The milecastles and turrets of Hadrian's Wall and their allocation to legionary construction teams

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THE MILECASTLES AND TURRETS OF HADRIAN'S WALL AND THEIR ALLOCATION TO LEGIONARY CONSTRUCTION TEAMS

by

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Preface

In 1966, Mr. C.E. Stevens published the revised edition of his 1947 Horsley Lecture, "The Building of Hadrian's Wall". It was largely due to this stimulating paper that I became interested in the milecastles and turrets of Hadrian's Wall. By collecting the existing structural evidence, and adding to it where possible, I hoped to see whether the traditional criteria for allocating milecastles and turrets to the three legions attested on the wall would be confirmed.

Before long, the idea of making Mr. Stevens' paper the basis for a new theory on the building of Hadrian's Wall developed. This theory, which is discussed in the last section of Chapter III and in Chapter V, is the joint work of Mr. D.J. Breeze of the Department of Archaeology in Durham and myself. It has been published in "Archaeologia Aeliana", vol. xlvi 1968 p.97-114, under the title, "The Building of Hadrian's Wall: A reconsideration".

I am indebted to Professor Birley, my supervisor, for his help and encouragement throughout the writing of this thesis; to Dr. J.C. Mann and Dr. Brian Dobson of Durham University and Mr. J.P. Gillam of Newcastle University, for discussing the problems raised by the evidence for the building of Hadrian's Wall; to Mr. C.E. Stevens, for supplying information on the structural details of several milecastles in the central sector of the wall and to Mr. R.L. Bellhouse, who placed at my disposal

his unpublished paper, "Roman sites on the Cumberland coast 1966 -67", with its valuable appendixes on the height and foundations of the coastal towers. Fig.II, "Hadrian's Wall from MC 4 to the Irthing: The Allocation of Structures and Curtain to the Three Legions", is the work of Mr. Breeze.

April 1969. J.M.

List of Figures in the Text.

Abbreviations.

Abbatt	... "The Picts or Romano - British Wall" (1849).
AA 1-4	... "Archaeologia Aeliana", 1st-4th series.
Brand	... "The History and Antiquities of Newcastle upon Tyne" (2 vols. 1789).
Bruce RW1-3	... "The Roman Wall", 1st-3rd editions.
WB	... "The Wallet Book" (1863).
HB2-3	... "Handbook to the Roman Wall", 2nd-3rd editions.
BHW	... "The Building of Hadrian's Wall", by C.E. Stevens (1966).
CPH	... "The Centenary Pilgrimage Handbook of Hadrian's Wall" by Eric Birley (1949).
CW1-2	... "Cumberland and Westmorland Transactions", old and new series.
DNAAS	... "Transactions of the Architectural and Archaeological Society of Durham and Northumberland".
FGS	... F.G. Simpson.
HB9	... "Handbook to the Roman Wall", 9th edition, edited by R.G. Collingwood (1933)
HB10	... "Handbook to the Roman Wall", 10th edition, edited by I.A. Richmond (1947).
HB11	... "Handbook to the Roman Wall", 11th edition, edited by I.A. Richmond (1957).
Hodgson	... "History of Northumberland", part ii vol. iii (1840).
Horsley	... "Britannia Romana" (1732).
IAR	... I.A. Richmond.
JRS	... Journal of Roman Studies.

Abbreviations (continued)

Mac Lauchlan	... "Memoir" (1858).
MC	... Milecastle.
NCH	... "Northumberland County History".
NEEC	... North of England Excavation Committee.
PSAN1-4	... "Proceedings of the Society of Antiquaries of Newcastle upon Tyne", 1st-4th series.
RHW	... "Research on Hadrian's Wall" by Eric Birley (1961).
RIB	... "The Roman Inscriptions of Britain", vol.I by R.C. Collingwood and R.P. Wright (1965).
RGC	... R.G. Collingwood.
RLB	... R.L. Bellhouse.
SHA	... "Scriptores Historiae Augustae".
SW	... Stone Wall.
T	... Turret.
TW	... Turf Wall.
Wallis	... "The Natural History and Antiquities of Northumberland", vol. ii (1769).

Technical Terms.

The wall, above its footing course, is known as curtain. The footing course, which is essentially part of the wall foundation, will only be referred to by name when it is necessary to distinguish it from the underground part of the wall foundation.

A curtain length is the distance along the wall between one structure and another. A sector consists of any number of curtains, which are connected to each other, in some way. The terms "Broad Wall", "Broad Foundation","Narrow Wall" and "Narrow Foundation", are taken from the second chapter of the "Handbook to the Roman Wall", 12th edition, where their use is defined.

CHAPTER I.

Milecastles and turrets: Antiquarian accounts and research.

The existence of structures, spaced about a mile apart, on Hadrian's Wall was evident to William Camden who visited the wall in 1599. Philomen Holland in his translation of Camden's "Britannia" (1610) notes:

"It (the wall) had many towres or fortresses about a mile distant from one another which they call Castle-Steeds and more within little fensed townes tearmed in these dayes Chesters, the plots or ground workes whereof are to be seene in some places four square; also turrets standing between these, wherein souldiers being placed might discover the enemies and be ready to set upon them".[1]

The word "milecastle" first appeared in the 1722 edition of Camden's "Britannia" edited by Bishop Gibson (Vol.II, P.1055). It occurs in a section entitled "Observations on the Pict's wall in a Journey made between Newcastle and Carlisle in the Year 1708 on purpose to Survey it", by Robert Smith of County Durham.[2] Smith noticed the "little Forts or Castles" a miles distance apart, which the local people called "Mile-Castles". They are described rather inaccurately as

"either exact or oblong squares, but their size or largeness is pretty different; some I have observed thirty yards

square, several of them twenty-five or twenty-six yards from south to north and fifteen or sixteen from west to east including the thickness of the walls, which is likewise often different: others of them again are twenty yards from north to south and nine or ten yards from west to east, with the thickness of the walls".

Alexander Gordon, in his "Itinerarium Septentrionale" of 1726, was the first antiquary to write at length on the turrets, although he was not concerned with their spacing. He described turret 28A as:

"a little Exploratory Turret of hewn Free Stone..... being little more than 12 foot in Length and something less in Breadth: and is about 5 courses of Stone in Height".[3]

During his visits to the wall, Gordon noted twenty-three milecastles, each about sixty-six feet square, and many turrets which had not been recorded before.

John Horsley, the author of the "Britannia Romana" (1732), realized, like Camden, that the milecastles were regularly placed just under a mile from each other. His conception of the spacing of turrets was, however, inaccurate because, as Professor Birley has pointed out[4], he misread his surveyor's maps. His account of spacing is as follows:

"The smaller turrets (in Latin turres) have been more generally and intirely ruined than the castella so that tis hard

to find three of them anywhere together with certainty. The distance between two where it was thought surest was measured and found to be near fourteen chains or three hundred and eight yards. It therefore seems most probable that there have been four of these between every two castella at equal distance from the castella and one another; for thus five intervals will be found between every two castella each consisting of fourteen chains, which five intervals will just amount to seven furlongs, the usual or mean distance between the castella".

Horsley continues with a description of the turrets:

"These exploratory turrets or watch-towers seem to have been only about four yards square at the bottom. And by placing sentinels at each of these, who must have been within call of one another, the communication quite along the wall might be kept up, without having recourse to the fiction of a sounding trumpet or pipes laid underground from one end of the wall to the other".[5]

Horsley was the first antiquary to use the Roman concept of frontier towers, a mile distance from each other, as a basis for systematic fieldwork on the wall. Believing that there were eighty-one milecastles, he calculated one wall-mile too many.

In his book, Horsley included the information from Dr. Hunter, that, in the milecastle west of Walwick (MC 29),

there was a gateway through the wall[6]. William Hutchinson, writing in the late eighteenth century, confirmed this observation:

"I examined the foundations of some of these castle-steads with attention, where the military road approached the wall, and they appeared to me the remains of gateways, over which, perhaps there were towers for their defence".[7]

John Hodgson, while accepting Horsley's account of turret spacing, made some very accurate measurements of the distances between milecastles. On the structures themselves, he noted:

"Of their construction little can now be learnt from their remains; but from the plain foundations of an inner wall at the distance of about one third of its internal length and breadth from the outer walls in that next last of Housesteads, I inferred that the space between the walls had been roofed and the centre uncovered. The entrance to them had been uniformly in the middle of the south wall".[8]

Although Hodgson recognized the presence of buildings inside the milecastle, he did not realize that they were independent of the milecastle walls.

The beginning of excavation on Hadrian's Wall in the 1850's, yielded more exact information about its structures. John Clayton's excavation of MC 42[9] (1848), MC 37[10] (1853) and MC 39 (1854), revealed not only the basic design of a milecastle,

but confirmed Hutchinson's inference about milecastle gateways. In the "Wallet Book" of 1863[11], Bruce described the independent building inside MC 39. At this point, research into the structure of milecastles rested until the beginning of the twentieth century.

The excavation of turret 29A in 1873 by Clayton[12] raised, once more, the question of turret spacing. In his report, he wrote:

"This turret is 530 yards west of the Towertye milecastle, and therefore does not support the theory of Horsley, that the turrets were placed at equal distances of 308 yards from the milecastles and from each other."

Clayton also noted the points of reduction on each side of the turret and gave precise dimensions for the whole structure. In 1883, the subject of turret spacing was again raised by Bruce:

"I have reason to know that when Mr. Clayton discovered the turret on Black Carts farm and cleared the wall for a considerable distance to the westward of it, he caused diligent search to be made for any traces of a turret, but without success. The impression made upon the minds of those of us who watched the proceedings was that the distance between the turrets was really greater than Horsley supposed".[13]

Not long afterwards, turret 45A was found by Clayton's

workman, William Tailford, 578 yards east of turret 45B. Milecastle 45 was noted at 412 yards east again, and beyond it, at 522 yards, Tailford found turret 44B. In a paper read in 1883[14], Clayton reported:

"Horsley thought that there were four of these turrets, or, as we may call them, stone sentry boxes, between each milecastle. So far as we can at present see, there were but two".

The question was settled in 1904 by Percival Ross in a paper given to the Bradford Historical and Antiquarian Society, entitled "The Turrets and Milecastles of the Roman Wall in Northumberland". Ross considered each of Horsley's turrets in turn and showed that the average distance between two wall structures was five hundred yards and not three hundred and eight yards, as had been supposed. By 1904, there were six new turrets to add to Horsley's list of fifteen.

Ross's conclusions have been confirmed by further fieldwork, particularly that of F.G. Simpson and Philip Newbold. Professor Birley notes (RHW P.105) that, between 1909 and 1913, F.G. Simpson located twenty-one turrets between milecastles 33 and 48. He continued his investigations into milecastles and turrets long after this date and proved that, in all cases, they were built before the wall forts. The first turret plans were published by Simpson in 1913[15] and by Newbold in 1912[16].

By the 1930's, enough was known about the structure of

milecastles and turrets to suggest that they differed in small details among themselves. The significance of the structural differences between several milecastles became apparent in 1911[17], when F.G. Simpson and J.P. Gibson published their report on excavations at MC 48, on the Poltross Burn. By then, Simpson had examined five milecastles in sufficient detail to distinguish between three types of gateway. The report gave the first complete plan of a milecastle and its internal buildings and discussed the differences between several milecastles. These were again discussed by Simpson, on the basis of greater information, in 1931 (AA4 viii P.308 f.f.). The passage is worth quoting in full:

"Before 1911 five milecastles had produced three gateway plans sufficiently different to represent distinct types..... In type I, the gateway is constructed throughout of very massive, well-dressed and carefully laid masonry; the passage is arched at both ends and its total length (including the piers) does not exceed the thickness of the milecastle wall through which it passes, by more than a few inches at each end. In type II, the whole gateway is built of ordinary masonry, the stones of the piers being no larger than the lower course facing stones; the passage is arched at the outer end only, and is lengthened by a buttress-like projection of the inner face of the milecastle wall. In type III, the above plans are combined,

the passage is arched at both ends as in type I and at the same time lengthened as in type II. At Poltross Burn there was also a combination, in construction, of massive (though badly finished) masonry in the piers, with ordinary facing work in the passage walls. No further type of plan appeared before 1929, the gates at High House (No 50) being of type III, but in 1929 the south gate of Chapel House (No. 9)[18] was found to differ from the foregoing types sufficiently to represent the first example of a fourth type. In this case, the passage is arched at the outer end only, and its length is the same as the thickness of the wall through which it passes. This gateway was constructed throughout of massive masonry.

Another detail of the milecastle plan seems to be emerging as a significant feature, namely the proportionate length of the axis (the centre-line through the gateways). The average internal dimensions of a milecastle (apart from the three 'large' examples nos. 48 - 50) are 60 by 50 feet. Out of the eleven 'small' examples available for comparison before 1930, the axis was the larger dimension in nine cases (as well as in the 'large' milecastles); in two only, Housesteads (No.37) and Cawfields (No.42) was the axis the shorter dimension..... it may be pointed out that these two milecastles also have gateways of type I - the only examples known until 1930".

Simpson's outline of the structural differences between

milecastles has never been questioned in print. A discordant note came from MC 18[19], which, when excavated in 1931, seemed to have a type I gateway and a long axis. Until then, type I gateways had only been found in short axis milecastles.

Simpson noted that the milecastles of the stone wall, from MC 49 to MC 54 inclusive, were much larger than those east of the River Irthing. Barrack accommodation varied from one milecastle to another. In most cases there was only one barrack block. MC 48 had two.

