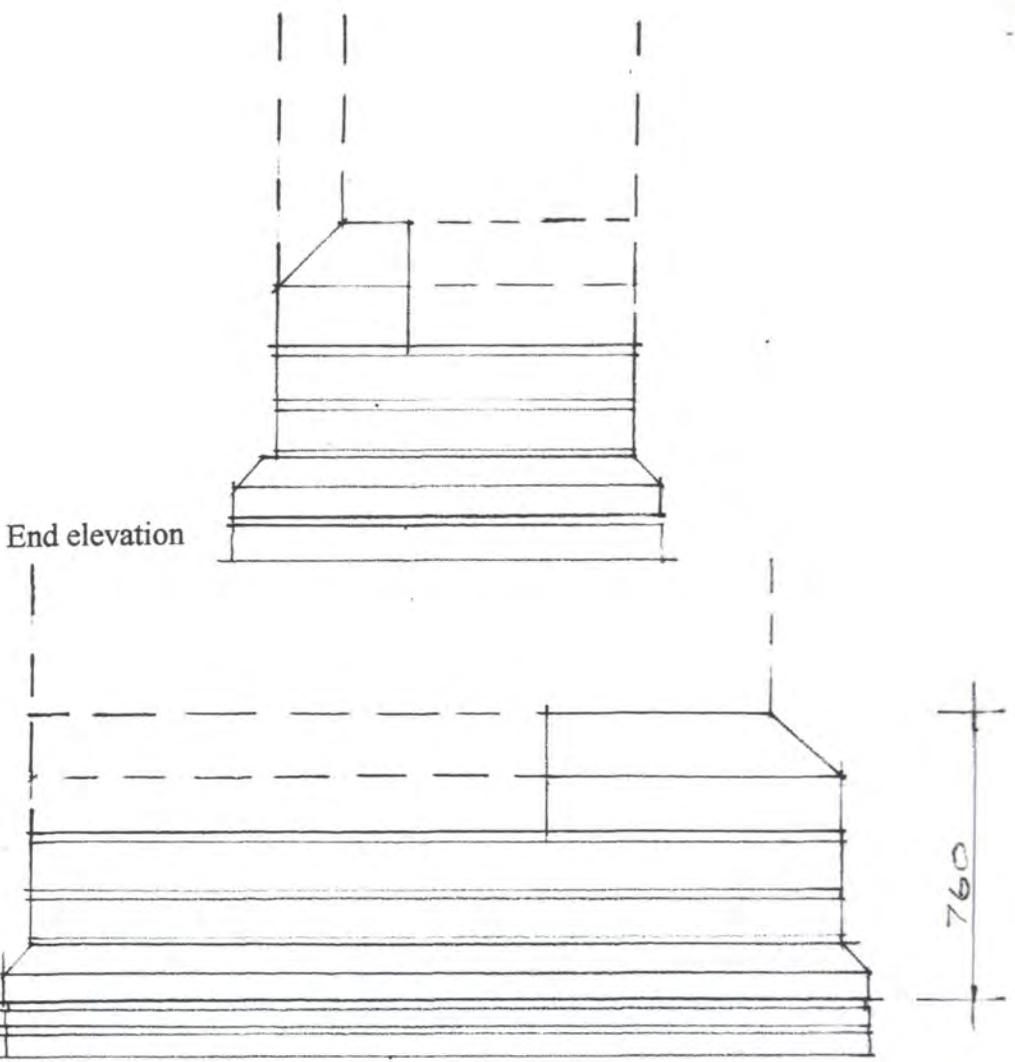


Fig. 46 Arrangement of double cantilevered scaffolding

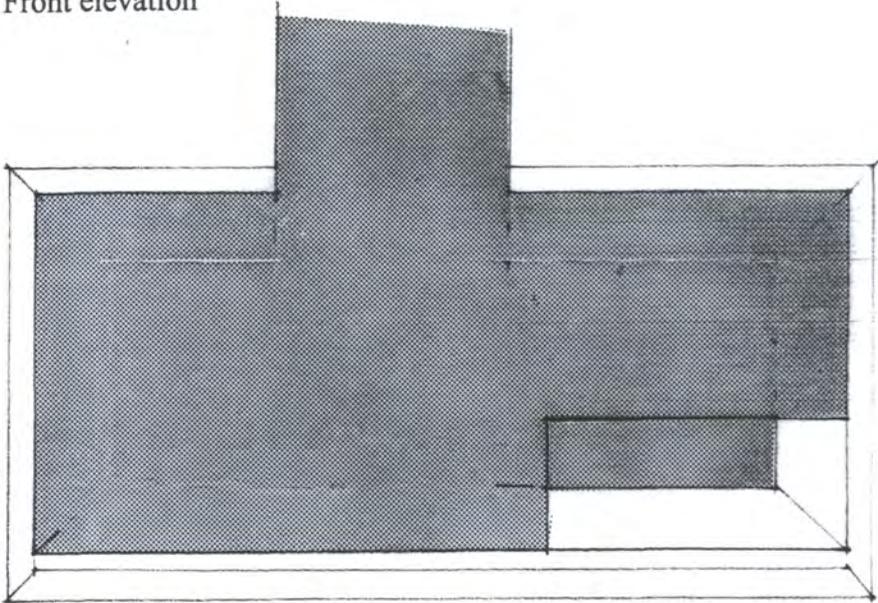


The *principia* of Stone Fort 1, scale 1:500 after (Birley E. Richmond and Stanfield 1936, Figure 3).

Fig. 47 Plan of Hadrianic *principia*, Chesterholm



Front elevation



Scale 1:20

Fig. 48 Pier to east of *aedes* showing chamfered plinth course and upper chamfered course, *principia*, Chesters