By 1932, the excavation of turrets had progressed far enough to allow Parker Brewis[20] to attempt an illustrated reconstruction of one, using T18A as his example. His conclusions are summarized on P.107 of "Research on Hadrian's Wall", as follows:

"1) The doors open outwards, for the original threshold was retained at 29 B even after its floor had been raised, while there and at 26 B and 29 A, the trackway to the lower pivot hole leads from outside.

2) The lofty ground-floor chamber had windows in the east and west walls, to admit light and let out smoke: the window glass found in several turrets presumably came from glazed windows in the upper chamber where the men lived, which was presumably partitioned off from the wall-walk past its front, which would need unglazed windows to the north.

3) The upper storey was of stone. (J.P. Gibson had supposed that it was of timber), the roofs probably gabled so as to 'allow of an attic floor and a small window in the north gable affording the advantage of an eye-line 10 feet higher to the field'; stone slabs from several turrets showed how the roofs had been treated.

4) The height of the turrets must be calculated by reference to the parapet walk of the wall; taking into account Simpson's findings at the north gateways of MCs 37 and 48, Brewis considered that the height of the parapet walk was probably intended to be 15 Roman feet and the turret as a whole was probably designed to a standard of multiples of a passus, 5 Roman feet: hence he allowed for 15 Roman feet as the height of the ground-floor room, 10 for the first floor and another 5 to the ridge of the roof (making the postulated attic a rather cramped affair).

5) This led to an explanation of the 'platforms' which had been found in several turrets, none of them original but all assignable to wall period I, the purpose of which had previously defeated speculation. At 18A, however, the excavation of 1931 revealed a platform in splendid preservation with a flight of five steps leading up to it. The explanation was simple: in the original plan, a fixed ladder gave access to the upper floor, but this was soon found inconvenient; to provide a

moveable ladder which could be drawn up and stowed away easily in the upper room it was simplest to make it shorter than the length needed to reach ground-level, hence the insertion of a landing (as the platform could now be termed)".

These observations will be fully discussed in Chapter II. They have been generally accepted until now, although Professor Birley has pointed out that some turrets may have had a third storey and a flat roof (RHW P.108).

In 1931[21], the North of England Excavation Committee discovered a change in the construction of the wall between MC 17 and T 17A. The two new standards of construction were named A and B. In standard A there is an offset between the footing flag and the first course of walling and a second offset between the first and second courses. In standard B, the second offset comes between the third and fourth courses of walling.

The significance of the change only became clear when it was seen to coincide with a change in the type of milecastle and turret. West of MC 17 (to MC 22, inclusive), where standard B construction prevailed, the milecastles had long axes and (except for MC 18) type III gateways. The doorways of the turrets in this sector were at the west end of the south wall. East of T 17A, coinciding with standard A construction, the milecastles had short axes and type I gateways. The turrets had

doorways at the east end of their south walls and thicker walls than those to the west.

C.E. Stevens brought together the evidence for differences between turrets in his 1947 Horsley Lecture[22]. Professor Birley had already noted a) the group of turrets with 4' side walls (12A, 12B and 13A) and b) the group from 17A - 19B inclusive, with doorways at the west end of the south wall[23]. Stevens distinguished three types of turret as follows:

1) Broad Walls - Door to East

2) Narrow Walls - Door to East

3) Narrow Walls - Door to West

He used the fact that each turret type is found in association with a particular type of milecastle, together with the epigraphic evidence, to build up a theory of how the wall was built, by allocating its structures to the three legions attested on it. The revision of Steven's Horsley Lecture, published in 1966, though based on the same evidence, puts forward interesting and new ideas.

The aim of this thesis is to review the structural and epigraphic evidence for the allocation of milecastles and turrets to legionary construction teams and to attempt a reconstruction of the building of Hadrian's Wall, on the resulting conclusions.

Footnotes to Chapter I

1. Holland, Philomen - translation of Camden's "Britannia" (1610) p.793.
2. CW2 lv p.154 - 171 R.C. Bosanquet - "Robert Smith and the Observations on the Pict's Wall".
3. Gordon, Alexander - "Itinerarium Septentrionale" (1726) p.74.
4. RHW p.90.
5. Horsley p.120.
6. Horsley, Preface p.ix.
7. Hutchinson, William - "A View of Northumberland" (1778) vol.i p.21.
8. Hodgson HN ii, iii p.279.
9. AA1 iv p.54 - 59.
10. Bruce WB p.138f.
11. Bruce WB p.151f.
12. AA2 vii p.256 - 260.
13. AA2 ix p.236.
14. AA2 x p.57 - 58.
15. CW2 xiii facing p.310.
16. AA3 ix facing p.56, p.68.
17. CW2 xi p.390 - 461.
18. AA4 vii p.154 - 155.
19. AA4 ix p.257f.
20. AA4 ix p.198 - 204.
21. AA4 ix p.255f.

Footnotes to Chapter I (continued)

22. AA4 xxvi p.1 - 46.

23. AA4 xvi p.227 note 14.

CHAPTER II.

The structure and purpose of milecastles and turrets

i. The stone-wall milecastles, east of Irthing.

At every Roman mile (1,620 yards) along Hadrian's Wall, stood a milecastle. Richmond described them[1] as quadrangular fortlets varying in width from 50' to 60' and in length, from 65' to 75', surrounded by stone ramparts about 7' to 9' thick. The southern corners of the ramparts were rounded externally like the angles of a Roman fort. The north rampart formed part of Hadrian's Wall.

The internal area of milecastles, east of MC 47, varied only slightly, as a few examples taken from the list in schedule iv, chapter III, will show.

MC		Area in Square Yards
9	Chapel House	327
13	Rudchester Burn	333
27	Low Brunton	316
37	Housesteads	316

Only MC's 47 and 48, east of the Irthing, are much larger, with respective areas of 460 and 472 square yards.

There were gateways in the centre of the north and south walls of each milecastle. Through these, ran the axial road. The gateways were always as long as the width of the

walls through which they passed and, in some cases, longer. They were arched at one or both ends. The massive jambs of most north gateways, which were invariably larger than those of the south gateway, may have supported towers. The space above the gateway arch probably contained the milecastle dedication slab, erected by the builders. Such slabs have been found in MC's 37, 38 and 47.

Only a few milecastles have so far produced evidence for garrison accommodation. This is largely because excavators have been concerned with the structural differences between milecastles rather than the detailed excavation of structures. First period barracks accommodation has usually been found on the east side of the milecastle, separated from the side walls. Only MC's 47 and 48 have produced barrack blocks on both sides. A list of known barrack accommodation, east of the Irthing, is given below:

MC 9: stone barrack block, on east side,
20' x 11' internally, divided into
two rooms.

MC 37: stone barrack block, on east side,
c. 32' x c. 12'9", divided into
two rooms.

MC 47: stone barrack blocks on both sides;
At the east, c. 55' x 17' externally
At the west, c. 52' x 15' externally.

MC 48: stone barrack blocks on both sides, divided into four rooms of equal size, measuring 13' x 12'6":
At the east, 56'3" x 16'6" externally
At the west, 54'3" x 17' externally.

MC's 47 and 48 probably housed more men than the milecastle to the east, because they had to guard the Irthing Gap. The average number of men stationed in the smaller milecastle has been calculated as twenty-two[2]. Half this number would be outside the milecastle at any one time, on duty in the turrets or on the wall. MC's 50, TW, 79, SW, and 54, SW, the only milecastles, west of the Irthing to have produced evidence for first period barrack accommodation, fall into the same category as MC's 9 and 37, since they have only one barrack block.

NB post period

Evidence for wooden buildings has been found on the west sides of MC's 9 and 37. The buildings were probably maintenance sheds. Ovens and hearths are frequently found against milecastle walls, inside and outside, as well as in the barrack blocks. At MC's 47 and 48 ovens occur internally in the north-west corners. Cooking was done by the soldiers themselves.

From the width and height of the remaining treads and risers of a flight of steps in the north-east corner of MC 48,

F.G. Simpson calculated the height of the rampart walk of the milecastle[3] as 12' above the milecastle floor and 14' above ground level on the north side of the wall (allowing for a considerable slope). He made a similar calculation from the remains of an arch in the north gateway of MC 37, as follows:

	ft.	ins.
From the first period pivot-stone to the top of the imposts -	6	8
Height of Arch (span 10')-	5	0
Height of Voussoirs -	2	0
	13	8

He added a few more inches to allow for flagging and another 6' for the height of the parapet.

ii. The turf wall milecastles.

Turf wall milecastles did not differ, in layout, from those of the stone-wall, east of Irthing. Their ramparts were of turf (or, in one case, of clay) with a base 20' wide. Their gateways were made of wood. The only turf wall milecastle, not covered by a later stone structure, is MC 50, High House (CW2 xxxv P.220 ff., CW2 xxxvii P.166 ff.). The remains of its north gateway, represented by five post-holes, twelve feet apart, suggested a wooden tower. Its south gateway was much smaller. The internal dimensions of the milecastle were 66' x 55'. Those of MC 79, TW, excavated in 1949, were

40'5" x 48'3".

MC 50, TW had, at its east side, a wooden barrack block, measuring 12'9" x 32' internally, divided into two rooms. The base of a stair to the rampart walk was found in the north-east corner. At MC 79, the same feature was found in the south-east corner.

The turf wall and its milecastles were eventually replaced in stone. The new stone milecastles did not differ in structure from those east of the Irthing, although they were larger and differed more in size, among themselves. Their side walls did not, like those of the eastern milecastles, bond with the Great Wall. Except in the case of MC 79, they abutted it.

MC 54 is the only one of these structures to have produced evidence of stone barrack accommodation, this time on the west side. The block was divided into two rooms and measured 31'3" x 16' externally. In the eastern half of MC 79, SW, the remains of a timber-framed building, measuring 42' x 11' was found[4].

iii. The stone wall turrets, east of Irthing.

Between every two milecastles, were placed two turrets, spaced, on average, at 540 yards from each other and the milecastles. They were small towers, about 20' square externally (13-14' inside), recessed into Hadrian's Wall; they were entered through a door in their south wall.

In many turrets, the remains of platforms have been found, abutting the south wall. The discovery of one of these platforms, incorporating five steps, in T 18A, led Parker Brewis to put forward the idea that they formed the bases for moveable ladders, leading to second storey level[5]. R.L. Bellhouse, in an appendix to his forthcoming paper, "Roman sites on the Cumberland coast 1966-67", discusses the platforms of the Cumberland coastal towers and concludes that they were too well constructed to be the bases for ladders. They were much more likely to be the supports for solidly-made stairs. Why, argues Mr. Bellhouse, construct a platform for a 13' ladder, when one of 16' could still be hauled up through a trap-door? He describes the landings as "a straightforward architect's expedient for fitting enough treads and risers into a small space in order to reach a desired height". The stairs, after rising along the turret wall, from the platform, were probably fixed to the edge of a trap-door in the first floor. An angle of 60^{o} between staircase and platform would be the most convenient, taking into account the dimensions of the turret.

It is almost certain that turrets possessed second storeys. The towers of the Danubian frontier, are depicted on Trajan's column (AD 113) with an upper storey and a gabled (pyramidal) roof. The second century stone signal stations of the German Limes were about 20' square, like the turrets of

Hadrian's Wall. They have been reconstructed, on the basis of architectural fragments found during excavation, as three-storey towers, with belfry-like tops for observation. The towers had pyramidal roofs and were about forty feet high.

There is little evidence for the roofing of turrets. Parker Brewis thought that they were gabled because broken roofing slabs of freestone have been found at various turrets (44B, 49A, SW and 49B, SW). At T 29B slabs were found, pierced for nails. It is possible that some turrets had flat, wooden roofs. No roofing tiles or slabs were found in the great pile of first period debris from T 52A. The use of turrets as ballista towers is out of the question, since they are not strong enough to stand up to the necessary strain. The stone "ballista balls", found at T's 8A and 18A are easily explained as weights or pot-boilers.

The amount of nails found in nearly all turrets implies a great deal of timber work, even if the superstructure itself was not wooden, as J.P. Gibson thought[6].

Parker Brewis calculated the height of his model (two-storey) turret from Simpson's estimate of the height of the rampart walk of Hadrian's Wall. He set out his calculations as follows and included a small attic under the gabled roof of the turret[7].

	Roman feet
Wall (width)	10
Parapet walk above G.L.	15
Parapet wall above P. walk	5
Total height of Great Wall	20
Eyeline above G.L.	20
Ground floor chamber (height)	15
First floor chamber (height)	10
Eaves of turret (height)	25
Outside dimensions of turret	20 x 20

R.L. Bellhouse agrees with Parker Brewis that turrets had only two storeys. He feels that the first floor was no more than an observation platform to carry the rampart walk of the Great Wall through the turret. No doubt there were doors at this level for such a purpose. Mr. Bellhouse also thinks that turrets had flat roofs, about 28' above ground level, access to which was gained, by means of a second stair, from the observation platform.

Brewis's other conclusions - that the first floor windows of turrets were glazed and that their doors opened outwards - have been generally accepted. There is evidence to support both points. F.G. Simpson found window-glass at T's 49A, 50A and 50B (SW). At T 29B, the original threshold was found to serve, even after the raising of the floor. This

would have been impossible if the door had opened inwards. As at T's 29A and 26B, the trackway to the lower pivot-hole led from the outside.

iv. The turf wall turrets.

The turf wall turrets, unlike the milecastles, were originally built of stone. Since the turf wall abutted them, their east and west walls were only roughly finished. These were invariably thinner than the north and south walls because the latter had to accommodate a chamfered plinth, externally, above the fifth course. When the turf wall was replaced in stone, the new wall was brought up to abut the existing turrets, as its predecessor had done. The turrets projected north and south of the new, narrower wall, probably, as Mr. Bellhouse points out, to bring their first floor doors into line with the new rampart walk.

There is a notable absence of platforms in the turf wall turrets, excavated so far. It may be that staircases were built into the sloping back of the turf wall, at the side of each turret, to give access to the rampart walk and the first floor of the turret. Simpson and Richmond calculated the height of the turf wall, at the level of the rampart walk, as $12'^{8}$, but Mr. Bellhouse points out that it need be no less than 14' high. In that case, the turf wall turrets would be, in height, as in most other particulars, no different from the

turrets east of Irthing.

v. The purpose of milecastles and turrets.

R.G. Collingwood first demonstrated that Hadrian's Wall was an inadequate fighting platform and that its primary role was not defensive[9]. He conceived of the wall as a chain of signal stations, situated at every third of a Roman mile and connected by an "elevated sentry-walk". The purpose of these signal stations was to collect and transmit news of hostile raids from one to the other, at great speed, by means of beacons or signals. To Collingwood, the turrets were the most important part of the Roman frontier. The forts were, in any case, additions to the original scheme.

The wall complex was not designed to deal with massed attack from the north but with the incursions of petty thieves and the protection of life in the province. Collingwood reinforced his theory by quoting from a group of inscriptions, set up by the Emperor Commodus, to record the fortification of the Danube, a little below Budapest (c. AD 181-185)[10]. One of them reads as follows:

RIPAM OMNEM BURGIS A SOLO EXTRUCTIS ITEM
PRAESIDIS PER LOCA OPPORTUNA AD CLANDESTINOS
LATRUNCULORUM TRANSITUS OPPOSITIS MUNIVIT.

The "burgi" were the turrets, erected against the "secret crossings of petty thieves".

Collingwood's interpretation of the purpose of Hadrian's Wall is now generally accepted. In spite of the bad siting of some structures for signalling purposes (e.g. T 44B and MC 39), it remains the best explanation of how milecastles and turrets were intended to be used.

The milecastle garrison, which has been calculated as twenty-two men, would have been responsible for the turrets on either side of the milecastle. Although the number may have been greater, four men were probably enough to look after a turret at any one time. Those milecastles with greater barrack accommodation occur in areas which may have been more vulnerable to raiding. MC 52, the largest milecastle on the wall, probably had to provide men for Pike Hill Signal Station, as well as for the turrets on either side of it.

The functioning of milecastles and turrets on Collingwood's reasoning, may be summarized as follows: The milecastles supplied the turrets and wall with patrols and acted as maintenance depots. The turrets (and milecastle towers) were signal stations and look-out posts. Their function was to spot trouble and relay news of it to the nearest garrison. The ground floors of turrets probably acted as mess-rooms and workshops for the men on duty there.

The men who garrisoned the milecastles and turrets still provide a subject for debate. In 1932 and 1961[11],

Professor Birley argued, from the evidence of second century inscriptions found on the Upper German Limes, that the structures of Hadrian's Wall were garrisoned by numeri or frontier guards, on lower pay and with shorter service engagements than the regular troops in the forts.

He felt that the use of troops, for patrolling purposes, from the forts on Hadrian's Wall, could only mar efficiency, since units would have to be split. In any case, he argued, cavalry could not operate a static observation system. Some forts, like Rudchester, would have to supply more structures than others with garrisons. Several milecastles and turrets were so near to forts that the idea of despatching troops to them for duties, which could be performed as effectively in the forts, seemed futile.

There is no evidence for the use of numeri on Hadrian's Wall in the second century. In fact, two inscriptions from the wall seem to point in a different direction. The first, RIB 1421, was discussed in 1932 by Professor Birley. It reads as follows:

MATRIB (US) | TEMPL (UM) | CUM ARA | VEX (ILLATIO)
COH (ORTIS) | I VARD (ULLORUM) | INSTANTE
P(UBLIO) D(.....) V(.....) | V(OTUM) S(OLVIT)
L(IBENS) M(ERITO)

The inscription, which was found in 1931, just outside

the south gateway of MC 19, in a second century level, may indicate that a vexillation of the first cohort of Vardulli inhabited the milecastle at some time in the second century. The unit was a cohors miliaria equitata and may have been in garrison at one of the neighbouring forts, perhaps Haltonchesters or Rudchester.

The second inscription from Old Wall, west of MC 59 (RIB 2015), is a dedication to Mars Cocidius by the first cohort of Batavians (cohors quingenaria equitata) and reads as follows:

[DEO] | MARTI | [C] OCIDIO | [.] MARTIUS |
[C (ENTURIO) C] OH (ORTIS) I BA [T (AVORUM)|
ET] GENIO | .....] VALI | [V (OTUM) S (OLVIT)
L(IBENS)] M (ERITO)

The inscription may indicate that nearby structures on the wall were occupied by the first cohort of Batavians, although the dedication to Mars Cocidius indicates a third century date.

The question of garrisoning in the structures of Hadrian's Wall remains unsettled. It seems to me that the forts could have easily supplied the milecastles and turrets with troops even though a fort like Rudchester would have had to supply a few more men than the others. About a quarter of the garrison of a fort would have been away more or less permanently, but the splitting up of auxiliary regiments is paralleled in other provinces[12]. The use of regular troops to man the milecastles

and turrets would have saved the many administrative difficulties which must have resulted with the employment of numeri. When trouble came, the regiments from several forts probably combined. They would not necessarily miss the men who were absent on patrol duty.

There is no concrete evidence, except perhaps at South Shields, that any fort on Hadrian's Wall was occupied by a purely cavalry unit, in the second century. If the wall was occupied solely by cohortes equitatae and cohortes peditatae, there would have been no difficulty in adapting such troops to static sentry observation.

The argument that some wall structures were too near the forts, for a patrol system, supplied by regular troops, to be feasible, can be discarded when it is realized that only T 13B (near Rudchester), T 21A (near Haltonchesters) and MC 31 (near Carrawburgh), fall into this class. None of these structures has been excavated and it may be that they went out of use as soon as the forts were occupied.

Footnotes to Chapter II

1. HB11 p.22.
2. Each man should be allowed at least 3' x 7' for sleeping space (as in a fort barrack block) as well as 10 square feet for baggage.
3. CW2 xi p.418 - 421.
4. CW2 lii p.22.
5. AA4 ix p.198f.
6. AA2 xxiv p.15.
7. AA4 ix p.201 - 202.
8. JRS xxv p.13 - 14.
9. Vasculum viii p.4 - 9 (1921) "The Purpose of the Roman Wall".
10. CW2 xxix p.142 - 143.
11. AA4 ix p.205f. and RHW p.270.
12. AA4 ix p.207 - 208.

CHAPTER III.

The evidence for the allocation of milecastles and turrets to legionary construction teams.

i. The milecastles.

In chapter I, we saw how F.G. Simpson[1] isolated three types of milecastle gateway and associated them with the lengths of milecastle axes. His classification can be summarized as follows:

Type I gateway - short axis

Type II gateway - long axis

Type III gateway - long axis

The statistics of milecastle gateways and axes are set out in schedules I, II and III at the end of this chapter.

Simpson's classification, with the addition of a fourth milecastle type, has been generally accepted. Only MC 18 presented a problem, with its long axis and, as the excavator's thought, its type I gateway.

Mr. J.P. Gillam has suggested a simpler classification of milecastles[2], as follows:

1. short axis - gateway with 2 pairs of responds.
2. long axis - gateway with 1 pair of responds.
3. long axis - gateway with 2 pairs of responds.

According to this classification, Simpson's type II

and type IV gateways are identical. Both possess one pair of responds. The only distinction is that, in broad wall, the gateway is no longer than the thickness of the wall through which it passes (type IV, as at MC's 9^3 and 27^4), whereas in narrow wall, the passage walls of the gateway, built to receive broad wall, project beyond the wall face, into the milecastle (type II, as at MC's 39 and 40). The Gillam classification also resolves the problem of MC 18 which, like its neighbours on the west, is a long axis milecastle, possessing gateways with two pairs of responds.

The other structural differences in milecastle gateways are best dealt with under separate headings.

a) Differences in the length of passageways in gateways with 2 pairs of responds.

F.G. Simpson described the difference of length in the passageways of gateways with 2 pairs of responds, as follows:

"..... in type III, the passage is arched at both ends as in type I and at the same time lengthened as in type II"[5].

Type III gateways have longer passageways than either of the other two types, neither of which project much beyond the broad wall into the milecastle itself[6].

A list of those milecastle gateways with large backward projections is given below. A question mark indicates

doubt about the gateway type. Excavations at the gateways of MC's 49, 51, 53 and 54 have only produced foundations and pitching, which do not show whether there was one or two pairs of responds.

MC	MC
19 ?	50
20	51 ?
22	52
47	53 ?
48	54 ?
49 ?	

MC 18 is not included in this list because the backward projection of its north gateway is very slight. Only on the Gillam classification can it be regarded as a normal milecastle. Simpson was forced to conclude that its gateway was built by a different working party from the one which built the rest of the milecastle. In his classification, gateway and axis do not correspond to one another.

b) The masonry in milecastle gateways.

The gateways of MC's 9, 10, 27 and 33 (all long axis milecastles possessing gateways with one pair of responds) were built in massive masonry throughout. The blocks of masonry at the back of these gateways, though unlike the responds of the other two gateway types, would have been strong enough to

support an arch. It is therefore probable that all three gateway types possessed two arches. The gateways of MC's 39 and 40 have smaller masonry than that of any other milecastle[7].

The masonry of gateways with two pairs of responds in short axis milecastles (MC's 13, 17, 37 and 38) is always massive. Gateways with two pairs of responds in long axis milecastles generally have massive piers and smaller masonry in their passageways, as at MC's 18, 19, 20 ?, 22 and 48. The differences in the masonry of milecastle gateways seem to correspond to the milecastle types of both Simpson and Gillam classifications. Only MC's 39 and 40 provide exceptions.

A valid difference between milecastles, then, is their gateway type, of which there are three. These can be linked with the length of the axes to form three milecastle types. A simpler classification than that of F.G. Simpson is the one suggested by Mr. J.P. Gillam which does not distinguish between Simpson's types II and IV gateways, and classes MC 18 as normal.

There are three other features of milecastles which are comparable to each other and these can be dealt with under three separate headings. The information from which my conclusions are drawn is set down in schedules IV and V, at the end of the chapter.

1) The width of milecastle side walls.

The side walls of milecastles vary considerably in

MILECASTLE GATEWAY TYPES
ON HADRIAN'S WALL.

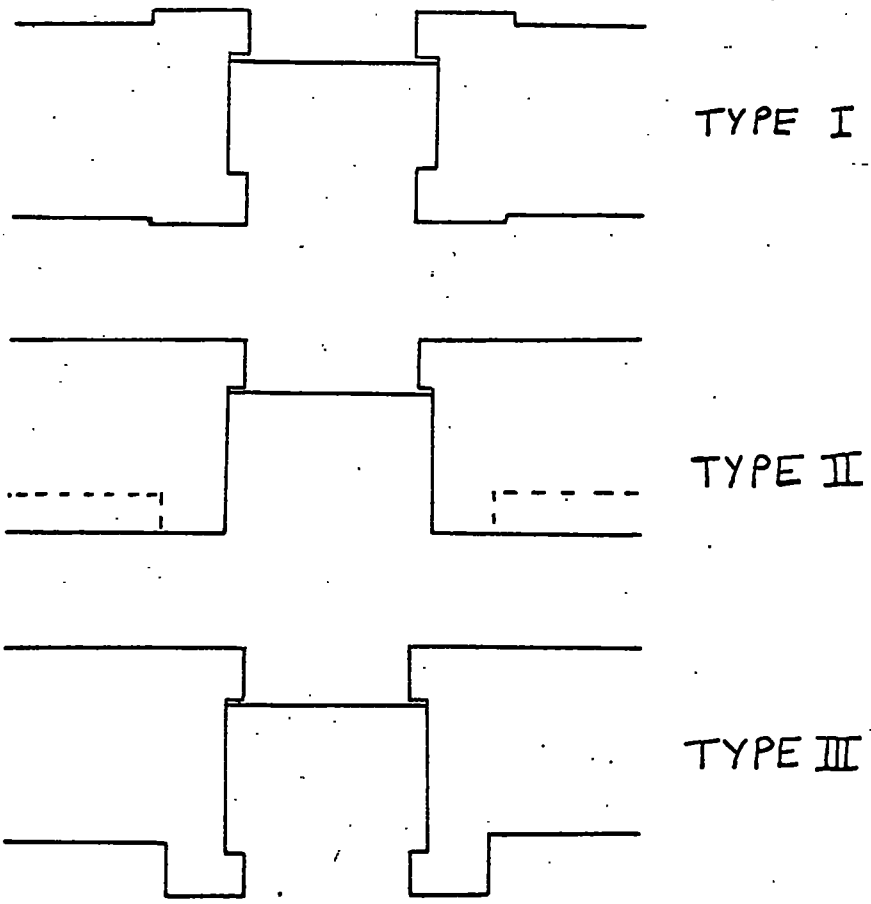


FIG. I

width. East of North Tyne, MC's 9, 10 and 27 (long axis - gateway with one pair of responds) and MC's 23, 24 and 25 (long axis) have relatively broad side walls, 9' wide or more. West of North Tyne, MC's 30, 33, 39 and 40, though belonging to the same type as the milecastles just described, have much narrower side walls. They were built after the decision to narrow the wall had been taken. Milecastles with gateways possessing 2 pairs of responds, whether their axes are long or short, invariably have relatively narrow side walls, except for MC's 47 and 48, which have broad walls, like MC's 9 and 10. Milecastles west of the Irthing all have narrow walls.