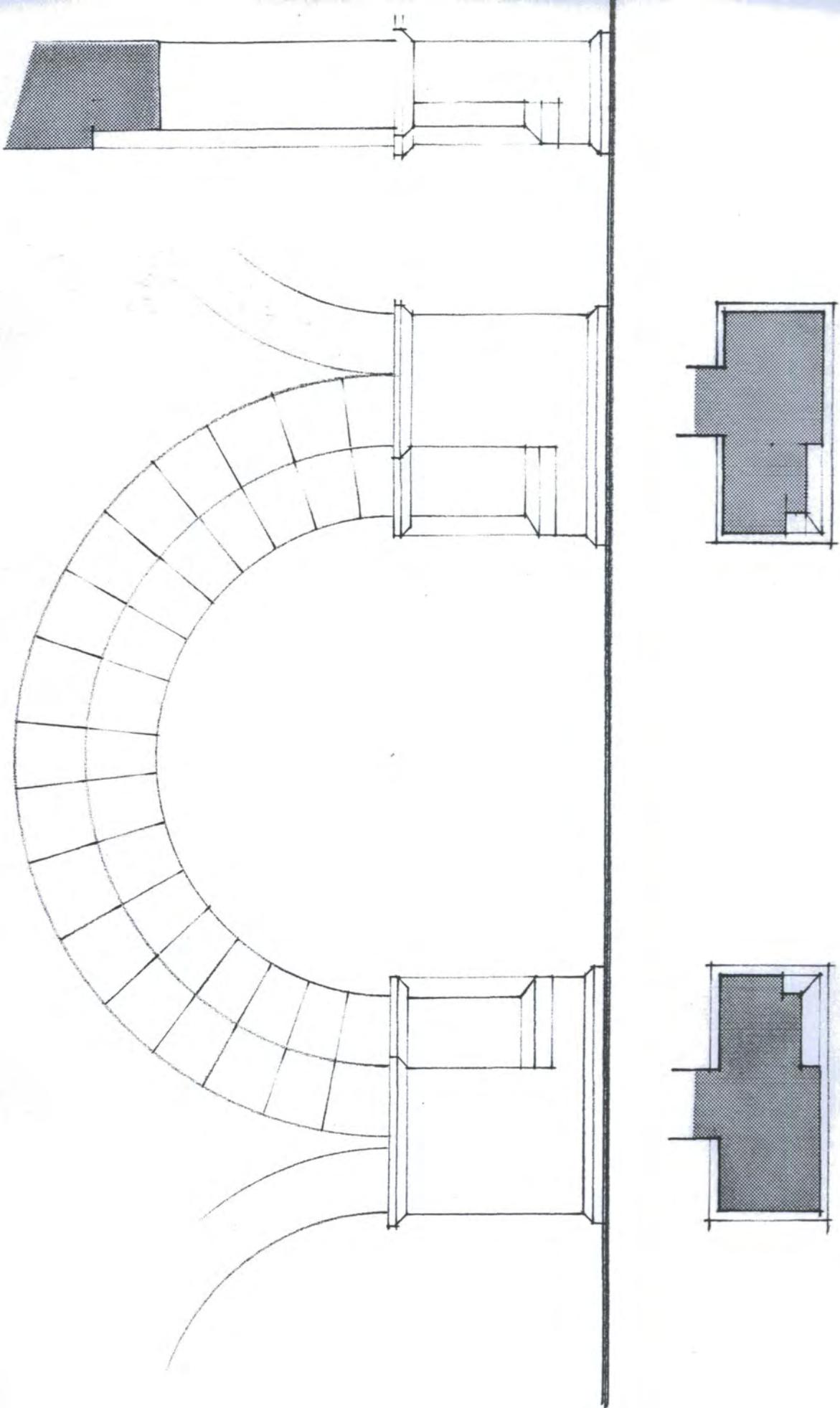


Fig. 49 Reconstruction of opening to *aedes*, *principia*, Chesters

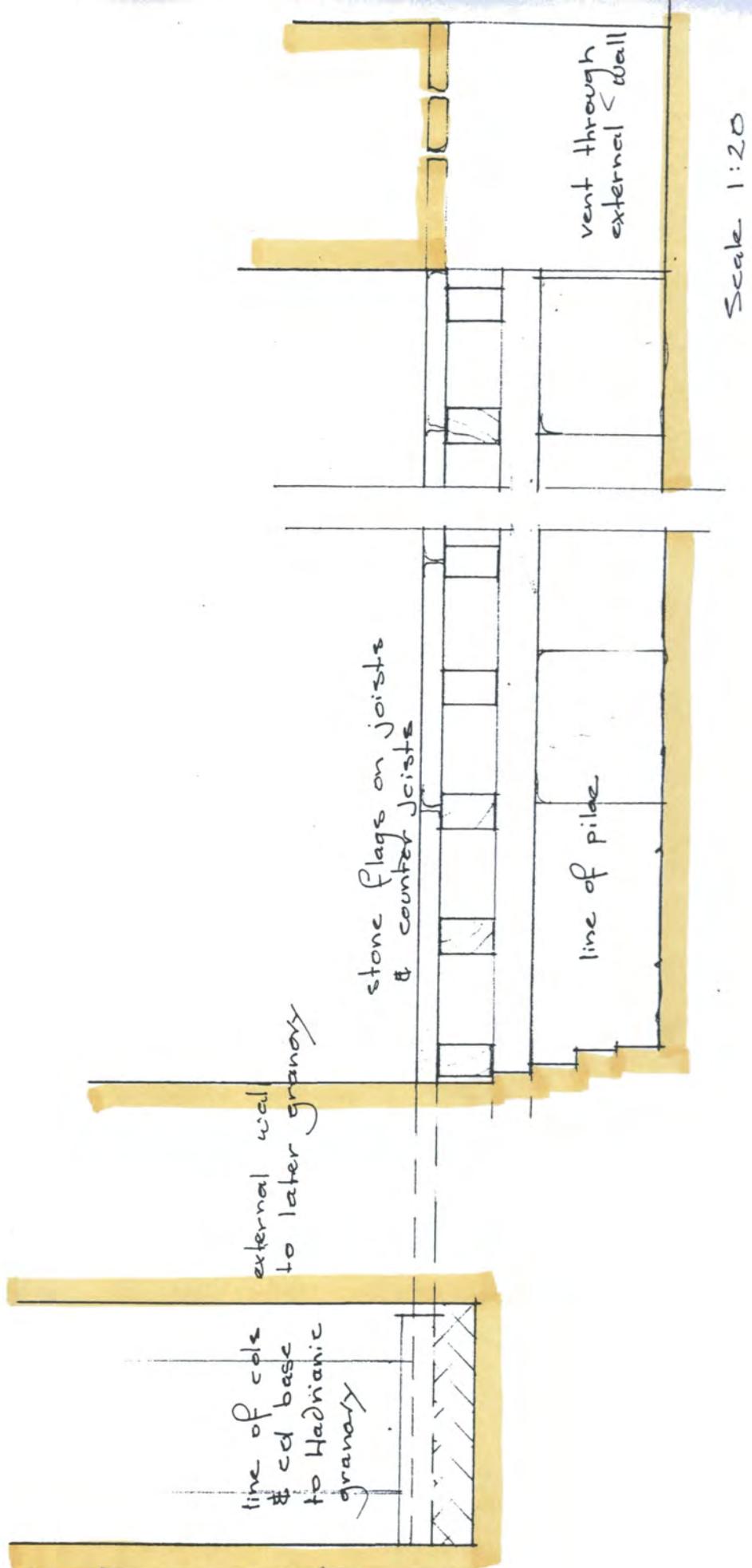
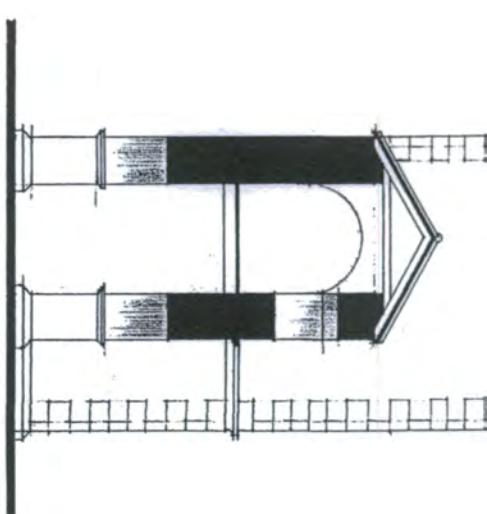
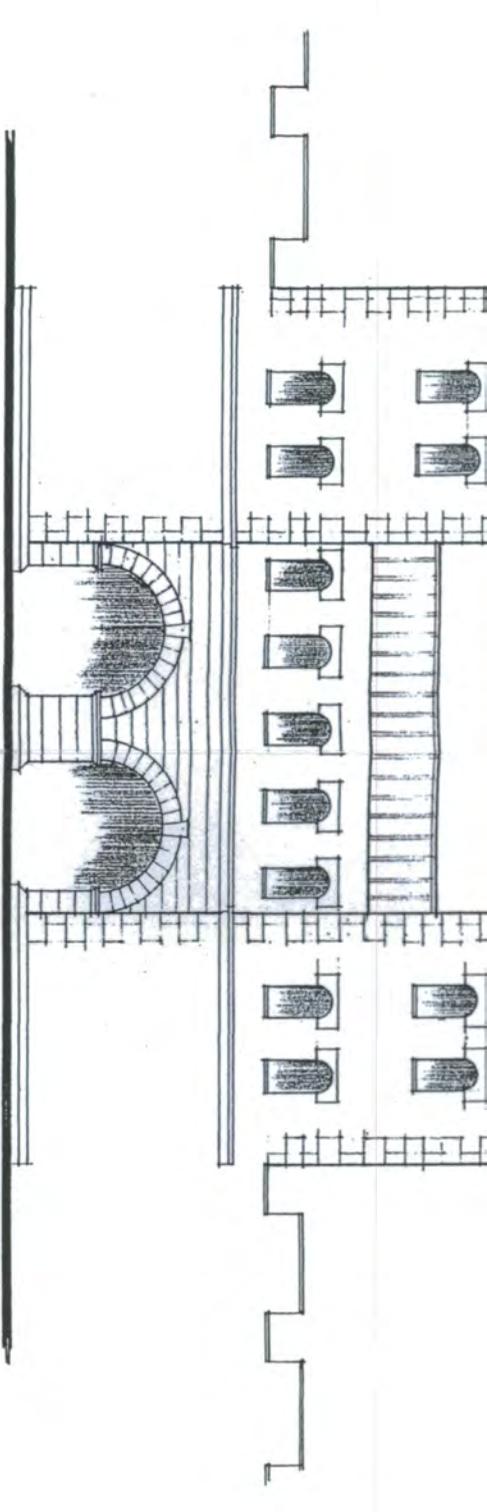


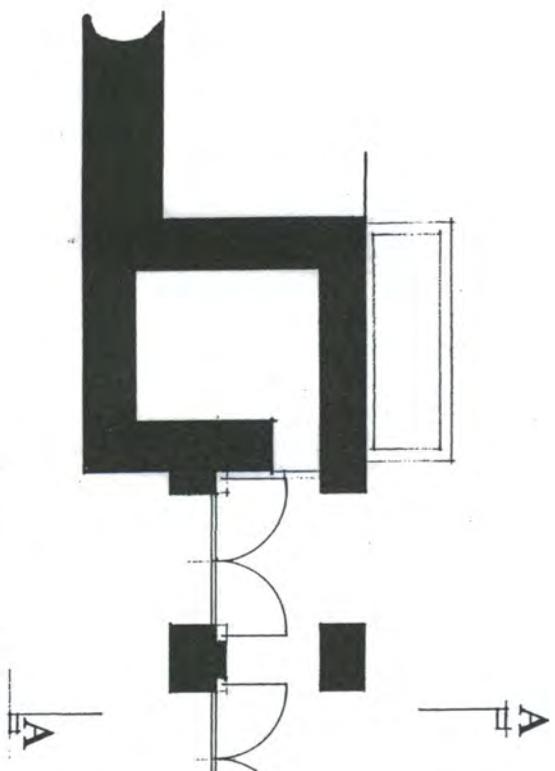
Fig. 50 Reconstruction of floor to granary, Housesteads