2) The internal areas of milecastles.

The relatively small areas of all excavated milecastles east of MC 47 are similar. West of MC 47, inclusive, they are larger and more varied. MC's 47 and 48 have respective internal areas of 460 and 472 square yards. Across the Irthing, milecastles increase in size, the largest, MC 52, having an area of 770 square yards. This fact was noted by Simpson but remains unexplained.

3) The southern internal angles of milecastles.

The southern internal angles of milecastles are either round or square. MC's 9 and 10 have rounded angles while MC's 27, 39 and 40, which belong to the same type as the first two, have square angles. MC's 37 and 38 (short axes - gateways with 2 pairs of responds) possess square angles. In MC's 47, 48,

49, 50, 51 and 53 (long axes - gateways with 2 pairs of responds), the angles are round. MC 79 has square angles.

No conclusions can be drawn from such scanty evidence and the significance of the internal angles of milecastles, if there is any, will not become apparent, until more of them have been uncovered.

The only reliable pointers to structural differences between milecastles seem to be those indicated by F.G. Simpson - gateways and axes. East of North Tyne, the width of milecastle side walls corresponds to the differences in gateways and axes, but in the central wall sector, the narrowing of the Great Wall seems to have led to a reduction in the width of side walls. This means that milecastles of the same type, east and west of North Tyne, often have side walls of different widths. MC's 39 and 40, for example, have narrower side walls than MC's 9, 10 and 27. The reverse is so in the case of MC's 47 and 48, which both have broad side walls while their counterparts, east of North Tyne, have narrow ones.

The only significant difference in milecastle areas is the considerable increase in size west of MC 47. MC's 47 and 48 may have been made bigger because they were responsible for guarding the Irthing Gap. There is no obvious reason why the milecastles west of Irthing should be so much larger than those to the east. Examination of the internal angles of

milecastles yields little information because very few of them have been uncovered. In any case, there is an inconsistency in the angles of milecastles with the same axis and gateway type. Since none of the angles in milecastles with long axes and gateways with 2 pairs of responds, east of North Tyne, have been investigated no comparison can be made between them and the angles of MC's 48 and 49. Similarly the angles of those milecastles east of North Tyne, with short axes and gateway with 2 pairs of responds, cannot be compared to those of MC's 37, 38 and 42.

ii. The turrets.

C.E. Stevens was the first person to list the differences between three types of turrets as follows:

1. Broad Walls - Door to East.
2. Narrow Walls - Door to East.
3. Narrow Walls - Door to West.

The complete list of all known doorway positions and wall widths, given in schedule VI, confirms Stevens' classification. Although several turrets in the central sector of the wall have their doorways towards, and not at, the east end of their south walls, there is no instance of a turret falling outside it[8].

The turrets of the turf wall, though possessing doorways at east or west, cannot be judged by the same criteria as the turrets east of Irthing, since no decisive differences in the thickness of their side walls, have been discovered. Their

north and south walls, thickened to take a plinth, are, in all known cases, wider than their side walls. It may be significant that the walls of T 54A are wider than those of the turrets to the east.

The width of doorways, where obtainable, does not helpt to determine turret types. Measurements differ by only a matter of inches and vary between turrets with the same wall thickness and doorway position.

Other factors which could help to distinguish between turrets are the depth of the recess into the Great Wall and the internal area of each turret. Turret recesses vary from 1'3" to 6' deep. There is little similarity between them, even in turrets next to each other. The internal areas of turrets vary, with little pattern, from thirteen to twenty-two square yards. Although they are invariably larger than the stone wall turrets, east of Irthing, the turf wall turrets display little consistency of size among themselves. Steven's classification of the structural differences between turrets seems to be the only valid one.

Mr. Stevens has pointed out, in his recent paper, that, where several consecutive milecastles belong to the same type and the turrets associated with them correspond to one of his three types, it is logical to suppose that they were built by the same construction team. The plan works out as follows:

Milecastle	Turret
Short axis - 2 pairs of responds	Broad wall - East Door
Long axis - 2 pairs of responds	Narrow wall - West Door
Long axis - 1 pair of responds	Narrow wall - East Door

There is one other structural feature which can help to determine the builders of structures and curtain. This is the standard of construction, already mentioned in chapter I. A change in the treatment of the courses immediately above the footing course was found in Hadrian's Wall, between MC 17 and T 17A[9]. The newly discovered standards of construction were called A and B. In standard A, only one course was laid over the footing course before an offset occurred. In standard B, three courses were laid over the footing course below the offset[10]. In both cases, the first course itself was offset from the footings. Standard B construction is only found in milecastles with long axes and gateways with 2 pairs of responds and in turrets with narrow walls and west doorways. Since standard A is only found in the other two types of milecastle and turret, standards of construction are a useful pointer to the builders of structures and parts of the wall.

iii. The epigraphic evidence with a note on the building of Hadrian's Wall.

Until now, only the structural evidence for the allocation of milecastles and turrets to different construction

teams, has been discussed. It has shown that there were at least three working parties engaged on the building of Hadrian's Wall.

Only the epigraphic evidence allows us to assign structures to legionary builders Dedication slabs of legion II found in MC's 37, 38 and 42 (RIB 1634, 1637 and 1666), show that this legion built those milecastles with short axes and two pairs of responds in their gateways, as well as the turrets associated with them.

There is no such concrete evidence for the other two milecastle types. A dedication slab of legion XX (RIB 1852) was found some time before 1849, in MC 47, Chapel House[11]. Evidently the inscription refers to building by the XX legion. The milecastle, which was excavated in 1935, had a long axis and a south gateway which seemed to have one pair of responds. Since standard A construction was found in its walls, it was assumed that the three factors present in the milecastle - long axis, gateway with one pair of responds and standard A construction - were the mark of the XX legion.

It has been shown earlier in the present chapter that gateways, with one pair of responds, which project inside the milecastle, are only found in narrow wall milecastles. The report on MC 47[12] stresses that the side walls of the milecastle were broad. This presupposes a broad north wall. A

careful look at the milecastle plan, drawn by Sir Ian Richmond and George Keeney, suggests that there were two rather than one pair of responds in the south gateway. Since there is an unmistakeable projection inside the milecastle, which could not occur in the gateway of a broad wall milecastle, with one pair of responds, it looks as though we have a gateway with two pairs of responds in a long axis milecastle.

Long axes and gateways with 2 pairs of responds are associated, in all other cases, with standard B. construction. If the excavators found standard A. construction at MC 47, then it is this milecastle and not MC 18 which is a hybrid, with its gateways, which determine its axis built by one legion, and the side walls completed by another. It is interesting to note that the area of MC 47 is similar to that of MC 48, which has a long axis, gateways with 2 pairs of responds and standard B. construction in its walls. In both milecastles there is an oven in the north-west corner.

Whether the XX legion inscription refers to the building of the milecastle gateways, and therefore the determination of its axes, is unknown. It may refer to the building of the side walls and the completion of the milecastle. In the absence of firm evidence, it is impossible to say which type of milecastle belongs to legion XX and which to the third legion attested on the wall - legion VI[13].

Three XX legion building stones (RIB 1645, 1762 and JRS L. P. 237 No.11), from the central sector of the wall, offer some clues. There are no VI legion building stones in the area and as there is no trace of standard B construction, except near the River Irthing, but some evidence of standard A, it is possible to say that milecastles and turrets displaying standard A construction, other than those belonging to the II legion, belong to legion XX.

A hint of a VI legion milecastle comes from the wall sector between MC's 50 and 51, where five undateable and unstratified inscriptions of legion VI have been found. Two of them (RIB 1933 and 1934), were found in MC 50, SW and two in T 50A, SW (RIB 1938 and 1939). It is quite probable that the inscriptions, which all come from a restricted area, refer to original building. If they do, milecastles with long axes and gateways with 2 pairs of responds, like MC 50, SW, can be assigned to legion VI. In that case, turrets with west doorways and narrow walls, which are usually associated with this type of milecastle must belong to the same legion. Turrets 49B, 50A and 50B (all SW), with their east doorways and narrow walls, though next to MC 50, SW, and presumably built at the same time, must, as I hope to show later, be anomalies.

Obviously MC 47 is the key structure. If standard B construction had been found there in association with a long

axis and a gateway with 2 pairs of responds, there would have been no difficulty in designating these features, the hallmark of the XX legion. Then, those milecastles normally associated with the XX legion would have had to be re-allocated to the VI legion and vice versa. In view of the difficulty over the standard of construction at MC 47, and because I believe that its gateway had 2 pairs of responds, the milecastle, for the purposes of this thesis, must be regarded as a hybrid. In the present state of knowledge, a convenient table is as follows:

Legion	Milecastle	Turret	Construction
II	Short axis	Broad wall	A
	2 pairs of responds	E. Door	
VI	Long axis	Narrow wall	B
	2 pairs of responds	W. Door	
XX	Long axis	Narrow wall	A
	1 pair of responds	E. Door	

The Romans planned to build Hadrian's Wall to a broad gauge, 9' to 9'9" wide, laid on a foundation, 9' to 10'6" thick. This plan was only completely carried out as far as MC 22. West of MC 22[14], something happened to the original plan. There are places where broad wall ends and narrow wall (7' to 7'6" wide), laid on broad foundation, adjoins it. It looks as though all the foundation had been laid in readiness for broad wall, but that the curtain builders were, for some reason,

unable to finish their task. The places at which broad wall and narrow wall (though continuing on broad foundation) meet are known as points of reduction. There is one at Planetrees, between MC 26 and T 26A.

West of North Tyne, though broad foundation continues, there is no broad wall. On the crags, in the central sector, there is no broad foundation. West of the Irthing, the stone wall which replaced the turf wall, was built to a new standard of construction known as standard C, in which the curtain rose without further offset, from a projecting foundation. On present evidence[15], the wall west of MC 54 is broader (8'6" to 9' wide) than that to the east of it, which is narrow. It has been called the intermediate wall, although very little is known about it.

In the central sector of the wall, broad foundation was laid before curtain. Most of the turrets and some milecastles were built at the same time, with broad gauge wing walls on either side, ready to bond with the curtain, when it was built. Eventually, the narrow wall was brought up to these wing walls to form points of reduction.

In some cases, it is possible to tell which part of a milecastle was built first. At MC's 33 and 37, the north (and perhaps the south) gateways came first. The narrow wall was then brought up to the gateways and the side walls were

completed - at the same time in the case of MC 33, later at MC 37. At MC 42, the whole of the north wall was built before the side walls, which abut it. Between the Irthing and MC 54, the presence of butt joints in the milecastles shows that the north walls came first and the side walls later. In the central sector of the wall, it is likely that some milecastles, and the towers of others, were built at the same time as the broad wall foundation, since many milecastles have broad wing walls, like the turrets.

There is no evidence of how the working parties on the wall built, within their own blocks[16]. It seems reasonable to suppose that, where both structures and curtain were built to a broad gauge, as they were, east of North Tyne, they were built at the same time and that no legion would be allowed to start work in a new block, before it had finished everything in the block on which it was working. Only when narrow wall occurs on broad foundation and structures precede curtain, has this plan been ignored. I shall argue later that this was caused by emergency conditions and was unplanned.

NOTE: The statistics given in the following schedules have been taken almost entirely from excavation reports or worked out from the plans of milecastles and turrets, which accompany them.

Schedule I (i)

Milecastle	Axis	Gateway Type
9	long	1 pair of responds
10	long	1 pair of responds
13	short	2 pairs of responds
14	short ?	---
17	short	2 pairs of responds
18	long	2 pairs of responds
19	long	2 pairs of responds ?
20	long	2 pairs of responds
22	long ?	2 pairs of responds
23	long	---
24	long	---
25	long	---
26	long	---
27	long	1 pair of responds
28	long	---
29	long	---
30	long	---
33	long	1 pair of responds
34	long	1 pair of responds ?
35	long ?	1 pair of responds ?
36	long	---
37	short	2 pairs of responds

Schedule I (ii)

Milecastle	Axis	Gateway Type
38	short	2 pairs of responds
39	long	1 pair of responds
40	long	1 pair of responds
41	short	---
42	short	2 pairs of responds
43	short	2 pairs of responds
44	long	---
45	long	---
46	long ?	---
47	long	2 pairs of responds
48	long	2 pairs of responds
49	long	2 pairs of responds ?
50	long	2 pairs of responds
51	long	2 pairs of responds ?
52	short	2 pairs of responds
53	long	2 pairs of responds ?
54	long	2 pairs of responds ?
73	long	---
79	square	1 or 2 pairs of responds

Schedule II (i)

Milecastle — Gateway Measurements

	North			South		
	Width	Passage Width	Length	Width	Passage Width	Length
9	---	---	---	---	---	9'
10	c.11'	---	---	---	---	---
13	9'4"	c.11'	10'6"	---	---	---
17	---	---	c.10'5"	---	---	---
18	9'9"	11'6"	10'	---	---	---
19	---	---	---	10'	11'3"	11'3"
20	8'10"	---	12'4"	---	---	---
22	9'7"	11'	11'3"	---	---	---
23	---	---	---	---	---	---
24	---	---	---	---	---	---
25	---	---	---	---	---	---
26	---	---	---	---	---	---
27	---	---	---	10'8"	11'8"	c.10'6"
28	---	---	---	---	---	---
29	---	---	---	---	---	---
30	---	---	---	---	---	---
33	c. 9'7"	c.11'	c.10'	---	---	---
34	---	---	---	---	---	---
35	---	---	---	---	---	---
36	---	---	---	---	---	---

Schedule II (ii)

Milecastle	Gateway Measurements					
	North			South		
	Width	Passage Width	Length	Width	Passage Width	Length
37	10'	11'6"	11'	10'	11'6"	10'
38	---	---	---	9'6"	c.12'	10'
39	---	---	---	8'5"	9'7"	9'7"
40	---	---	---	8'	9'2"	9'2"
41	---	---	---	---	---	---
42	10'	11'2"	10'	10'	12'	10'
43	---	---	---	---	---	---
44	---	---	---	---	---	---
45	---	---	---	---	---	---
46	---	---	---	---	---	---
47	---	---	---	---	---	---
48	9'6"	11'6"	13'	---	---	12'6"
49	---	---	---	---	---	---
50	9'9"	10'10"	12'	---	---	---
51	---	---	---	---	---	---
52	10'	12'	12'	---	---	---
53	---	---	---	---	---	10'6"
54	---	---	---	---	---	---
73	---	---	---	---	---	---
79	---	---	---	---	---	---

Schedule III (i)

Milecastle	Type of masonry in gateway
9	Massive.
10	Massive.
13	Massive.
17	Massive.
18	Large jambs; small, rough masonry in passage.
19	Footings of responds massive; small masonry in passage.
20	Large jambs; the rest badly constructed in small stones.
22	Massive jambs (chamfered); small stones in passage.
23	---
24	---
25	---
26	---
27	Large throughout.
28	---
29	---
30	---
33	Massive masonry throughout; particularly large and irregular rearward projections.
34	---
35	---
36	---
37	Massive.

Schedule III (ii)

Milecastle	Type of masonry in gateway
38	Large masonry; bold chamfered plinths.
39	Small masonry throughout.
40	Small masonry throughout.
41	---
42	Massive.
43	---
44	---
45	---
46	---
47	Jambs in massive masonry.
48	Jambs in massive masonry; small masonry in passage.
49	Foundations in very heavy flagging.
50	Massive masonry throughout; chamfered plinths.
51	Massive foundations.
52	Massive.
53	---
54	--- (robbed)
73	---
79	---

Schedule IV (i)

Milecastle	Internal area (in square yards)	Internal south angles
9	327	Round
10	303	Round
13	333	---
14	---	---
17	318	---
18	352	---
19	333	---
20	357	---
22	---	---
23	---	---
24	---	Square
25	---	---
26	---	---
27	316	Square
28	---	---
29	366 ?	---
30	---	---
33	378	---
34	---	---
35	---	---
36	---	---
37	316	Square

Schedule IV (ii)

Milecastle	Internal area (in square yards)	Internal south angles
38	332	Square
39	345	Square
40	325	Square
41	---	---
42	315	Square
43	---	---
44	---	----
45	---	---
46	---	---
47	460	Round
48	472	Round
49	549	Round
50	507	Round
51	---	Round
52	770	---
53	612	Round
54	542	---
73	421	---
79	367	Square

Schedule V (i)

Milecastle	Average width of side walls	Internal Dimensions	
		north-south	east-west
9	9' (only one course remaining above the footings).	60' ?	48'10"
10	10' (footings)	58'	47'
13	7' 8"	50'	59' 9"
14	---	---	60'
17	7' 11"	49' 2"	58'
18	7' 9"	59' 6"	53' 8"
19	8'	56' 3"	53' 4"
20	7'	59'	54' 4"
22	8'	---	55'
23	9' 5" (footings)	---	49'
24	9' 6" (footings)	---	---
25	9' (footings)	---	c. 50'
26	---	---	c. 51'
27	9' 6"	58' 9"	48' 6"
28	---	---	---
29	---	61' ?	54' ?
30	7' 3"	---	---
33	7'	c. 63'	c. 54'
34	---	---	---
35	---	---	---
36	---	---	---

Schedule V (ii)

Milecastle	Average width of side walls	Internal Dimensions	
		north-south	east-west
37	8' 6"	49' 7"	57' 7"
38	8' 2"	49'	61'
39	7'	61' 6"	50' 6"
40	6' 9"	60'	48' 9"
41	---	---	---
42	8'	48' 6"	58' 6"
43	8'	---	58'
44	---	---	---
45	---	---	---
46	---	---	---
47	9'	69'	60'
48	9' 2"	70'	60' 9"
49	7' 7"	76'	65'
50	7' 7"	76'	60'
51	---	---	---
52	6' 4"	76' 9"	90' 3"
53	7'	76' 6"	72'
54	7'	77' 6"	63'
73	6' 8" (footings)	62' 6"	60' 8"
79	8' 1"	57' 6"	57' 6"

Schedule VI (i)

Turret	Doorway position	Average wall width	Width of doorway
7b	east	3'	3' 8"
8b	east	---	---
9b	east	---	---
10a	east	3'	3' 4"
12a	east	4'	3' 6"
12b	east	4'	3' 8"
13a	east	4'	3' 6"
15a	---	4' (footings ?)	---
15b	---	4' 6" (footings)	---
17a	west	2'10"	---
17b	west	2'10"	---
18a	west	2'10"	3' 2"
18b	west	2'10"	2'10"
19a	west	2'11"	---
19b	west	2' 6"	3'
22a	---	---	---
24b	---	3' (footings)	---
25b	east	3'	---
26a	east	3'10" (footings)	---
26b	east	2'10"	3'
27a	---	4' 6" (footings)	---
29a	east	3' 7"	3'
29b	1' from east	2'10"	3' 4"

Schedule VI (ii)

Turret	Doorway position	Average wall width	Width of doorway
31b	east	3' 3"	3' 5"
33b	east	3'	3' 5"
34a	1' 6" from east	3'	3'
35a	1' 6" from east	3'	c. 2'10"
35b	east	3' 6" (footings)	---
36a	c. 1' from east	3'	4'
36b	---	4' - 4' 6" (footings)	---
39a	east	2' 8"	3'
39b	east	3'10½"	---
40a	---	3' 3"	---
40b	towards east	4'	---
41a	east	4'	3' 2"
44b	west	3' 3"	2'10"
45a	east ?	2'10"	---
45b	---	3' 2"	---
48a	west	2'11"	---
48b	---	2' 7"	---
49B (SW)	2' from east	2'10"	3'
50a (SW)	east	2'11"	3'
50b (SW)	east	3'	3'

Schedule VI (iii)

Turret	Doorway position	Average wall width		Width of doorway
		east-west	north-south	
50a (TW)	---	2'6"	---	---
50b (TW)	---	2'6"	---	---
51b	east	2'6"	3'	4'
52a	east	2'3"	3' 2"	3' 6"
53a	east	2'6"	2' 9"	---
54a(i)	west	3'	3' 6"	3' 2"
54b	---	---	---	---
56b	---	---	---	---
72b	---	3'6" (footings)	3'10" (footings)	---
79b	---	3'2" (footings)	3' 8" (footings)	---

Schedule VII (i)

Turret	Depth of recess	Average internal dimensions		Approx. internal area (in square yards).
		north-south	east-west	
7b	5'	13'	14'	20
8b	---	---	---	---
9b	---	---	---	---
10a	---	---	---	---
12a	4' 6"	10' 6"	11' 9"	14
12b	c. 4'	10' 2"	12'	13
13a	5' 2"	11'10"	11' 6"	15
15a	---	---	---	---
15b	---	---	----	---
17a	5'	11' 3"	14'	17
17b	---	---	---	---
18a	5'	12' 2"	13' 8"	18
18b	---	---	15' 2"	---
19a	4' 6"	12' ?	13' 6"	18
19b	5' 3"	12'	12' 6"	17
22a	---	---	---	---
24b	---	---	---	---
25b	4' 6"	11' 4"	13' 7"	17
26a	c. 4' 6"	c.12' 6"	11'10"	17
26b	4' 3"	12'	12'10"	17
27a	4' 6"	---	---	---

Schedule VII (ii)

Turret	Depth of recess	Average internal dimensions		Approx. internal area (in square yards).
		north-south	east-west	
29a	4' 9"	11' 5"	11' 5"	14
29b	5'	12' 3"	12' 8"	17
31b	---	---	---	---
33b	---	---	13' 3"	---
34a	---	---	---	---
35a	---	---	12' 6"	---
35b	---	---	12'	---
36a	5'	10' 6"	12'10"	15
36b	2' 9"	---	11' 6"	---
39a	4'	13'	13' 2"	19
39b	5' 4"	12'	11' 5"	15
40a	---	---	13'	---
40b	---	---	---	---
41a	---	---	11' 8"	---
44b	1' 3"	10' 2"	10' 2"	11
45a	4' 7"	12' 7"	13' 4"	19
45b	2' 6"	11'10"	13'	17
48a	6' 6"	13'10"	13' 1"	20
48b	7'	---	13' 9½"	---
49b (SW)	3' 9"	12' 5"	13' [illegible]	18
50a (SW)	3' 5"	12' 9"	13' 8"	19

Schedule VII (iii)

Turret	Depth of recess	Average internal dimensions		Approx. internal area (in square yards).
		north-south	east-west	
50b(SW)	3' 8"	12'10"	13'7"	19
50a(TW)		13' 3"	13'3"	19
50b(TW)		13'3"	13'3"	19
51b		13'8"	14'6"	22
52a		14'	14' 5"	22.5
53a		14'	14'5"	22.5
54a(i)		13' 6"	13' 6"	20
54b		---	---	---
56b		---	---	---
72b		11' 6"	12'	15
79b		---	---	---

Footnotes to Chapter III.

1. AA4 viii p.308f.

2. This leaves out of consideration MC 79 (SW), which has a square axis. Since it is the only excavated milecastle west of MC 54, no conclusions can be drawn from its axis type.

3. AA4 vii p.154 - 155.

4. AA4 xxxi p.171 - 172.

5. AA4 viii p.309.

6. For an example of a gateway with a backward projection, see the plan of the north gateway of MC 48 (No.52). There is a projection of nearly 3' inside the milecastle.

7. WB p.152 and CW2 xi p.407.

8. Broad wall is 4' wide or more; narrow wall is 2'6" wide or more.

9. AA4 ix p.255f.

10. At Willowford, there are, in places, four courses below the second offset.

11. MacLauchlan p.51 footnote 5.

12. AA4 xiii p.270f.

13. Attested on inscriptions found in MC 50, SW, and T 50A, SW, and at Haltonchesters (RIB 1427).

14. BHW p.26 - 29.

15. RHW p.85.

16. The evidence for legionary blocks will be discussed in chapter V.

CHAPTER IV

The structural details of milecastles and turrets: A schedule.

Turret Ob - Milecastle 3

References: Horsley p.136, Mac Lauchlan p.7, PSAN2 ii p.190, NCH xiii p.494.

Position: Unknown. For an account of the spacing and approximate position of these structures, see Birley, AA4 xxxviii p.40 - 49.

Notes: Nothing remains of these structures. Professor Birley concluded that, on the basis of Horsley's evidence, there were "two miles of rather more than the usual length westward of Milecastle I and an incomplete mile eastward to Wallsend fort and the end of the wall", instead of the three short miles, between Wallsend fort and MC 3, given by Mac Lauchlan and accepted by the NEEC in 1929. The structure found just before 1886 in building "The Grange", about 790 yards west of Wallsend fort, was probably MC I and not, as was thought, TOb. The latter is more likely to be about 250 yards west of the fort.

Milecastle 4 Pilgrim Street

References: Horsley p.137, NCH xiii p.498, PSAN4 iv. p.180 (RGC).

Position: c.1575 yards from MC 3, c.1650 yards to MC 5 (its own position assumed).

Notes: Pottery was found in 1929 and 1930, on the Tyne Bridge approach, which was assumed to mark the site of MC 4.

Milecastle 5 Quarry House

References: Horsley p.137, NCH xiii p.516, PSAN4 iv. p.180 (RGC).

Position: c.1650 yards from the assumed position of MC 4 and c.1618 yards from that of MC 6. Its site is thought to be at the junction of Westgate Road and Corporation Street.

Milecastle 6 Benwell Grove

References: PSAN4 iv p.181 (RGC).

Position: Unlocated, but presumed to be c.1618 yards from MC 5 and the same distance from MC 7.

Turret 6b Benwell Hill

References: Brand p.606 and Plate I, NCH xiii p.527, PSAN4 iv p.181 (RGC).

Position: c.308 yards from Benwell fort and 386 yards from the assumed position of MC 7.

Notes: The turret was found in 1751 by Robert Shafto during the laying out of the Military Road. Brand notes that it was about 4 yards square.

Milecastle 7 Benwell Bank

References: NCH xiii p.527f., Stevens, AA4 xxxi p's 18 and 45, RHW p.96.

Position: Unknown.