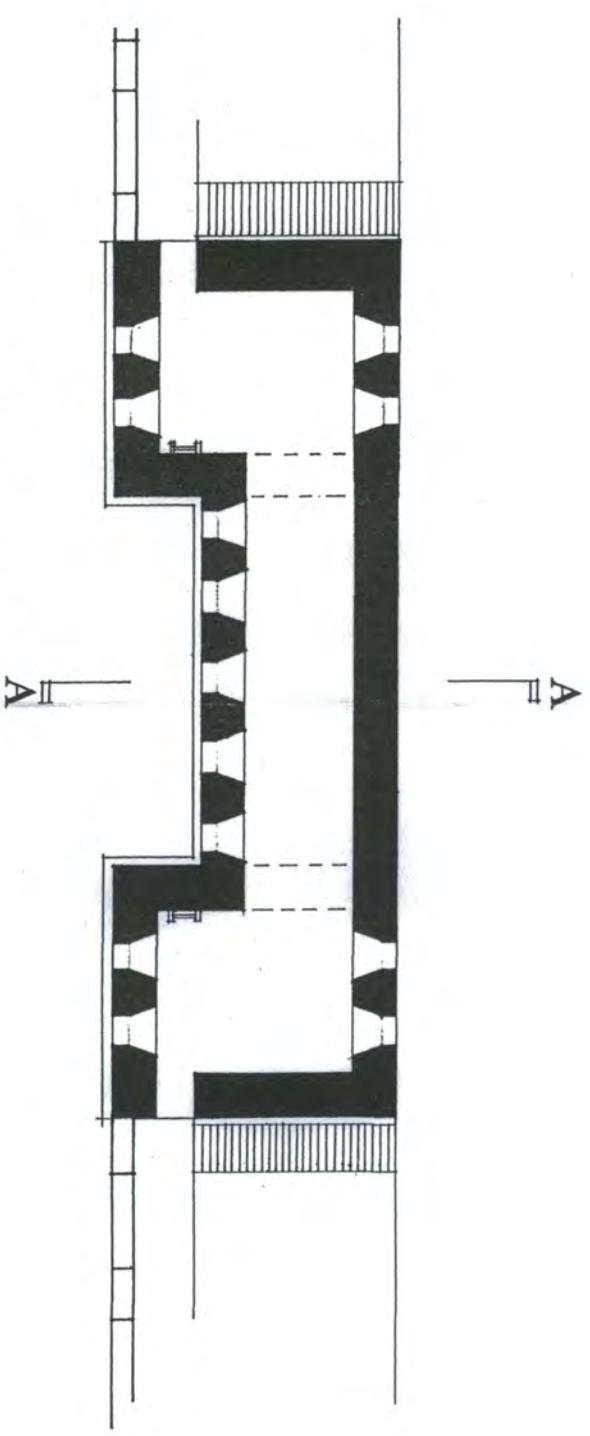
Section A A



North Elevation



Ground Floor Plan



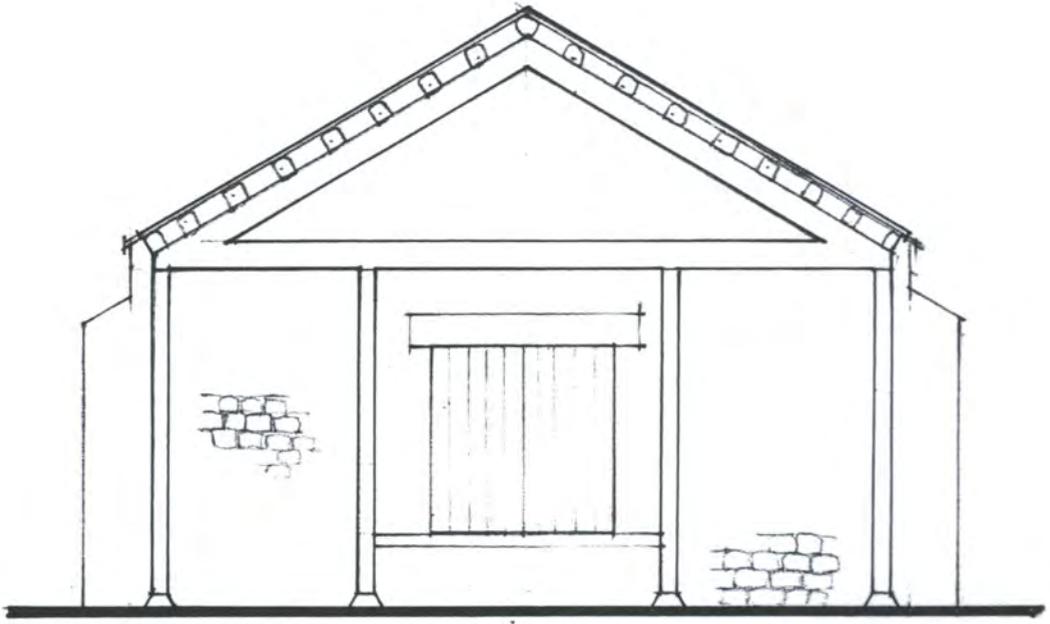
First Floor Plan



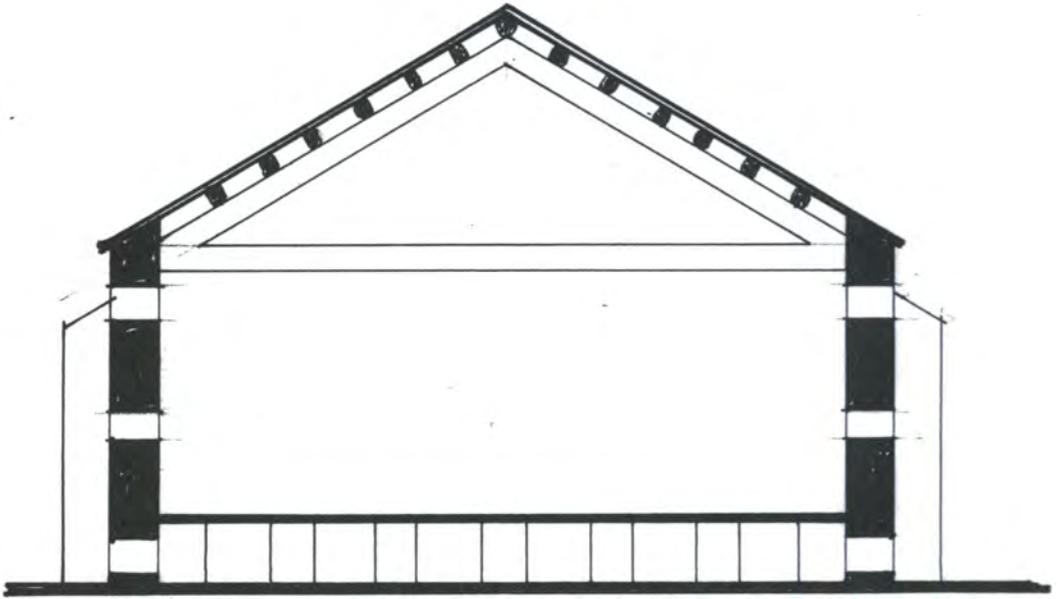
A RECONSTRUCTION OF THE NORTH GATE



WALLSEND



Gable elevation



Section

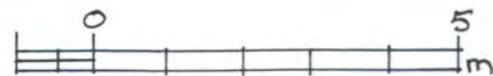
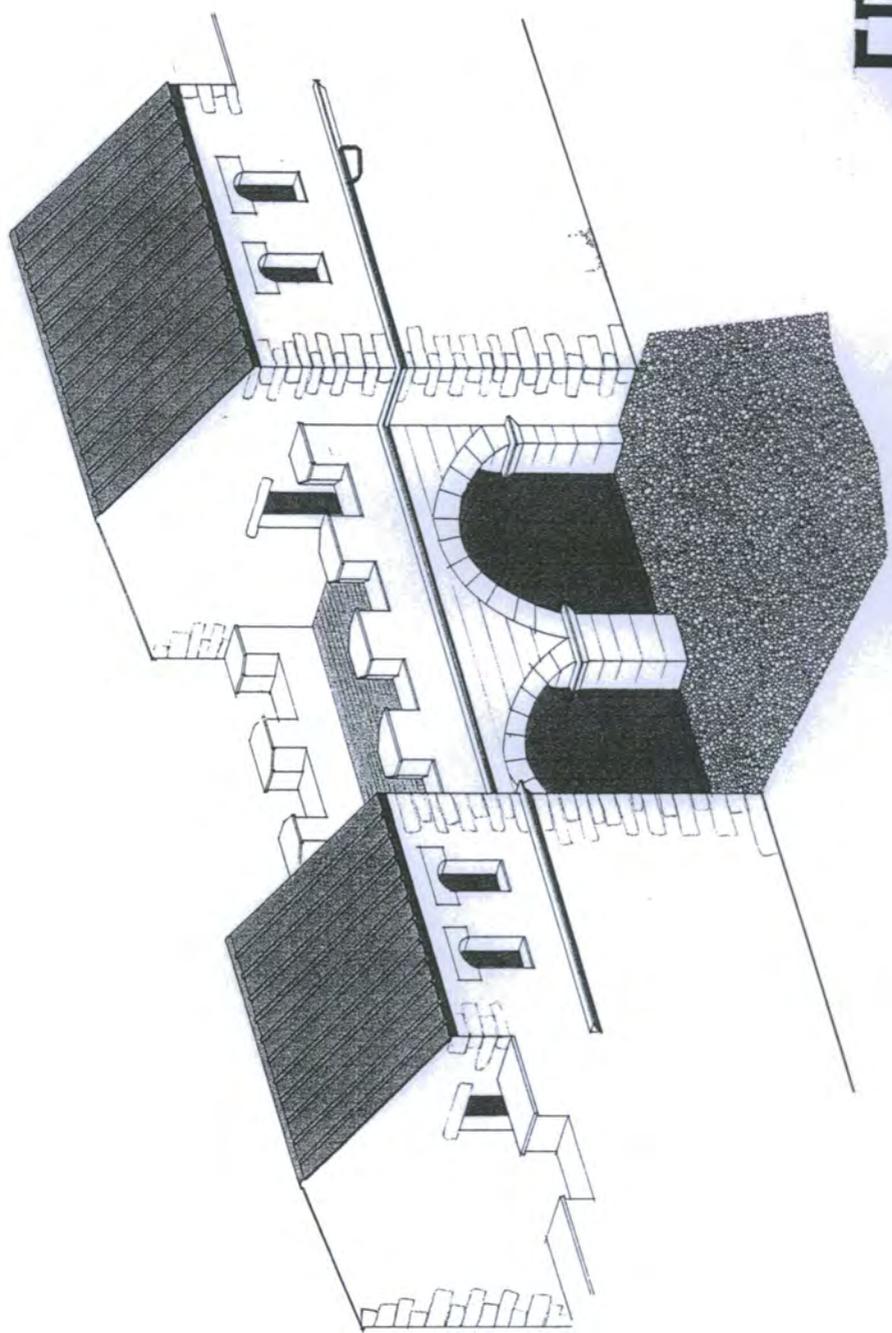


Fig. 52 Front elevation and section through granary, Halton Chesters



5:12

Plan

Fig. 53 Reconstruction of a gate with two storey towers, Birdoswald

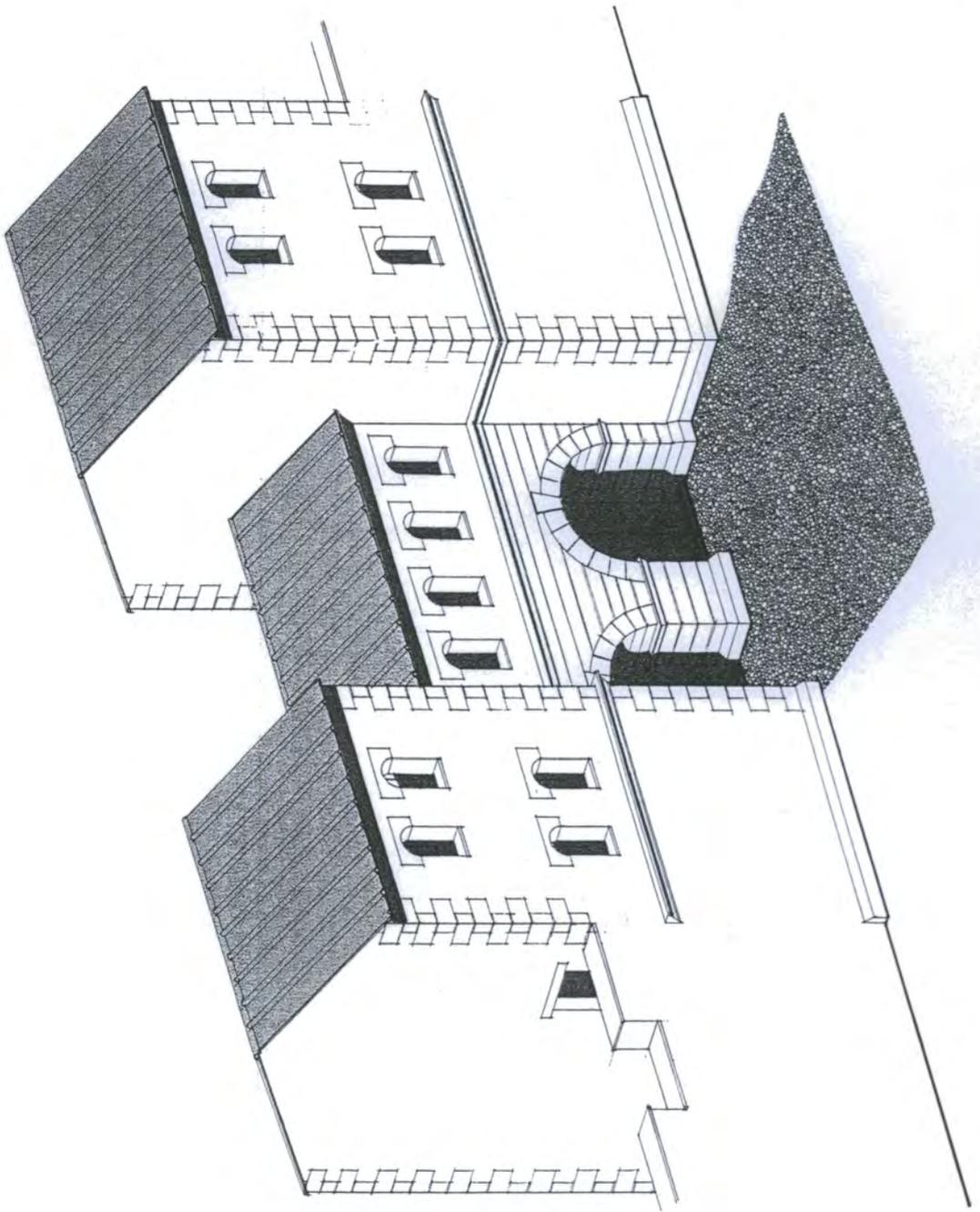


Fig. 54 Reconstruction of a gate with three storey towers and a storey over the portals,