Notes: The NEEC failed to find MC 7 and assumed it (1930) to be 2,068 yards from MC 8. They also thought that T 6B came halfway between Benwell fort and MC 7. As C.E. Stevens pointed out in his Horsley lecture, this failure was due to the assumption that Benwell fort had to be taken into the consideration of the spacing of the milecastle. It is now known that the forts were later additions to the scheme and that MC 7 was probably further west than had been thought. In that case, Collingwood's reference to wall-mile 7-8 as the "long mile" is wrong.

Turret 7a Thorntree Drive or Benwell Bank

References: NCH xiii p.528, PSAN4 iv p.181 (RGC).

Position: Unknown. In 1930 it was assumed to be c.674 yards west of MC 7 and c.674 yards east of T 7B. Professor Birley considers that it may be further west.

Turret 7b Denton Hall.

References: PSAN4 iv p.181 (RGC), AA4 vii p.145-152.

Position: 710 yards to MC 8.

Located in 1928 by NEEC and excavated in 1929 by E.B. Birley.

Statistics: Doorway: at east. Width of doorway: 3'8".

Wall thickness: 3' (E and W), 2'6" (S)

Internal Dimensions: N-S 13'

E-W 14'

Depth of recess into Great Wall: 5'

Platform: In SW corner.

Construction: Standard A.

Width of Great Wall at turrets: 9'.

Notes: There was no offset on the inside of the turret. Massive masonry prevailed throughout. Clay and cobble foundations lay in a shallow trench, below the first flagging course.

Milecastle 8 West Denton

References: Horsley p.138, PSAN4 iii p.278, PSAN4 iv p.181 (RGC), NCH xiii p.531.

Position: 710 yards from T 7B, 522 yards to T 8A. Located in 1928 by NEEC.

Notes: The site of the milecastle was established by the presence of characteristic pottery and occupation earth. The stonework was completely robbed.

Turret 8a West Denton

References: PSAN4 iii p.278, NCH xiii, p.531, PSAN4 iv. p.181 (RGC).

Position: 522 yards from MC 8, 532 yards to T 8B.
Located in 1928 by NEEC.

Notes: Only pottery and occupation earth were found. The turret itself was completely covered by the road. Just west of the turret, the wall foundation was c.10' wide.

Turret 8b Union Hall

References: NCH xiii p.531, PSAN4 iii p.278, PSAN4 iv p.181 (RGC).

Position: 532 yards from T 8A, 548 yards to MC 9.
Located in 1928 by NEEC.

Statistics: Doorway: At east. Width of doorway: ---
Internal dimensions: N-S ---
E-W --- (19'10" externally)

Milecastle 9 Chapel House

References: Horsley p.138, Lingard AA4 vi p.142, Mac Lauchlan p.16, Bruce RW3 p.122. PSAN4 iii p.276, PSAN4 iv p.181 (RGC), AA4 vii p.152f.f.

Position: 548 yards from T 8B, 1608 yards to MC 10.
Excavated in June 1929 by E.B. Birley.

Statistics: Gateway: 1 pair of responds.

Gateway measurements: Width --- (south)

Width of passage ---

Length 9'

Axis: Long

Wall thickness: 9' (E and W), 8'4" (S) - only one course remained above the footing course.

Type of joint with Great Wall: ---

Internal Dimensions: N-S 60' ?

E-W 48'10"

Area: 327 sq.yards

Internal Angles: Round

First period internal buildings: West side - evidence of wooden structures (post-holes).

East side - 2-roomed building (20' x 11') of small stones set in clay.

Construction: ---

Width of Great Wall at milecastle: ---

Notes: Only one course remained above the footings, which were laid on clay and rubble foundations. The= masonry was massive, especially in the gateways and was set in lime mortar.

Turret 9A Walbottle East

References: PSAN4 iii p.277, NCH xiii p.533, PSAN4 iv p.181 (RGC).

Position: Unknown.

Notes: NEEC sought for this turret in vain in 1928. It probably lies beneath the road.

Turret 9B Walbottle

References: PSAN4 iii p.276-7, NCH xiii p.533, PSAN4 iv p.181 (RGC).

Position: 545 yards to MC 10, which is 1608 yards from MC 9.

Located in 1928 by NEEC.

Statistics: Doorway: At east. Width of doorway: ---

Internal Dimensions: N-S ---

E-W --- (19' externally).

Notes: The turret was constructed in the same massive masonry as T 7B.

Milecastle 10 Walbottle Dene

References: Horsley p.139, Clerk DNAAS xi p.234, Mac Lauchlan p.16, Bruce WB p.56, AA2 vi p.223f., PSAN4 iii p.276, NCH xiii p.533, PSAN4 iv p.181 (RGC).

Woodcut - RW3 p.123, showing one side of the north gateway.

Position: 1608 yards from MC 9, 509 yards to T 10A.

N. gate examined in 1864; S. gate and SW angle examined in 1928 by NEEC.

Statistics: Gateway: 1 pair of responds (RHW p.100).

Gateway Measurements: Width c.11' (north).

Width of passage ---

Length ---

Axis: Long.

Wall thickness: 10' (footings).

Type of joint with Great Wall: ---

Internal Dimensions: N-S 58'.

E-W 47'.

Area: 303 sq.yards.

Internal Angles: Round.

First period internal buildings: ---

Construction: ---

Width of Great Wall at Milecastle: ---

Notes: There was massive masonry throughout, as at MC 9.

Turret 10A Throckley East

References: PSAN4 iii p.276, NCH xiii p.533, PSAN4 iv p.181 (RGC).

Position: 509 yards west of MC 10. Located and examined (SE corner) in 1928 by NEEC.

Statistics: Doorway: At east. Width of doorway: 3'4".

Wall thickness: 3'.

Turret 10B

References: NCH xiii p.533.

Position: Unlocated.

Milecastle 11 Throckley Bank Top

References: Horsley p.139, Bruce WB p.57, PSAN4 iii p.275, NCH xiii p.534, PSAN4 iv p.181 (RGC).

Position: Unknown.

Notes: NEEC was unable to locate the milecastle in 1928. The mound which Mac Lauchlan identified as the milecastle was probably an old pit heap (p.16).

Turret 11A Heddon Hall

References: Bruce HB2 p.51, NCH xiii p.534.

Position: Unknown - probably covered by the road.

Turret 11B Great Hill

References: Horsley, map 3, NCH xiii p.534, PSAN4 iv p.181 (RGC).

Position: c.565 yards east of MC 12 (not yet exactly located). Located in 1929 by NEEC.

Notes: No masonry was found. The position was indicated by pottery and occupation earth.

Milecastle 12 Heddon-on-the-Wall

References: Gordon p.72, Horsley p.139, PSAN4 iii p.275, NCH xiii p.537, PSAN4 iv p.181 (RGC).

Position: Unknown.

Notes:

Notes: NEEC considered, in 1928 and 1929, that this milecastle had been completely obliterated. It should be about 1620 yards from the assumed position of MC 11 on the north side of Heddon Town Farm enclosure.

Turret 12A Heddon West

References: PSAN4 iii p.274-5, PSAN 4 iv p.181 (RGC), AA4 viii p.322f.

Position: c.548 yards from the assumed position of MC 12; 543 yards to T 12B. Located in 1928 and excavated in 1930 by F.G. Simpson.

Statistics: Doorway: At east. Width of Doorway: 3'6".
Wall thickness: 4' (E and W), 5'6" (S - footings).
Internal Dimensions: N-S 10'6".
E-W 11'9".
Depth of recess into Great Wall: 4'6".
Platform: ---
Construction: Standard A.
Width of Great Wall at turret: 9'3".

Notes: The turret was roughly finished in good quality mortar. Standard A construction occurred both inside and outside the turret.

Turret 12B North Lodge

References: PSAN4 iii p.274, PSAN4 p.181 (RGC), AA4 viii p.322.

Position: 543 yards from T 12A, 529 yards to MC 13. Located in 1928 and excavated in 1930 by F.G. Simpson.

Statistics: Doorway: At east. Width of doorway: 3'8".
Wall thickness: 4'.
Internal Dimensions: N-S 10'2".
E-W 12'
Depth of recess into Great Wall: c.4'.
Platform: In SW corner.
Construction: Standard A.
Width of Great Wall at turret: 9'3".

Notes: The masonry was roughly finished though there was an abundance of good mortar. Standard A construction occurred both inside and outside the turret.

Milecastle 13 Rudchester Burn

References: Horsley p.140, Hodgson p.281, PSAN4 iii p.274, PSAN4 iv p.181 (RGC), AA4 viii p.319-322.

Position: 150 yards west of Rudchester Burn. Located in 1928 and excavated in 1930 by F.G. Simpson.

Statistics: Gateway: 2 pairs of responds.
Gateway measurements: Width 9'4" (north).
Width of passage c.11'.
Length 10'6".

Axis: Short

Wall thickness: 7'8" (east).

Type of joint with Great Wall: ---

Internal Dimensions: N-S 50'

E-W 59'9"

Area: 333 sq.yards.

Internal angles: ---

Internal buildings: ---

Construction: Standard A.

Width of Great Wall at milecastle: 9'3".

Notes: The masonry of the north gateway was massive.

Turret 13A Rudchester East

References: AA4 viii p.322f.

Position: About ½ mile from Rudchester fort.

Located and excavated in 1930 by F.G. Simpson.

Statistics: Doorway: At east. Width of doorway: 3'6".

Wallthickness: 4'.

Internal Dimensions: N-S 11'10".

E-W 11' 6".

Depth of recess into Great Wall: 5'2".

Platform: In SW corner.

Construction: Standard A.

Width of Great Wall at turret: 9'3".

Notes: Standard A construction appeared on the outside

of the turret only. As in the two preceding turrets, the walls were roughly finished, though there was an abundance of good mortar.

Turret 13B Rudchester West

References: PSAN4 iv p.181 (RGC), RHW p.72.

Position: Unlocated. It should come near the cottage, 100 yards or so west of Rudchester fort.

Milecastle 14 March Burn

References: Horsley p.140, HB11 p.66, JRS xxxvii p.168.

Position: About a third of a mile west of Rudchester fort. Examined by C.E. Stevens in 1946.

Statistics: Internal Dimensions: N-S ---
E-W 60' (therefore presumably a short axis type).

Notes: Mr. Stevens noted that the milecastle had broad walls.

Turret 14A Eppie's Hill

References: Horsley, map 4, AA4 xv p.10 (RGC).

Position: Unlocated.

Turret 14B Whitchester East

References: ---

Position: Unknown.

Milecastle 15 Whitchester

References: Gordon p.72, Hodgson p.282, NCH xii (1926) p.20,

PSAN4 iv P.181 (RGC), HB11 P.66.

Position ½ a mile beyond Eppie's Hill.

Notes: The site is marked by a bold platform and hollows from which the walls have been robbed. Professor Birley noted that surface indications suggested a long axis milecastle (RHW p.100). In this stretch of wall, however, a long axis milecastle would be out of place.

Turret 15A Whitchester West

References: Horsley p.140, Hepple's Notebook (1931)[x]

Position: 152' west of the tenth milestone out of Newcastle. Located by Thomas Hepple on Feb. 2nd, 1931.

Statistics: Wall thickness: 4' (south - footings?).

Notes: Only the footing course and first course remained. Hepple located the outside of the west wall as well as finding the width of the south wall. The sketch in Hepple's notebook gives no scale.

[x] Thomas Hepple was F.G. Simpson's excavator. His notebook is unpublished.

Turret 15B Harlow Hill East

References: Horsley p.140, Hepple's notebook (1931).

Position: About a ¼ mile east of Harlow Hill, on the south side of the Military Road. Located by Thomas Hepple on Feb. 9th, 1931.

Statistics: Wall thickness: 4'6" (south -footings).
Width of Great Wall (just east of Harlow Hill): 9'2".

Notes: Hepple located the SE and SW corners as well as finding the width of the footings of the south wall. Only one course above the footings remained and, in some places, only the footing course. The N-S external measurement is 21'.

Milecastle 16 Harlow Hill

References: Horsley p.141, Brand i p.609, Mac Lauchlan p.18, NCH xii p.21, PSAN4 iv p.181 (RGC).

Position: At Harlow Hill. There is now no trace of it, since it was removed in the eighteenth century.

Turret 16A Harlow Hill West

References: ---

Position: Unlocated.

Turret 16B Whittledene

References: ---

Position: Unlocated, though probably just east of the Whittledene reservoirs.

Milecastle 17 Walton

References: Gordon p.72, Horsley p.141, Lingard AA4 vi p.144, Bruce WB p.64, Hepple's Notebook (1931), AA4 ix p.256f.

Position: About 200 yards west of the Whittledene reservoirs. Examined by Thomas Hepple in 1931 and excavated in the same year by F.G. Simpson.

Statistics: Gateway: 2 pairs of responds.

Gateway measurements: Width --- (north)

Width of passage ---

Length c.10'5"

Axis: Short.

Wall thickness: 7'11"

Type of joint with Great Wall: ---

Internal Dimensions: N-S 49'2"

E -W 58'

Area: 318 sq.yards.

Internal angles: ---

Internal buildings: ---

Construction: Standard A.

Width of Great Wall at milecastle: 9'2".

Notes: There is a change in the standard of construction of the Great Wall (from A to B) about 190 yards west of MC 17. The masonry of the north gateway was massive.

Turret 17A Welton East

References: Hepple's Notebook (1931), AA4 ix p.257.