Wallsend

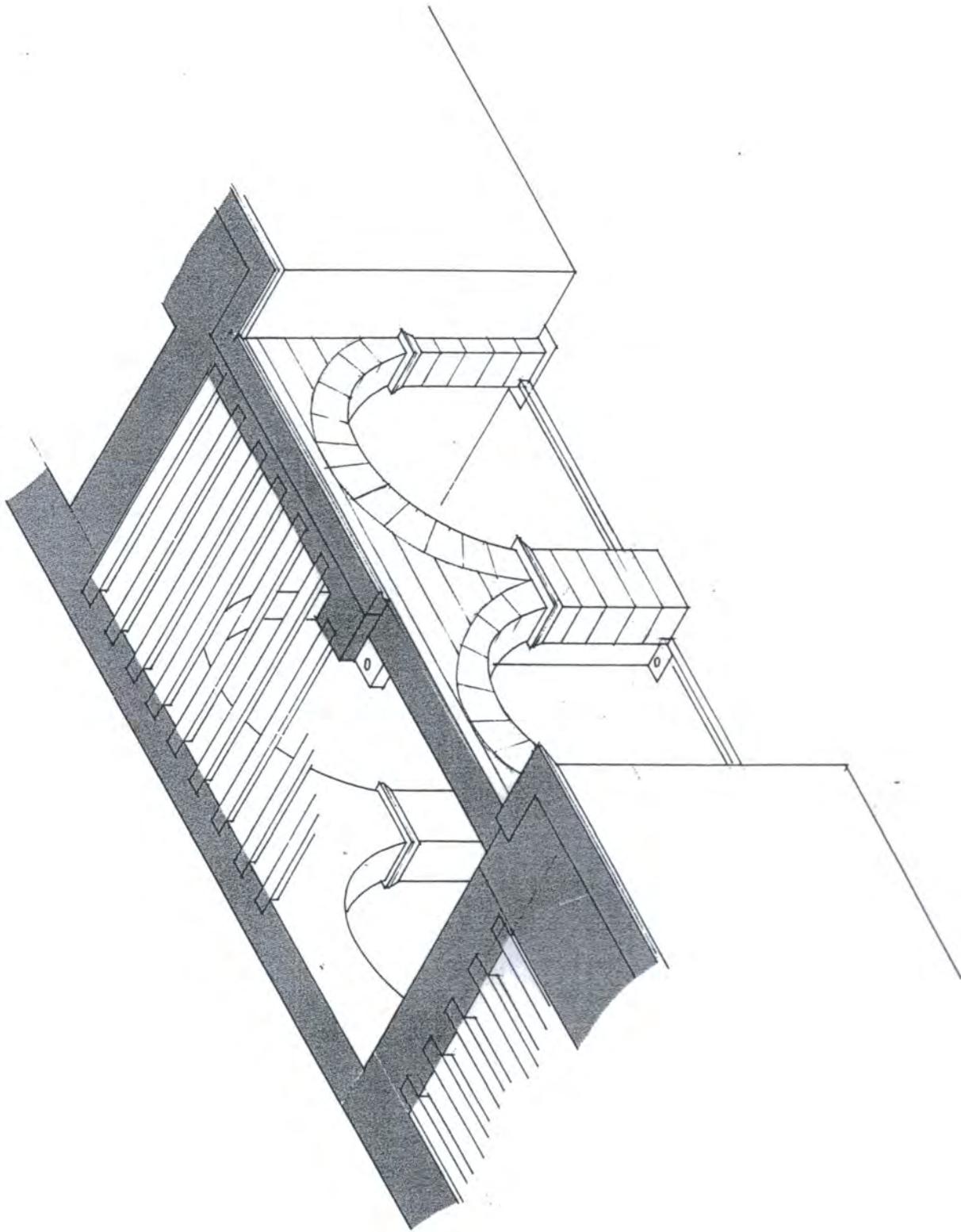
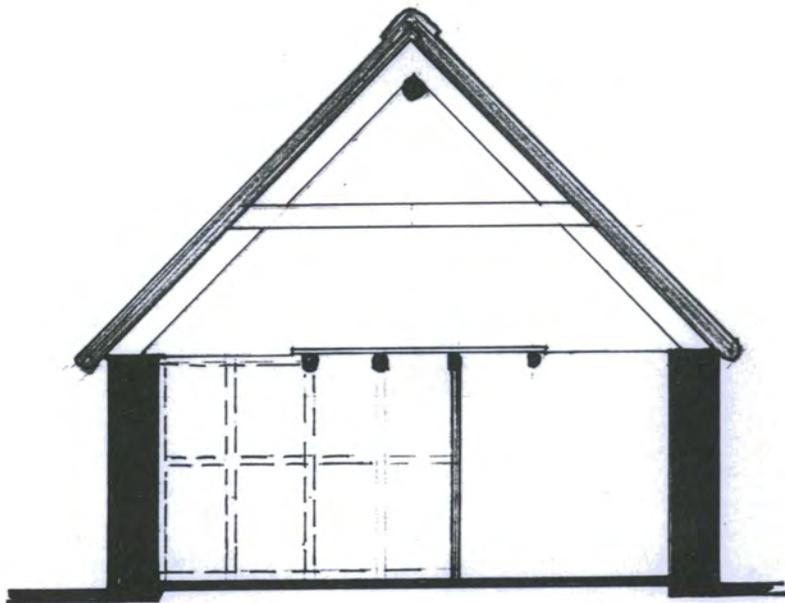


Fig. 55 Diagram showing layout of joists at first floor level to east gate at Birdoswald



Section through barracks assuming no verandah

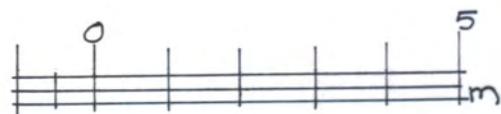
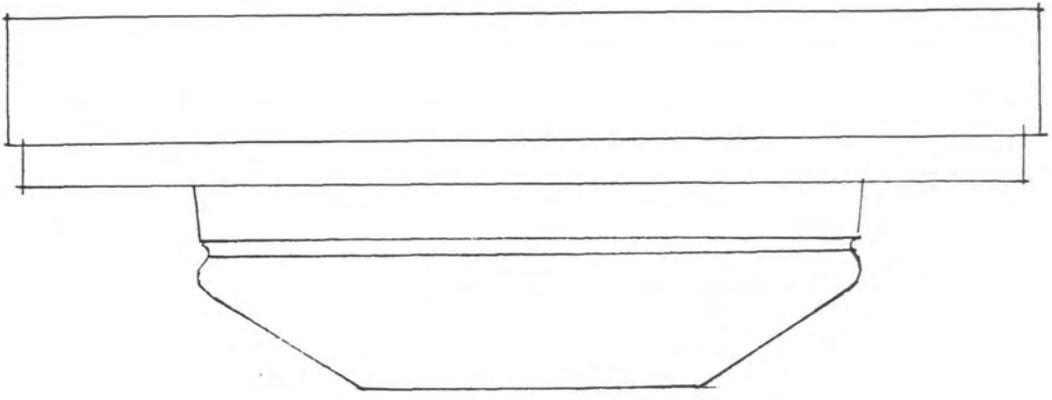
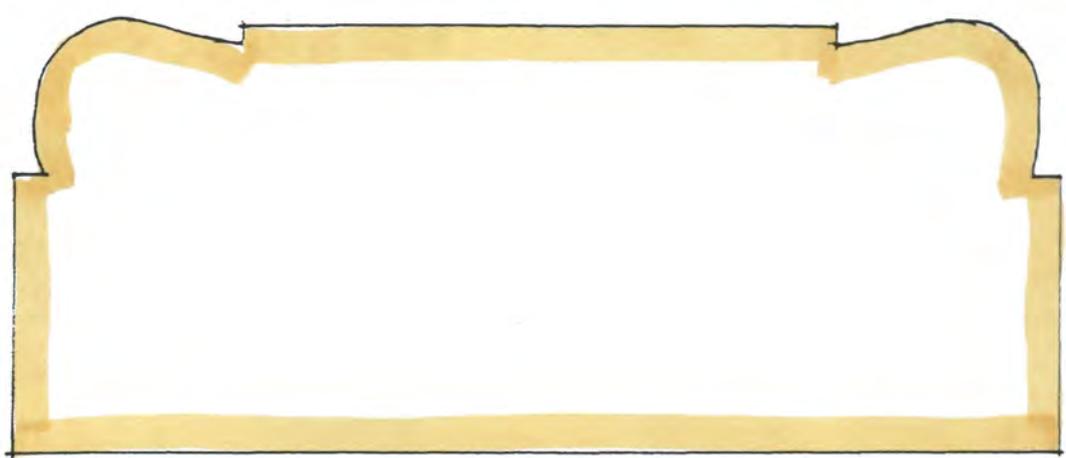
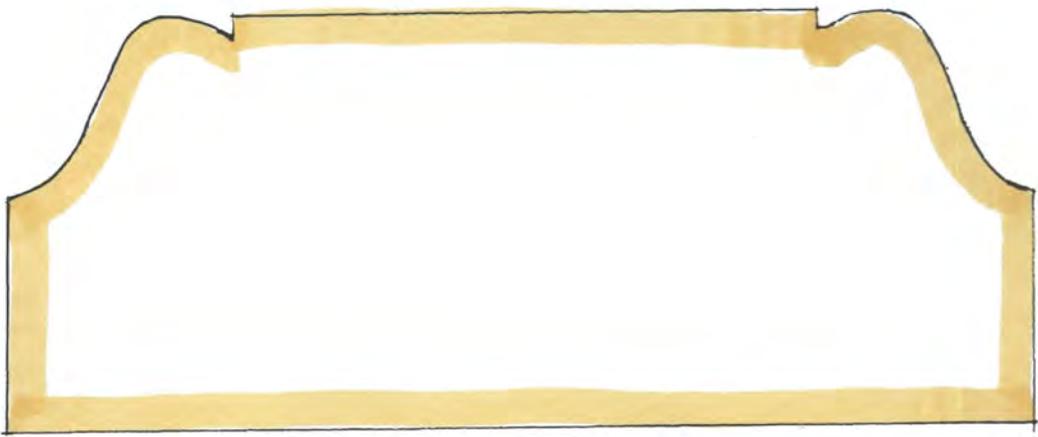


Fig. 56 Section through a typical barrack block, Wallsend



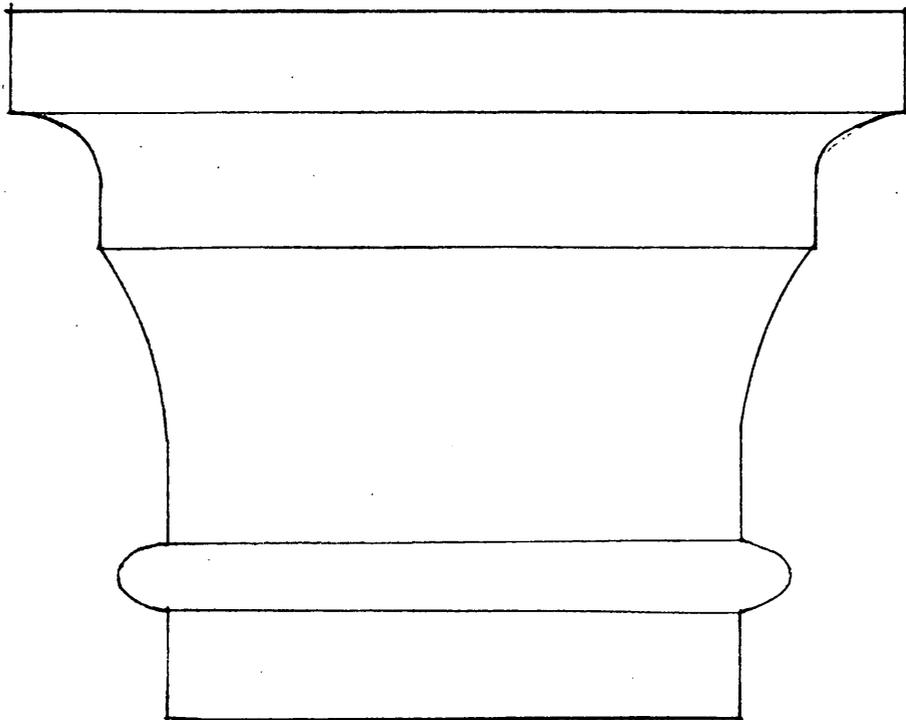
Elevation of capital



Sections through bases

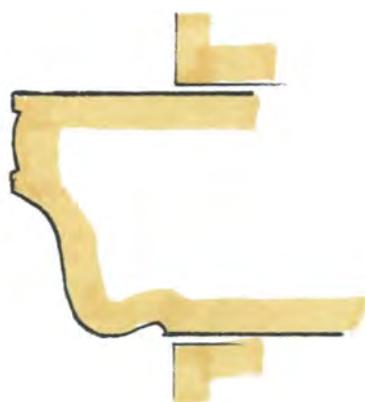
Scale 1:5

Fig. 57 Sandstone capital and two column bases of differing style, *principia*, Wallsend

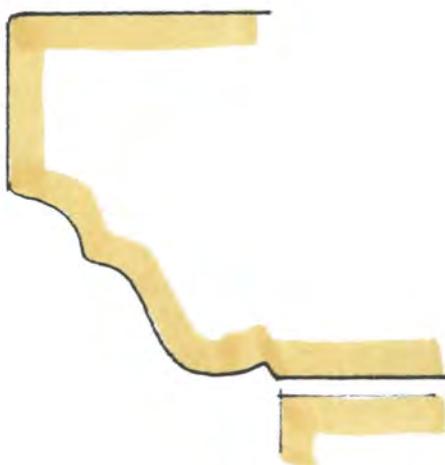


Scale 1:5

Fig. 58 Capital to the arcade to the granary, Housesteads



A

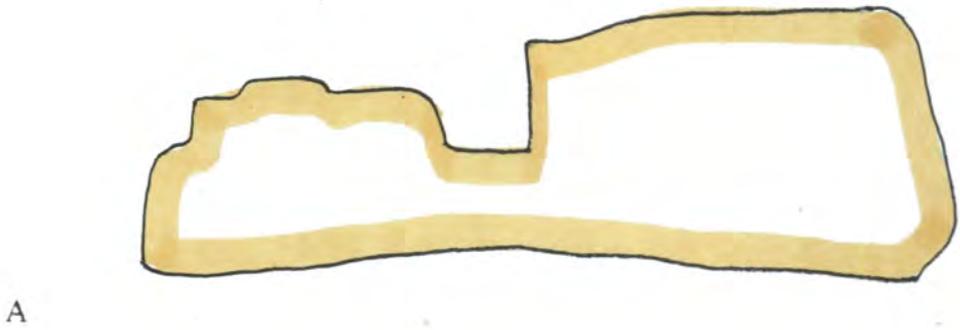


B

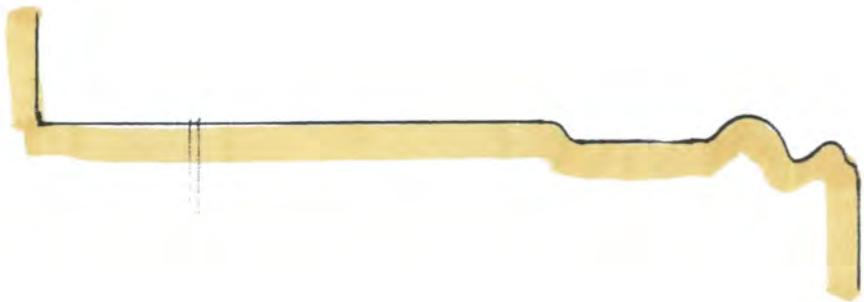
Scale 1:5

Fig. 59 A      Cornice mould, *principia*, Housesteads

B      Cornice mould, *principia*, Housesteads



A



B

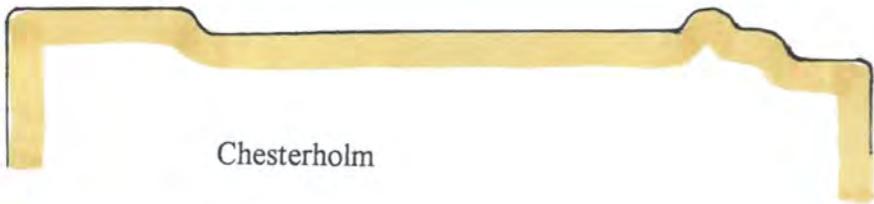
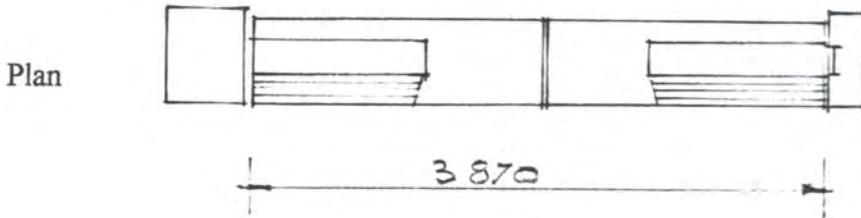
Scale 1.5

Fig. 60 A Moulded sill to probable tribunal, *principia*, South Shields

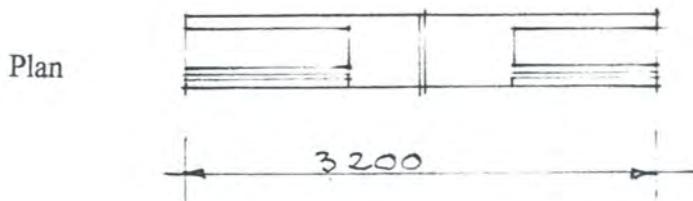
B Moulded sill to front of tribunal, *principia*, stone fort 2, Chesterholm



Housesteads

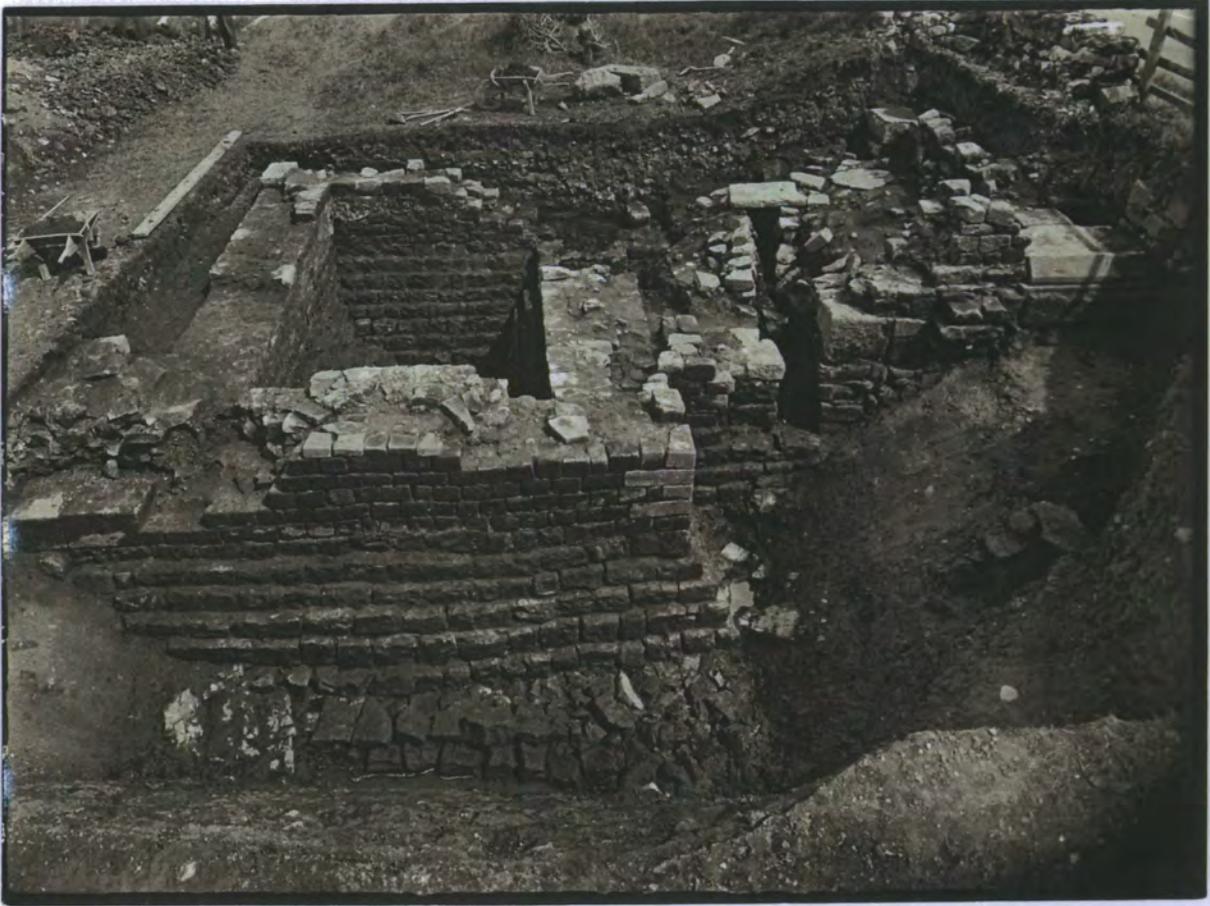


Chesterholm



Sections 1/4 full size

Fig. 61 Section through thresholds to Hadrianic *principia*, Housesteads and Chesterholm Plans 1:50



Pl. 1 Foundations to west gate, Halton Chesters



Pl. 2 Typical external angle to masonry walling



Pl. 3 Respond block to north portal to east gate Chesters showing chisel drafted margin and pitched face



Pl. 4 Lower voussoir to east gate, Birdoswald



Pl. 5 Projecting door threshold, rebated to take door linings, *praetorium*, Chesters



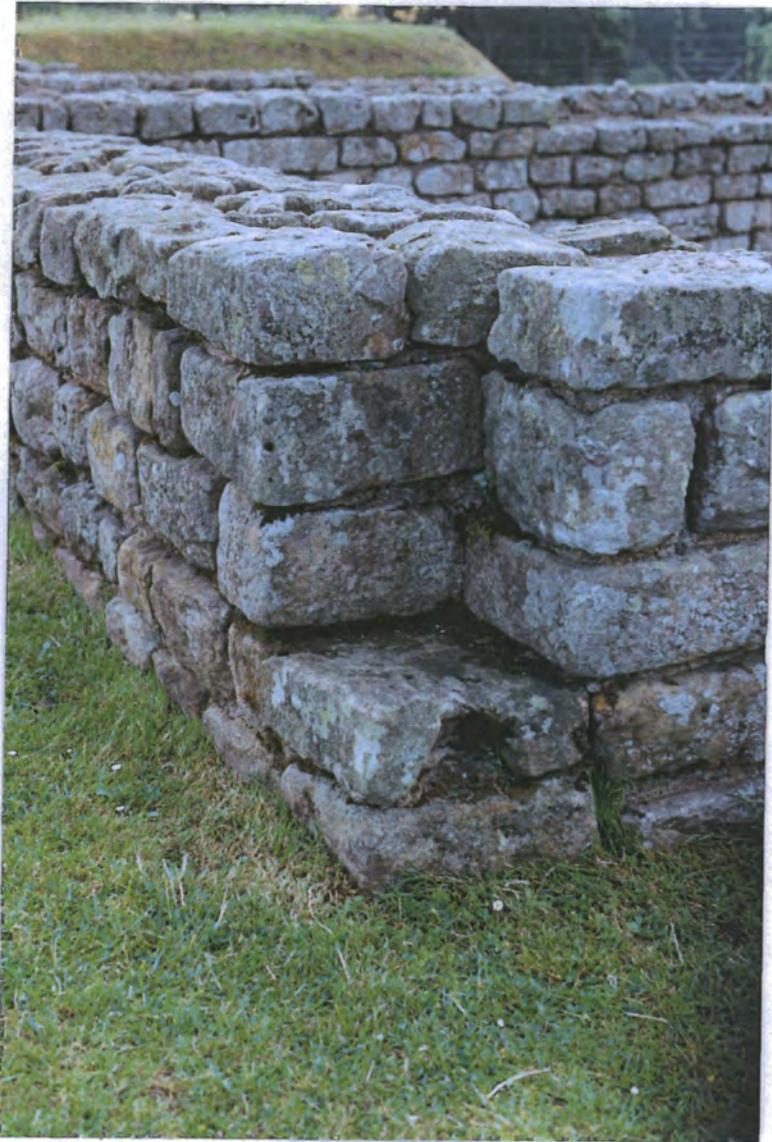
Pl. 9 Buttress to west elevation to granary, Housesteads