Position: About 540 yards from MC 17. Located by

Thomas Hepple on June 10th, 1931 and excavated in the same year by F.G. Simpson.

Statistics: Doorway: At west. Width of doorway: ---
Wall thickness: 2'10" (E and W).
Internal Dimensions: N-S 11'3".
E-W 14'.
Depth of recess into Great Wall: 5'.
Platform: In SE and NW corners.
Construction: Standard B.
Width of Great Wall at turret: 9".

Notes: The southern half of the turret was almost completely destroyed, although the footing and first courses remained in places. Standard B construction occurred only on the outside of the turret.

Turret 17B Welton West

References: Hepple's Notebook (1931), AA4 ix p.257.

Position: About 540 yards west of T 17A. Located by Thomas Hepple on June 11th, 1931 and excavated in the same year by F.G. Simpson.

Statistics: Doorway: At west. Width of doorway: ---
Wall thickness: 2'10" (S).
Internal Dimensions: N-S ---
E-W ---
Depth of recess into Great Wall: ---

Platform: In SE corner.

Width of Great Wall at turret: ---

Notes: All that remained of the turret was 5' of the inner face of the south wall, the east side of the doorway and a staircase in the south-east corner.

Milecastle 18 East Wallhouses

References: Gordon p.72, Horsley p.141, Bruce RW3 p.131, Hepple's Notebook (1931), AA4 ix p.257f.

Position: Slightly west of East Wallhouses. Excavated in 1931 by F.G. Simpson.

Statistics: Gateway: 2 pairs of responds.

Gateway measurements: Width 9'9" (north).
Width of passage: 11'6".
Length 10'.

Axis: Long.

Wall thickness: 7'9" (E and W).

Type of joint with Great Wall: Bonded.

Internal Dimensions: N-S 59'6".
E-W 53' 8".

Area: 352 sq.yards.

Internal angles: ---

Internal buildings: ---

Construction: Standard B.

Width of Great Wall at milecastle: 9'3".

Notes: The masonry of the notth gate was rougher and less imposing than that of other gateways of the same kind.

Turret 18A Wallhouses East

References: Horsley, map 4, Hepple's Notebook (1931), AA4 ix p.258 and p.198-204.

Position: Opposite Moorhouse Road End. Located by Thomas Hepple in June (12th) 1931 and excavated in the same year by F.G. Simpson.

Statistics: Doorway: At west. Width of doorway: 3'2".
Wall thickness: 2'9" (E), 2'11" (W), 2'10" (S).
Internal Dimensions: N-S 12'2".
E-W 13'8".
Depth of recess into Great Wall: 5'.
Platform: In SE corner.
Construction: Standard B.
Width of Great Wall at Turrets: 9'.

Notes: Standard B construction occurred only on the outside of the turret. The staircase of 5 steps in the SE corner were remarkably well preserved.

Turret 18B Wallhouses West

References: Hepple's Notebook (1931), AA4 ix p.259, AA4 xliii p.88-107.

Position: Slightly west of Wallhouses, under the site of the old toll-house. Located in 1931 by Thomas Hepple and excavated in the same year by F.G. Simpson and in 1959 by Miss C. Philips.

Statistics: Doorway: At west. Width of doorway: 2'10".

Wall thickness: c.2'6" (E), 3'3" (W), c.3'1" (S).

Internal Dimensions: N-S ---

E-W 15'2"

Depth of recess into Great Wall: ---

Platform: ---

Construction: Standard B.

Width of Great Wall at turret: ---

Notes: The walls of the turret were laid in mortar except for the west wall which was laid in clay. Only the southern third of the turret could be excavated in 1959; all that was left of the standard B construction noted in 1931 was an offset footing course.

Milecastle 19 Matfen Piers

References: Mac Lauchlan p.19, Bruce WB p.64, Hepple's Notebook (1931), AA4 ix p.258, AA4 x p.98, AA4 xiii p.259.

Position: At Matfen Piers Lodge. Excavated in 1931, 1932 and 1935 by F.G. Simpson and I.A. Richmond.

Statistics: Gateway: 2 pairs of responds ?

Gateway measurements: Width 10' (south)

Width of passage 11'3"

Length 11'3"

Axis: Long.

Wall thickness: 8' (S), 9'3" (W - footings).

Type of joint with Great Wall: ---

Internal Dimensions: N-S 56'3".

E-W 53' 4".

Area: 333 sq.yards.

Internal angles: ---

Internal buildings: ---

Construction: ---

Width of Great Wall at milecastle: ---

Notes: In 1931 and 1932, the north gateway was inconclusively excavated. In 1935, the south gateway was excavated but only the footings of the jambs remained. These were massive whereas the stones on the west side of the passage were small. This indicates a gateway with two pairs of responds.

Turret 19A Clarewood East

References: AA4 x p.98f.

Position: About 540 yards from MC 19. Located and excavated in 1932 by E.B. Birley, Parker Brewis and John Charlton.

Statistics: Doorway: At west. Width of doorway: ---

Wall thickness: 2'11" (E and W).

Internal Dimensions: N-S 12'?

E-W 13'6"

Depth of recess into Great Wall: 4'6".

Platform: In SE corner.

Construction: Standard B.

Width of Great Wall at turret: 9'.

Notes: Standard B construction occurred both inside and outside the turret. The south wall was robbed right down to its footings; otherwise the turret was very well preserved.

Turret 19B Clarewood West

References: AA4 x p.99.

Position: Normal - just east of the fourteenth milestone out of Newcastle. Located and excavated in 1932 by E.B. Birley, Parker Brewis and John Charlton.

Statistics: Doorway: At west. Width of doorway: 3'.

Wall thickness: 2'6" (E, W and S).

Internal Dimensions: N-S 12'.

E-W 12'6".

Depth of recess into Great Wall: 5'3".

Platform: In SE corner.

Construction: Standard B.

Width of Great Wall at turret: 9'9".

Notes: Standard B construction occurred both inside and outside the turret (though only on the side walls internally). Clay generally took the place of mortar in the walls of the turret.

Milecastle 20 Halton Shields

References: Mac Lauchlan p.19, AA4 xiii p.259-262.

Position: At Halton Shields, in the garden of the cottage at the east end of the hamlet. The south wall and gateway are covered by the house. Excavated in 1935 by Simpson and Richmond.

Statistics: Gateway: 2 pairs of responds.

Gateway measurements: Width 8'10" (north).

Width of passage: ---

Length: 12'4".

Axis: Long.

Wall thickness: 7' (E and W).

Type of joint with Great Wall: ---

Internal Dimensions: N-S 59'.

E-W 54'4".

Area: 357 sq.yards.

Internal angles: ---

Internal buildings: ---

Construction: ---

Width of Great Wall at milecastle: 9'7".

Notes: Only the west side of the north gateway remained. It was badly constructed with irregular foundations. The jambs were in massive masonry.

Turret 20A Carr Hill

Reference: PSAN4 vii p.134 (FGS AND IAR).

Position: Just east of Carr Hill. Located in 1935.

Turret 20B Downhill East

Reference: PSAN4 vii p.134 (FGS and IAR).

Position: East of Down Hill. Located in 1935.

Milecastle 21 Down Hill

References: ---

Position: Unlocated, but probably somewhere west of Down Hill.

Turret 21A Halton Red House

Reference: PSAN4 vii p.134 (FGS and IAR).

Position: "Within 80 yards of Haltonchesters". Located in 1935.

Turret 21B Fence Burn

References: Hepple's Notebook (1930), HB11 p.75.

Position: c.70 yards west of the Fence Burn. Located on March 25th, 1930 by Thomas Hepple.

Notes: No walling was found though there was some pottery just east and west of the crest of the hill. The turret was probably robbed when the road was made (Hepple).

Milecastle 22 Portgate

References: Mac Lauchlan p.23, Bruce WB p.68, Hepple's Notebook (1930), AA4 viii p.317-319, PSAN4 iv p.182 (RGC).

Position: c.539 yards from T 21B, 539 yards to T 22A.

Excavated in 1930 by F.G. Simpson.

Statistics: Gateway: 2 pairs of responds.

Gateway measurements: Width 9'7" (north).

Width of passage 11'.

Length: 11'3".

Axis: Long ?

Wall thickness: 8' - 8'2" (E and W).

Type of joint with Great Wall: ---

Internal Dimensions: N-S ---

E-W 55'

Area: ---

Internal angles: ---

Internal buildings: ---

Construction: Standard B.

Width of Great Wall at milecastle: 9'2" - 9'5".

Notes: The piers of the north gateway, which stood on chamfered plinths, were massive. The stones of the passageway were small and badly finished, as at MC's 20 and 48.

Turret 22A Portgate

References: Hepple's Notebook (1930), PSAN4 iv p.182 (RGC).

Position: 539 yards from MC 22, 540 yards to T 22B.
Located by Thomas Hepple on March 20th, 1930.

Statistics: Internal Dimensions: N-S ---
E-W 15'9" (with east wall).
Construction: Standard A.

Notes: Most of the turret lies under the road and field fence. The parts which Hepple examined, underneath the verge, were well preserved. On the west side, there were at least four courses of walling.

Turret 22B Stanley

References: Horsley, map 4, Hepple's Notebook (1930), PSAN4 iv p.182 (RGC).

Position: 540 yards west of T 22A, 543 yards east of MC 23.
Located by Thomas Hepple on March 13th, 1930.

Notes: Hepple only located the outside of the turret's side walls and gave 19'9" as the east-west external measurement.

Milecastle 23 Stanley

References: Mac Lauchlan p.24, Bruce WB p.69, Hepple's Notebook (1930), AA4 viii p.317.

Position: 543 yards from T 22B, 543 yards to T 23A. 63

yards east of Plantation wall. Examined by Thomas Hepple on Feb. 14th, 1930.

Statistics: Axis: Long.

Wall thickness: 9'5" (E - footings), 9'6" (W - footings).

Internal Dimensions: N-S ---

E-W 49'

Construction: Standard A.

Notes: MC's 23 - 27 are all "small" milecastles with long axes and broad side walls.

Turret 23A Stanley Plantation

Reference: PSAN4 iv p.182 (RGC).

Position: 543 yards from MC 23, 542 yards to T 23B.

Located in 1920 by F.G. Simpson.

Turret 23B Wall Fell

Reference: PSAN4 iv p.182 (RGC).

Position: 542 yards from T 23A, 533 yards to MC 24.

Located in 1920 by F.G. Simpson.

Milecastle 24 Wall Fell

References: Horsley p.143 and 215, Hodgson p.285, Bruce RW2 p.136f., Hepple's Notebook (1930), AA4 vii p.317.

Position: Just east of the 18th milestone out of Newcastle. Examined by Thomas Hepple on Feb. 13th, 1930.

Statistics: Axis: Long.

Wall thickness: 9'6" (W - footings)

Internal Dimensions: N-S ---

E-W --- (69' externally)

Internal angles: Square

Construction: Standard A.

Turret 24A Greenfield

References: Hepple's Notebook (1930), PSAN4 iv p.182 (RGC).

Position: 539 yards from MC 24, 541 yards to T 24B.

Located by Thomas Hepple on Feb. 12th, 1930.

Notes: Only the outside of the west wall of the turret was traced.

Turret 24B Tithe Barn

References: Hepple's Notebook (1930), PSAN4 iv p.182 (RGC).

Position: 541 yards from T 24A, 553 yards to MC 25.

Located by Thomas Hepple on Feb. 7th, 1930.

Statistics: Wall thickness: 3' (E - footings)

Internal Dimensions: N-S ---

E-W --- (19'4" externally).

Construction: Standard A.

Milecastle 25 Codlaw Hill

References: Mac Lauchlan p.25, Bruce WB p.70, Hepple's Notebook (1930), PSAN4 iv p.182 (RGC), HB11 p.78, AA4 viii p.317.

Position: 553 yards from T 24B, 553 yards to T 25A; 1648 yards to MC 26.

Examined by Thomas Hepple on Feb. 6th, 1930.

Statistics: Axis: Long.

Wall thickness: 9' (E - footings).

Internal Dimensions: N-S ---

E-W c.50'.

Construction: Standard A.

Turret 25A Hill Head

References: Hepple's Notebook (1930), PSAN4 iv p.182 (RGC), AA4 xliii p.120 - 121.

Position: 553 yards from MC 25, 551 yards to T 25B (RGC). It is probably still unlocated.

Notes: Hepple thought that he had located the east wall of the turret, but when, in 1959, Miss Charmian Philips came to excavate it, she found nothing at the position indicated by Hepple. She noted that "a scatter of big sandstones lying in clayey soil just above the natural, might have been mistaken in Mr. Hepple's small trench, for a laid wall, some overlying others". (AA4 xliii p.120-121).

Turret 25B St. Oswald's

References: Hepple's Notebook (1930), PSAN4 iv p.182 (RGC), AA4 xliii p.108-127.

Position: 551 yards from T 25A, 544 yards to MC 26. Located by Thomas Hepple on Jan. 29th, 1930, and

excavated by Miss Charmian Philips in 1959.

Statistics: Doorway: At east. Width of doorway: ---

Wall thickness: 3' (E, W and S).

Internal Dimensions: N-S 11'4".

E-W 13'7".

Depth of recess into Great Wall: 4'6".

Platform: In SW corner.

Construction: Standard A.

Width of Great Wall at turret: 9'6" - 10'.