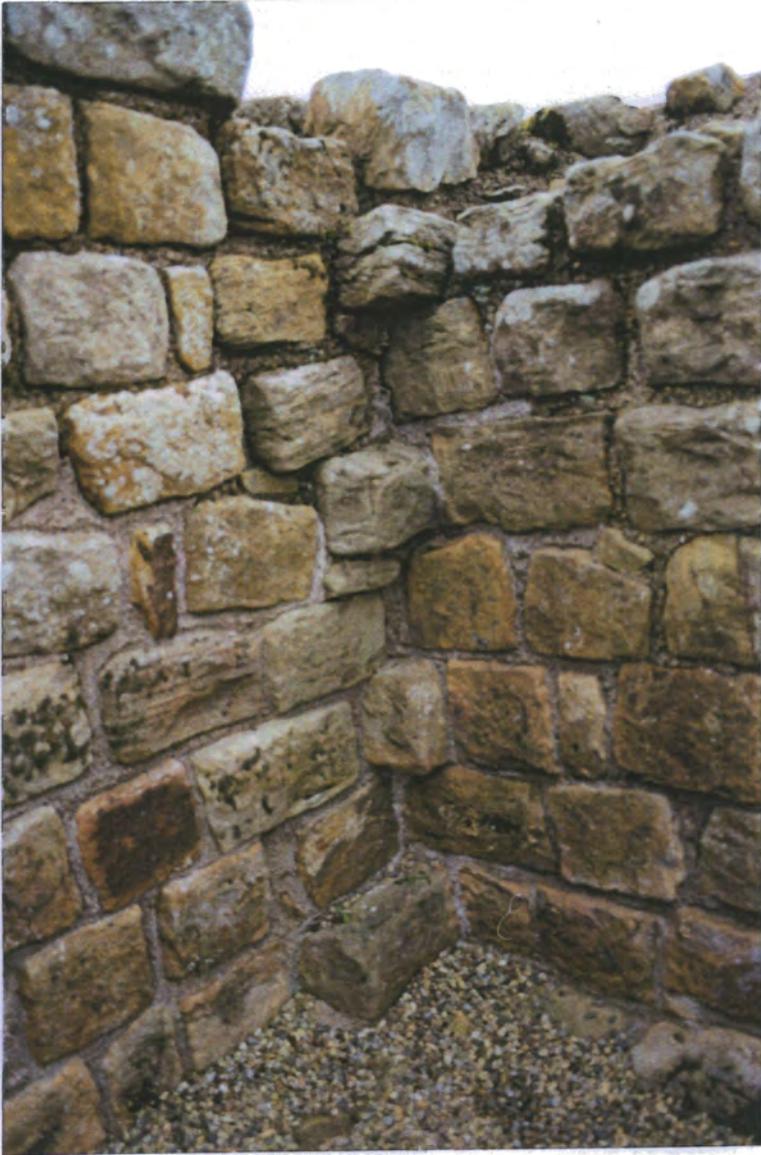
Pl. 6 Example of modern slating to a steeply pitched roof, France



Pl. 7 Modern slates used in pl. 6, indistinguishable from Roman slates



Pl. 8 Recess by doorway to *contubernium*, southern barrack block at Chesters



Pl 10 Junction of south-east internal tower with curtain wall, Chesters



Pl. 11 Junction of lesser gate with curtain wall, Chesters



Pl. 12 Typical construction of retaining walls, Housesteads



Pl. 13 Stonework showing projecting pier at entrance to cross-hall, *principia*,  
Housesteads



Pl. 14 Opening to *aedes* showing chamfered plinth course with upper chamfered  
course, Chesters



Pl. 15 Square base in perimeter wall to Hadrianic *principia*, Chesterholm



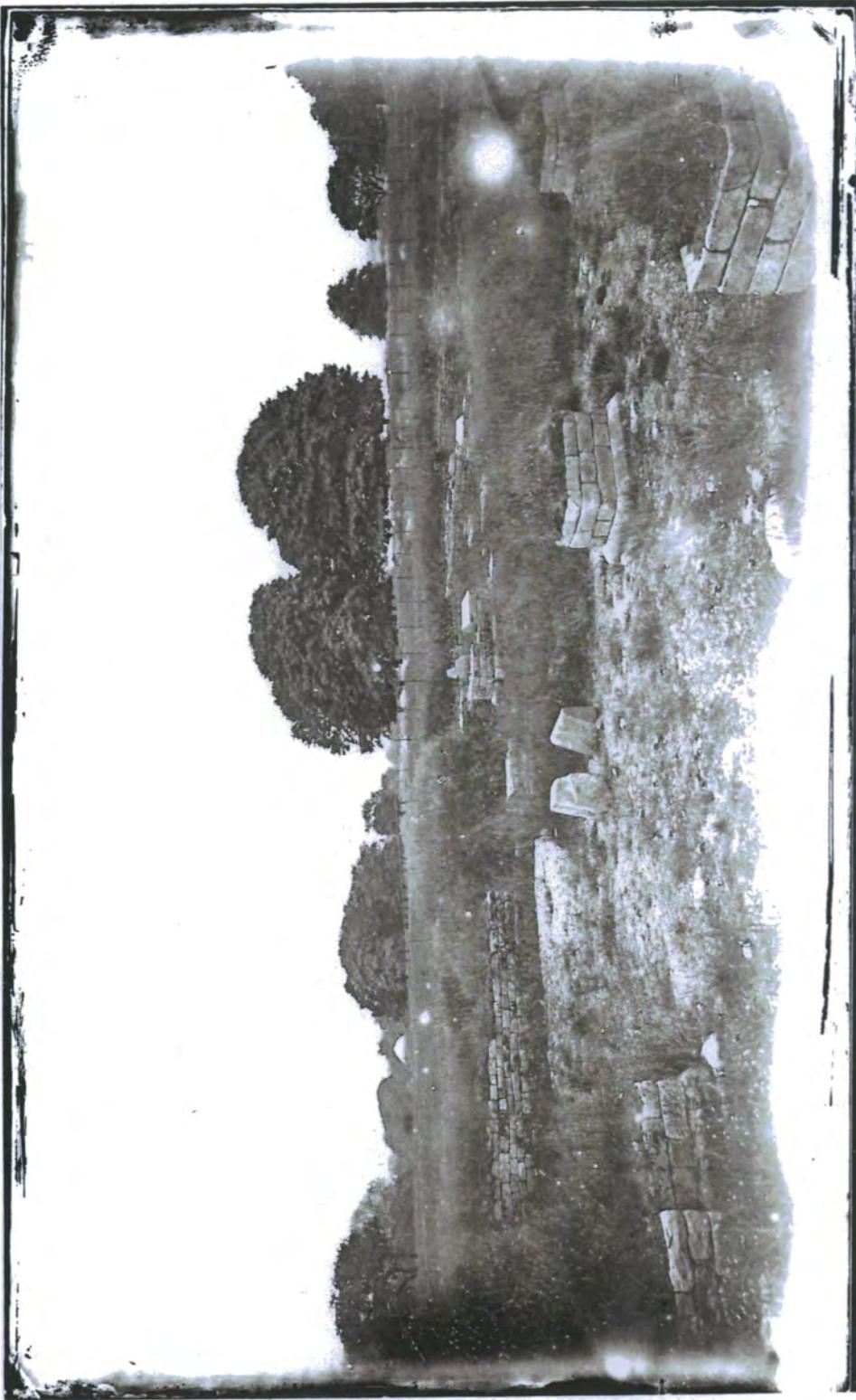
Pl. 16 Finely dressed pitched stonework forming internal angles to courtyard at the *principia*, Housesteads



Pl. 17 Threshold in east wall to cross-hall of the *principia*, Wallsend



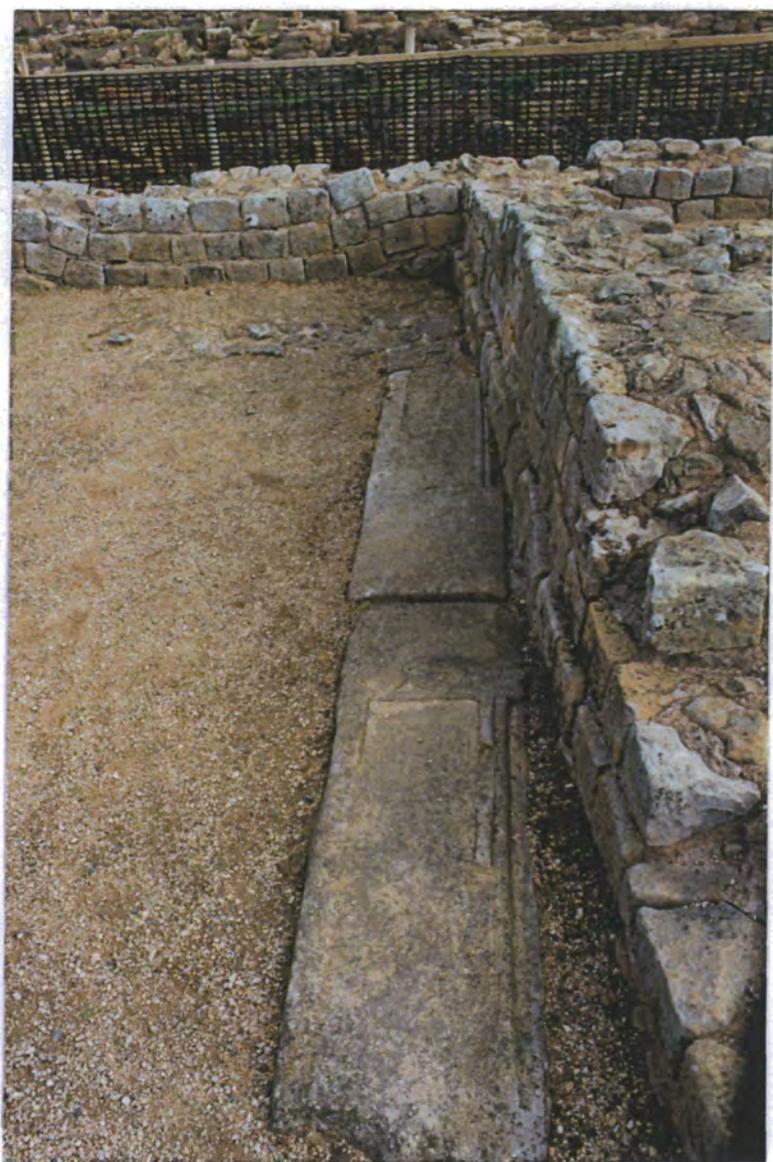
Pl. 18 Threshold to north door to cross-hall of the *principia*, Housesteads



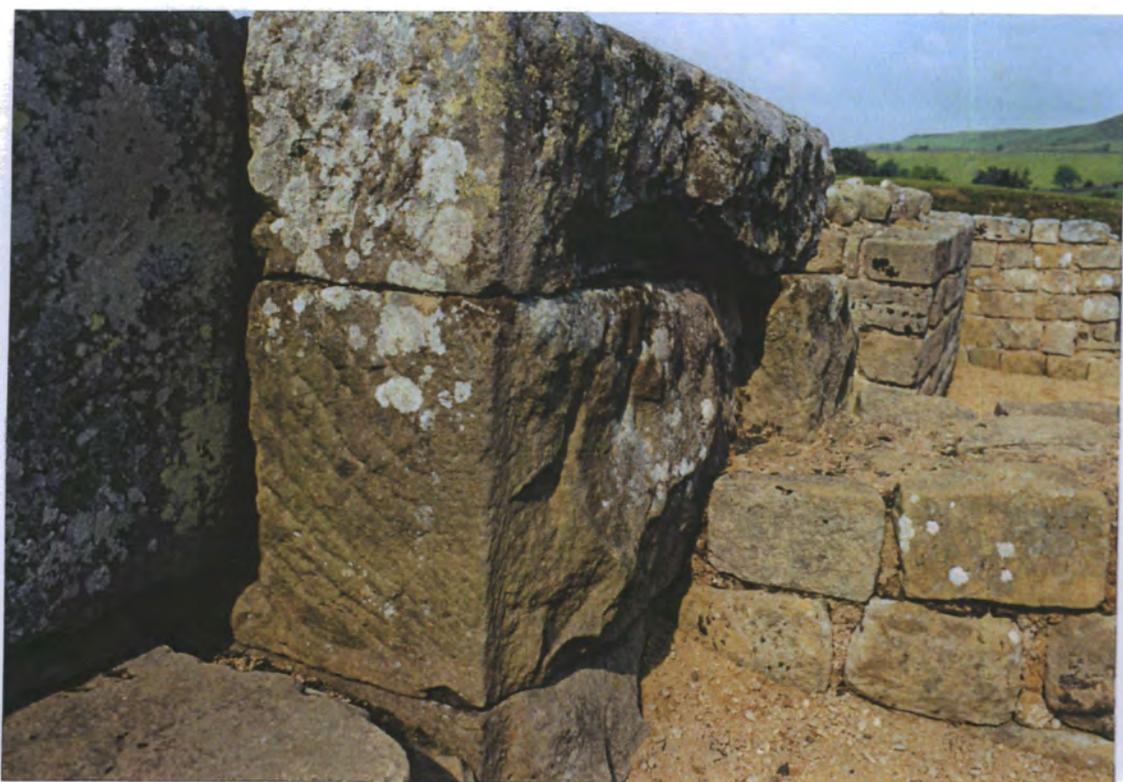
Pl. 19 Late nineteenth century photograph showing the aisle and cross-hall to the *principia*, Chesters



Pl. 20 Moulded threshold to *aedes, principia*, Housesteads



Pl. 21 Moulded threshold to *aedes*, Hadrianic *principia*, Chesterholm



Pl. 22 Rear face of eastern reveal to room to east of *aedes*, *principia*, Chesterholm



Pl. 23 Opening to room to east of *aedes* with sill panel, *principia*, Chesterholm



Pl. 24 Threshold to opening to *aedes*, with threshold in front of strongroom beyond, *principia*, Chesterholm



Pl. 26 South east corner of granary, Housesteads



Pl. 25 Slab reveals to doorway to third century bath house, Chesters



Pl. 27 Threshold to west door of northern granary, Housesteads



Pl. 28 Threshold to east door of southern granary, Birdoswald



Pl. 29 Typical sleeper wall arrangement to the Severan granaries, South Shields



Pl. 30 Northern granary, Housesteads



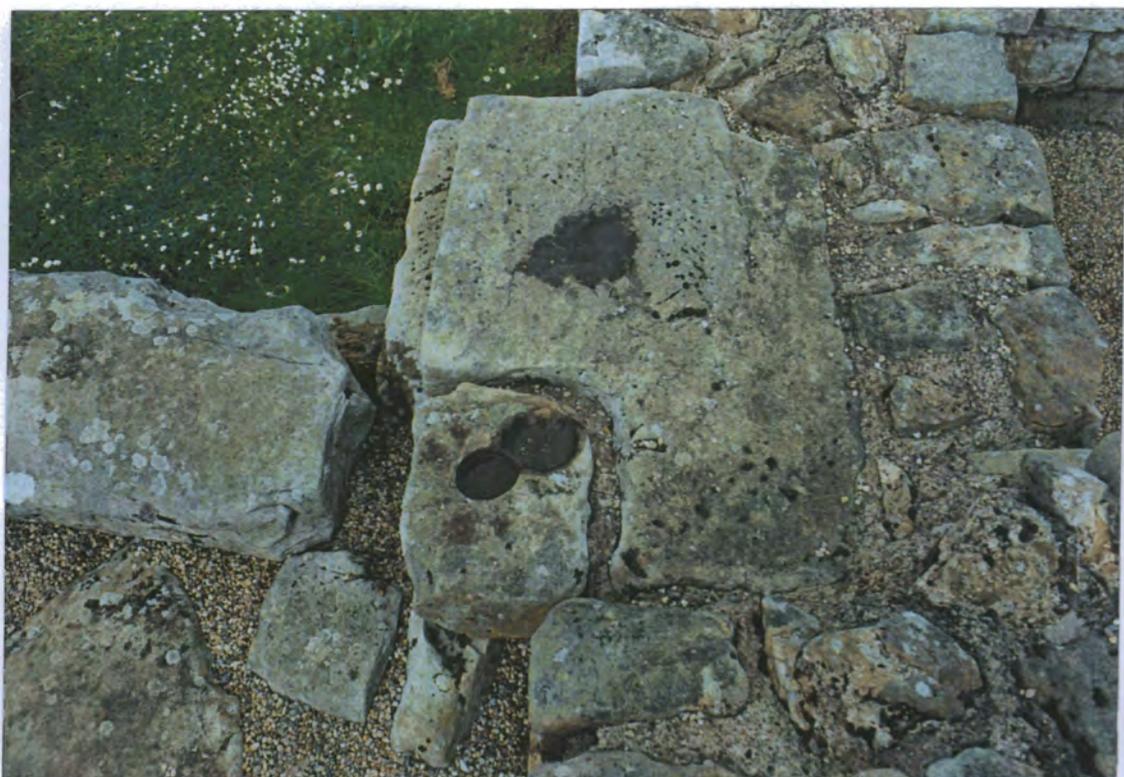
Pl. 31 Mid-Antonine (A5) double granary, South Shields



Pl. 32 Southern wall to later northern granary at Housesteads, showing *pilae* built into the base of the wall



Pl. 33 Foundations to guardchamber to east gate, Halton Chesters



Pl. 34 New pivot stone block cut into primary foundation course, north gate, Chesters



Pl. 35 Setting out point on foundation course, west gate, Chesters



Pl. 36 Foundation course to *spina*, east gate, Housesteads



Pl. 37 Setting out lines to south portal, west gate, Housesteads



Pl. 38 Threshold and pivot to south portal, west gate, Birdoswald



Pl. 39 Plinth course to south guardchamber to east gate, Housesteads



Pl. 40 Masonry to south guardchamber, west gate, Great Chesters



Pl. 41 West guardchamber to north gate, Housesteads



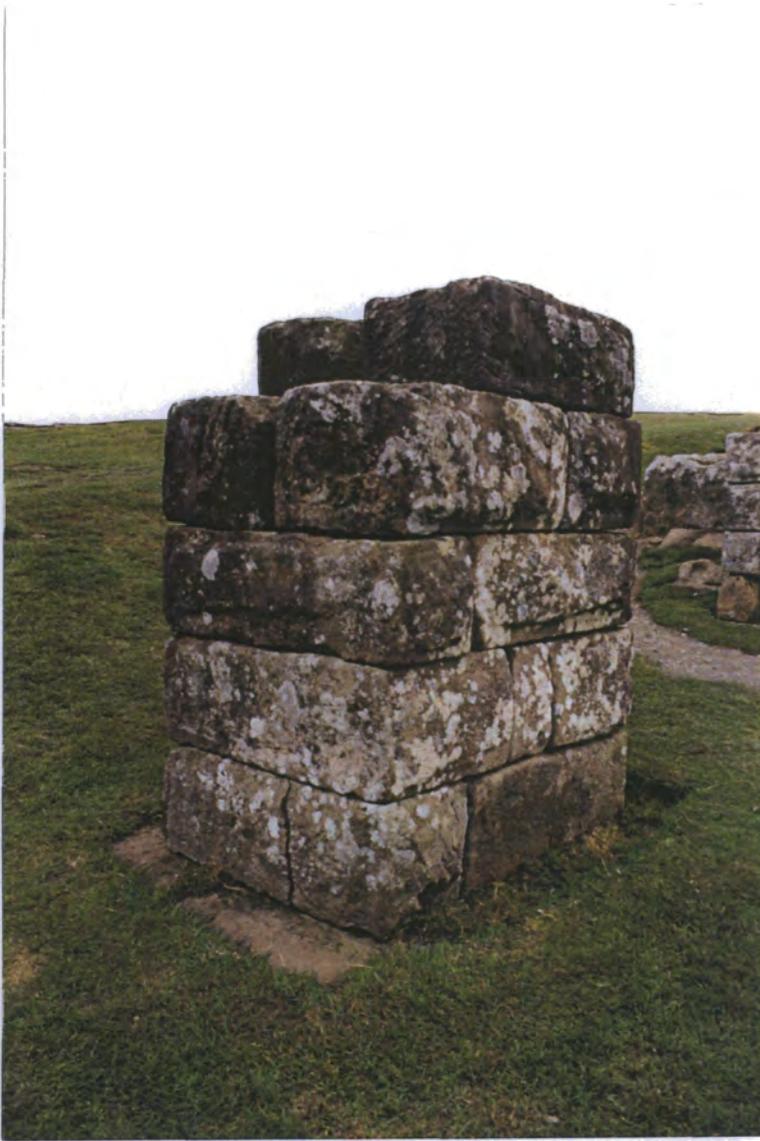
Pl. 42 Chamfered plinth to portal to west gate, Halton Chesters



Pl. 44 Masonry below *spina* to north gate, Housesteads



Pl. 43 North respond to north portal, west gate, Housesteads



Pl. 45 Southern *spina* to north gate, Housesteads



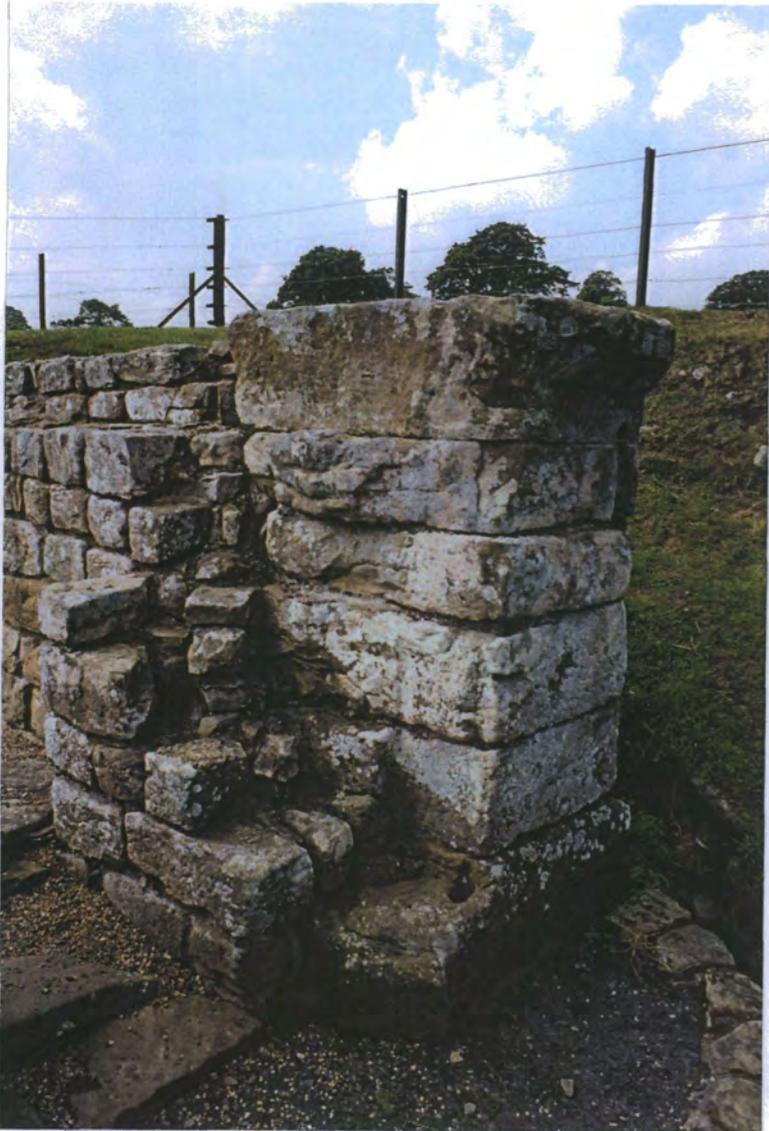
Pl. 46 Internal angle to reveal to *spina*, west gate, Housesteads



Pl. 47 Bonding of masonry to north inner portal, east gate, Chesters



Pl. 49 West elevation to south portal, east gate, Chesters



Pl. 48 Bonding of masonry to south inner portal, east gate, Chesters



Pl. 50 Offset courses to west outer portal, north gate, Housesteads



Pl. 51 Impost and lower voussoir outer north portal, east gate, Birdoswald



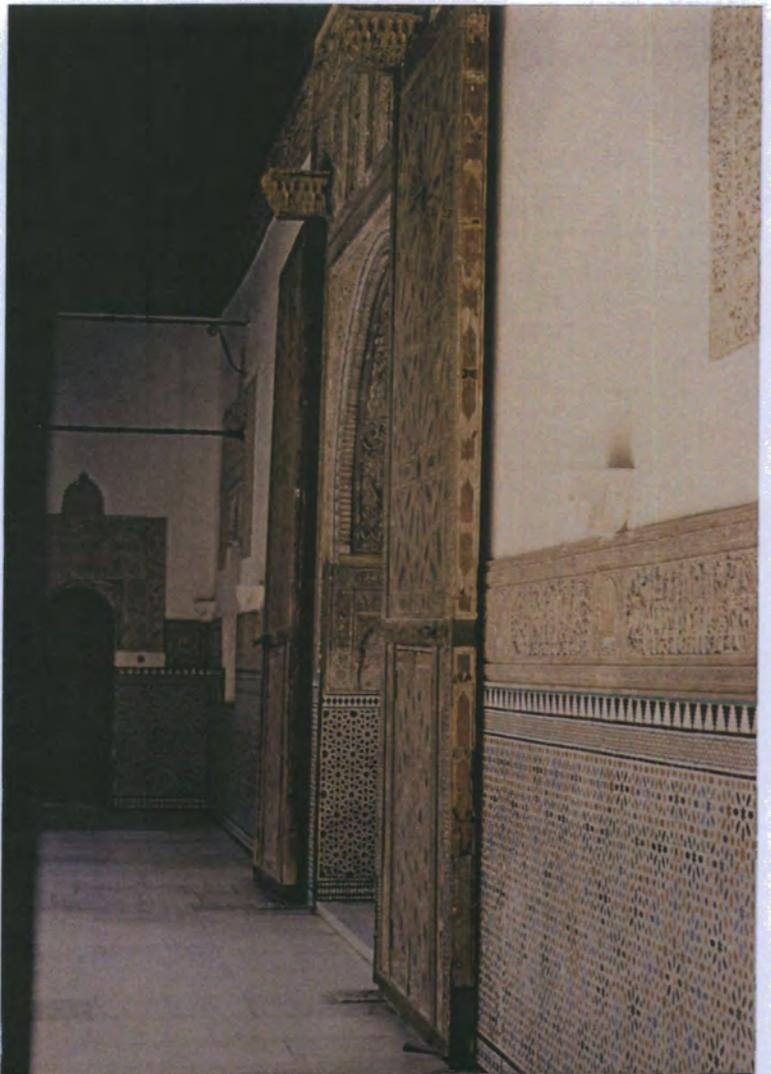
Pl. 52 Iron pivot sleeve and trackway, west gate, Chesters



Pl. 53 Top double pivot stone to south gate, Chesters



Pl. 54 Top single pivot stone to lesser east gate, Chesters



Pl. 55 Medieval door  
at the Alcazar, Sevilla



Pl. 56 Bottom iron pivot and socket to door at the Alcazar, Sevilla



Pl. 57 Internal cross walls butt jointing with external wall, south barrack, Chesters



Pl. 58 Entrance to a northern barrack block, Chesters



Pl. 59 Carved stone showing double portal gate, Maryport



Pl. 60 Capitals, unprovenanced, Chesters



Pl. 61 Column bases to cross-hall arcade, Housesteads





Pl. 62 Column base *h*, cross-hall of the *principia*, Housesteads



Pl. 63 Column base *a*, to the ambulatory to the *principia* courtyard, Housesteads



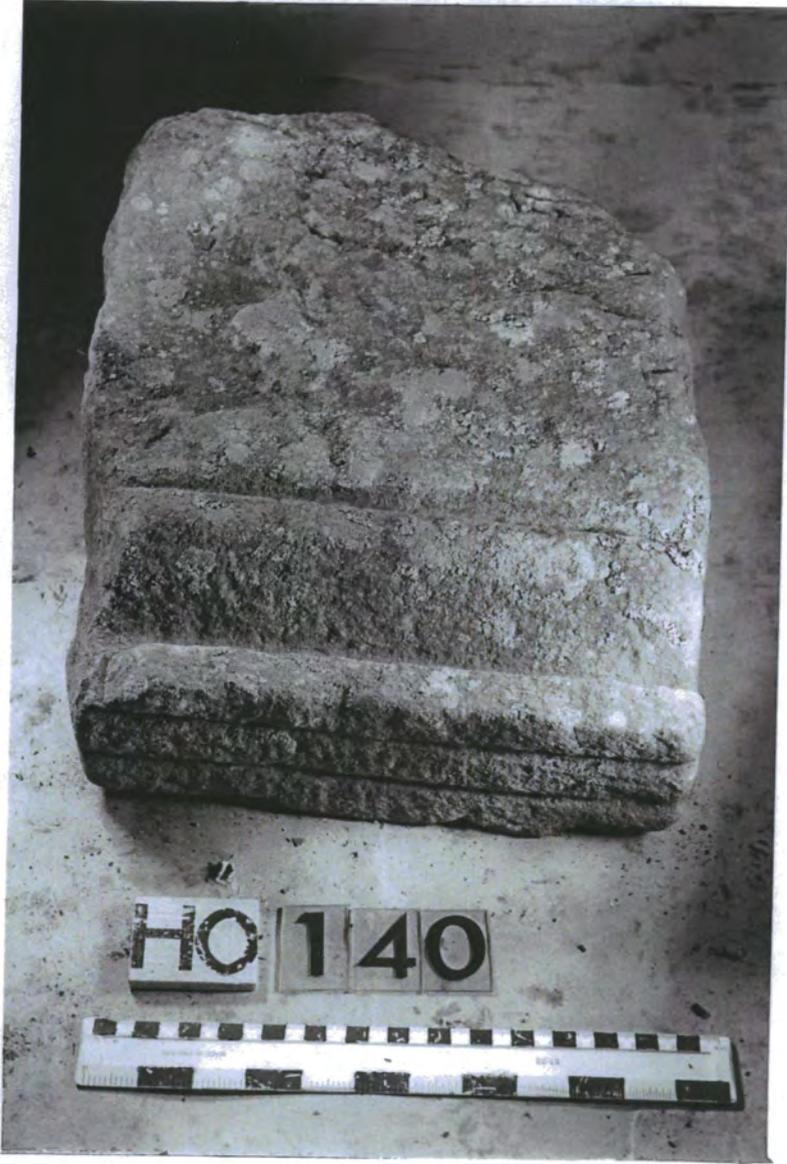
Pl. 64 Column base to east of *principia*, Housesteads



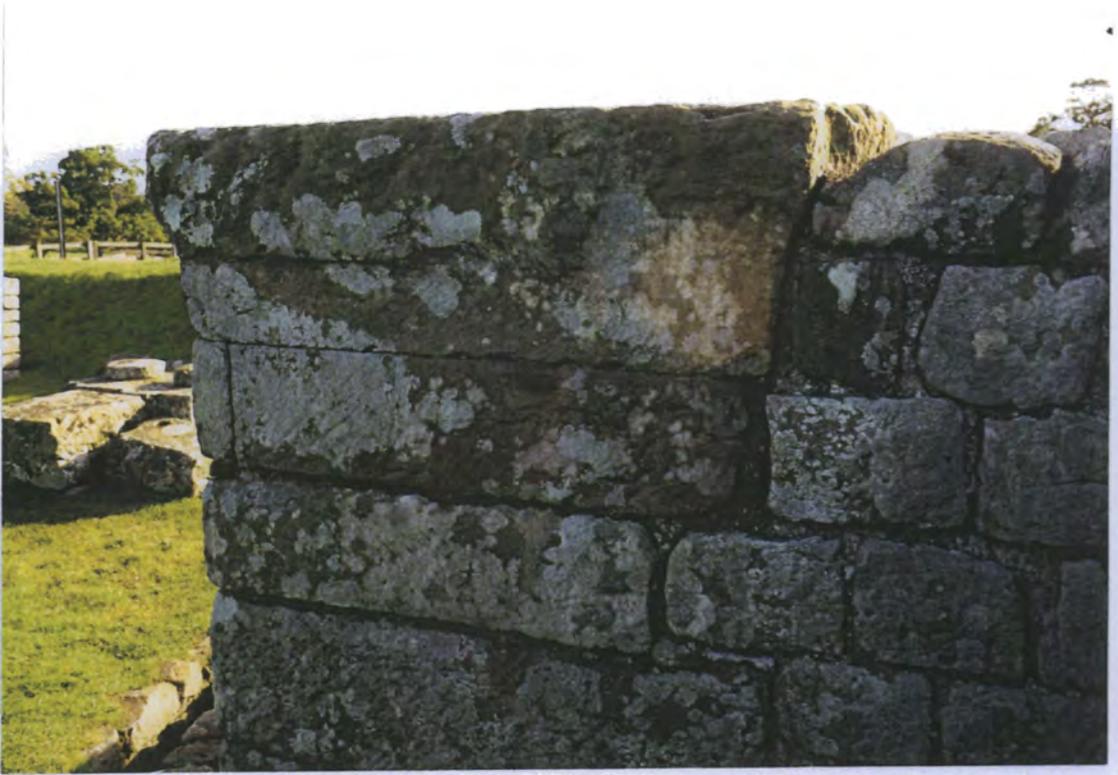
Pl. 65 Base to the arcade to the granary, Housesteads



Pl. 66 Column base to northern extant barrack in *praetentura*, Chesters



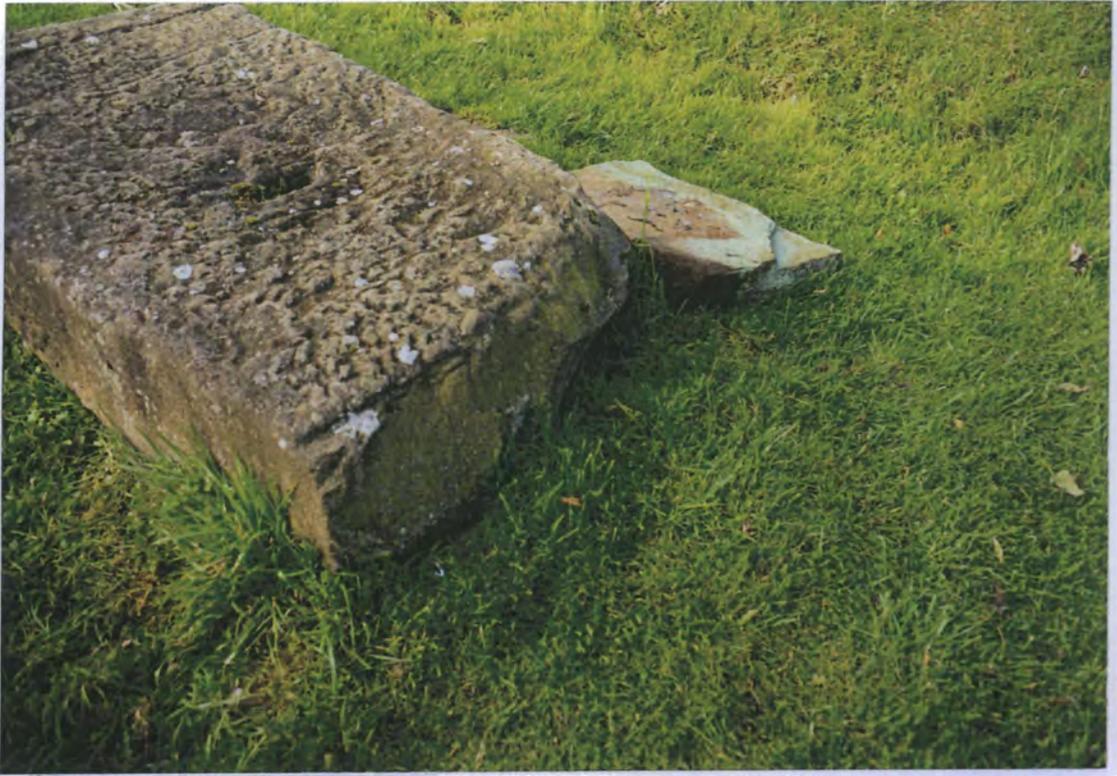
Pl. 67 String course block HO 140, type III, Housesteads



Pl. 68 Impost to west respond to the south portal of the east gate, Chesters



Pl. 69 Probable impost to east respond to the south portal of the east gate, Chesters



Pl. 70 Probable impost to the east respond to the north portal of the west gate,  
Chesters



Pl. 71 Fragment of threshold in the cross-hall, *principia*, Chesters