Notes: Standard A construction occurred on the internal east wall of the turret and on the Great Wall. Otherwise, the turret walls rose straight up from an offset footing course. The cores of the walls were mortared, but the core of the Great Wall, at this point, was of yellow clay and small rubble - an exception to the general rule.

Milecastle 26 Planetrees

References: Mac Lauchlan p.25, Bruce WB p.72, Hepple's Note-book (1930), PSAN4 iv p.182 (RGC), AA4 viii p.317.

Position: 544 yards from T 25B, 535 yards to T 26A.

Examined by Thomas Hepple on Feb. 5th, 1930.

Statistics: Axis: Long.

Internal Dimensions: N-S ---

E-W c.51'

Notes: According to Mr. Hepple, only the footing course of the east wall was left. Although nothing remained of the west wall, there was sufficient evidence to show where it had been.

Turret 26A High Brunton

References: Hepple's Notebook (1930), PSAN4 iv p.182 (RGC), AA4 xliii p.128-150.

Position: 535 yards from MC 26, 550 yards to T 26B. Located by Thomas Hepple on Jan. 24th, 1930 and excavated in 1959 by Miss Charmian Philips.

Statistics: Doorway: At east. Width of doorway: ---

Wall thickness: 3'10" (S - footings)

Internal Dimensions: N-S c.12'6".

E-W 11'9" - 12'

Depth of recess into Great Wall: c.4'6".

Platform: ---

Construction: ---

Width of Great Wall at turret: 8'8" (at east).

Notes: The turret could only be partially excavated in 1959 and at no point were the east and west walls satisfactorily exposed. There was a footing offset internally.

Turret 26B Brunton

References: AA2 viii p.134, AA2 ix p.22f., HB2 p.67, AA3 ix

plate II, facing p.56, Hepple's Notebook (1931), PSAN4 iv p.182 (RGC), CPH p.40 fig.9.

Position: 550 yards from T 26A, 552 yards to MC 27. Excavated in 1878 and 1880 by John Clayton.

Statistics: Doorway: At east. Width of doorway: 3'.
Wall thickness: 2'10" (E, W and S).
Internal Dimensions: N-S 12'
E-W 12'10"
Depth of recess into Great Wall: 4'8".
Platform: ---
Construction: Standard A.
Width of Great Wall at turret: 9'3".
Point of reduction: At east.

Notes: The doorway of the turret has a threshold checked for monolithic stone jambs, as at T's 29A and 29B. The Great Wall, east of the turret, has a clay core (RHW p.89).

Milecastle 27 Low Brunton

References: Mac Lauchlan p.26, Bruce PSANI i p.233, Hepple's Notebook (1930), AA4 xxxi p.165-174.

Position: 552 yards from T 26B. Excavated in June 1952 by J.P. Gillam.

Statistics: Gateway: 1 pair of responds.
Gateway measurements: Width 10'8" (south).

Width of passage 11'8".

Length c.10'6".

Axis: Long.

Wall thickness: 9'6" (E, W and S).

Type of joint with Great Wall: "Chiselled".

Internal Dimensions: N-S 58'9"

E-W 48'6"

Area: 316 sq.yards.

Internal angles: Square.

Internal buildings: ---

Construction: Standard A.

Width of Great Wall at milecastle: 10'8" (footings).

Notes: There was no point of reduction for at least 37' west of the milecastle and it seems likely that Broad Wall continued down to the North Tyne. The north wall of the milecastle was probably built before the others, since it had been chiselled at its point of junction with the side walls, to receive them. The Great Wall here, and the milecastle walls, have clay cores though mortar binds the outer stones together. The stones of the passage and piers of the gateway are all large.

Turret 27A Chesters

References: Hepple's Notebook (1945), PSAN4 x p.274, HB11 p.87.

Position: 136' west of the inner face of the east gateway of Chesters fort, just south of the via principalis. Located by F.G. Simpson and I.A. Richmond in 1945.

Statistics: Wall thickness: 4'6" (E - footings).

Internal Dimensions: N-S ---

E-W --- (20' externally).

Depth of recess into Great Wall: 4'6"

Width of Great Wall at turret: 11'10" (footings).

Notes: The turret was levelled to its foundations when the fort was built over it. There was therefore no remaining doorway.

Turret 27B Chesters West

References: ---

Position: Unlocated. Its site should be in the grounds of Chesters, west of the house (Birley).

Milecastle 28 Walwick

References: Horsley p.145, HB11 p.101.

Position: Just east of the branch road to Lincoln Hill.

Notes: (HB11 p.101) "Where the road swings to the left, off the line of the wall, MC 28 (Walwick) formerly stood; only a platform is now seen, indicating a long axis milecastle, just west of the farm track leaving the road to the south."

Turret 28A Walwick

References: Gordon p.74, Horsley, maps 5 and 6, HB9 p.97, PSAN4 iv p.182 (RGC).

Position: About 300 yards west of Walwick Hill.

Turret 28B Tower Tye

References: Gordon p.74, Horsley, map 6, HB9 p.97, PSAN4 iv p.182 (RGC).

Position: About 540 yards from T 28A.

Milecastle 29 Tower Tye

References: Gordon p.74, Horsley p.145, Hodgson p.279 - footnote, Bruce RW1 p.195, Mac Lauchlan p.33, PSAN4 iv p.183 (RGC).

Position: 534 yards to T 29A.

Statistics: Axis: Long.

Internal Dimensions: N-S 61' (Bruce RW1 p.195).
E-W 54'.

Area: 366 sq.yards.

Notes: Hodgson gives the internal measurements of the milecastle as: N-S 63'
E-W 58'

The milecastle walls have been removed; only the hollows, in which they lay, remain.

Turret 29A Blackcarts

References: Gordon p.74, Horsley, map 6, AA2 vii p.256 - 260,

AA3 ix plate II opp.p.56, PSAN4 iv p.183 (RGC).

Position: 534 yards from MC 29, 534 yards to T 29B.

Excavated in 1873 by John Clayton.

Statistics: Doorway: At east. Width of doorway: 3'.

Wall thickness; 3'7" (E, W and S).

Internal Dimensions: N-S 11'8" - 11'3"

E-W 11'7" - 11'3"

Depth of recess into Great Wall: 4'9"

Platform: ---

Construction: Standard A.

Width of Great Wall at turret: 10'.

Points of reduction: At east and west.

Notes: This turret, like T's 26B and 29B, has a threshold checked for monolithic stone jambs.

Turret 29B Limestone Bank

References: AA3 ix p.54 f.f., PSAN4 iv p.183 (RGC).

Position: 534 yards from T 29A, 528 yards to MC 30.

Located and excavated by Philip Newbold in 1912.

Statistics: Doorway: 1' from east. Width of doorway: 3'4".

Wall thickness: 2'10" (E, W and S).

Internal Dimensions: N-S 12'3"

E-W 12'8"

Depth of recess into Great Wall: 5'.

Platform: In SW corner.

Construction: Standard A.

Width of Great Wall at turret: 9'7"

Points of reduction: At east and west.

Notes: As at T's 26B and 29A, there is a massive threshold stone, with a pivot-hole and places for monolithic door jambs. The stones of the bottom courses of the south wall are very large.

Milecastle 30 Limestone Bank

References: Horsley p.145, Bruce RW1 p.195, Mac Lauchlan p.33, AA3 ix p.55, Hepple's Notebook (1927), PSAN4 iv p.183 (RGC).

Position: 528 yards from T 29B, 594 yards to T 30A.

Examined in 1927 by F.G. Simpson.

Statistics: Axis: Long.

Wall thickness: 7'3" (E).

Construction: Standard A.

Notes: Standard A construction only occurred on the outside face of the east wall. Abbatt gave the dimensions of the milecastle as 57' x 54' (repeated by Bruce in RW1 p.195). These measurements, which would make the milecastle nearly square, are unlikely to be accurate.

Turret 30A Carrawburgh East

References: AA3 ix p.55f., PSAN4 iv p.183 (RGC), HB11 p.105.

Position: 594 yards from MC 30, 539 yards to T 30B.

Located in 1912 by Philip Newbold.

Notes: The measured position of T 30A was tested by R.W. Harris in 1966. No structural remains were found although there was a scattering of pottery.

Turret 30B Carrawburgh West

References: AA3 ix p.55, PSAN4 iv p.183 (RGC), HB11 p.105.

Position: 539 yards from T 30A and 529 yards to MC 31.

Located in 1912 by Newbold.

Notes: Newbold apparently struck the west wall of the turret, which is covered by a mound in the field in which Carrawburgh farmhouse stands. He found burnt rubbish, bones and pottery.

Milecastle 31 Carrawburgh

References: Lingard AA4 vi p.150, Mac Lauchlan p.35, Bruce WB p.101, AA3 ix p.54, AA4 ix p.211.

Position: 120 yards east of Carrawburgh fort.

Turret 31A Carrawburgh - The Strands

References: ---

Position: Unlocated.

Turret 31B Carraw East

References: ---

Position: Just east of Carraw farm.

Located and partially excavated in June 1966 by

R.W. Harris.

Statistics: Doorway: At east. Width of doorway: 3'5".

Wall thickness: 3'3" (E), 3'5½" - 3'2" (S).

Internal Dimensions: N-S ---

E-W ---

Depth of recess into Great Wall: ---

Platform: ---

Construction: Standard A.

Width of Great Wall at turret: ---

Notes: In 1966 only the eastern half of the turret was examined, to find the position of the doorway and the width of the south wall.

Milecastle 32 Carraw

References: Mac Lauchlan p.35, Bruce WB p.102 and RW3 p.173.

Position: About a quarter of a mile west of Carraw farmhouse.

Notes: The milecastle, which is visible south of the Military Road, is unexcavated.

Turret 32A Carraw West

References: PSAN4 iv p.183 (RGC), HB9 p.106.

Position: At the normal distance beyond MC 32.

Located in 1920.

Turret 32B Shield on the Wall East

References: ---

Position: Unlocated.

Milecastle 33 Shield-on-the-Wall

References: Mac Lauchlan p.35, HB3 p.128, AA4 xiii p.262f.

Position: Just east of the cottage of Shield-on-the-Wall. Partly excavated (north gate and north wall) in 1884 by John Clayton; planned in 1935 by I.A. Richmond and E.B. Birley.

Statistics: Gateway: 1 pair of responds.

Gateway measurements: Width c.9'7" (north).
Width of passage c.11'.
Length: c.10'.

Axis: Long.

Wall thickness: 6'11" (W), 7'3" (E, S?).

Type of joint with Great Wall: ---

Internal Dimensions: N-S c.63' (78' externallY)
E-W c.54' (68' externally)

Area: 378 sq.yards.

Internal angles: ---

Internal buildings: ---

Construction: ---

Width of Great Wall at milecastle: 8'.

Notes: The north gateway was built before the rest of the milecastle since there is a joggled joint west of it, in the north face of the north wall. "Grandly developed" masonry is visible in the

gatewaywhich has very large and irregular rearward projections.

Turret 33A Shield-on-the-Wall West

References: PSAN4 iv p.183 (RGC), HB10 p.107.

Position: 150 yards east of the twenty seventh milestone out of Newcastle. Located in 1920.

Turret 33B Coesyke

References: PSAN4 iv p.183 (RGC), JRS xxxviii p.84.

Position: 492 yards to MC 34.

Located in 1913, examined by C.E. Stevens in 1947 and partially excavated in April 1966 by Joyce Moss.

Statistics: Doorway: At east. Width of doorway: 3'5".

Wall thickness: 2'9" - 2'11" (E), 3' (W), 3' (S).

Internal Dimensions: N-S 10'2" (up to recess).
E-W 13' 3"

Depth of recess into Great Wall: ---

Platform: ---

Construction: Standard A.

Width of Great Wall at turret: 9'9".

Point of reduction: At east.

Notes: The turret was in very good condition, with six courses on the east wall, including the footing course, still in situ. The recess was blocked by a later reducing wall.

Milecastle 34 Grindon

References: Horsley p.147, Lingard AA4 p.150, Mac Lauchlan p.35, Bruce WB p.108, PSAN4 iv p.183 (RGC), JRS xxxviii p.84.

Position: 492 yards from T 33B, 470 yards to T 34A.
Examined by C.E. Stevens in 1947.

Statistics: Axis: Long.

Notes: C.E. Stevens thought that the gateways were of type II. The milecastle was very badly robbed and the visible mound is deceptively large.

Turret 34A Grindon West

References: PSAN4 iv p.183 (RGC), JRS xxxviii p.84.

Position: 470 yards from MC 34.
Located in 1913 and examined by C.E. Stevens in 1947.

Statistics: Doorway: 1'6" from east. Width of doorway: 3'.
Wall thickness: 3' (W and E).
Internal Dimensions: N-S ---
E-W --- (21' externally).
Point of reduction: At west.

Notes: As C.E. Stevens' unpublished plan (No.32) shows, the point of reduction is much shorter than usual.

Turret 34B Sewingshields Farm

Reference: PSAN4 iv p.183 (RGC).

Position: Sought in vain (1913); it probably lies underneath the farm buildings.

Milecastle 35 Sewingshields.

References: Horsley p.147, Lingard AA4 vi p.150, Hodgson P.286, Mac Lauchlan P.37, Bruce RW1 p.207, PSAN4 iv p.183 (RGC), JRS xxxviii p.84.

Position: East of Sewingshields, along the crags.

Notes: When C.E. Stevens examined the milecastle, in 1947, he found that it had been reconstructed within Roman times. He assigned it, with difficulty, to the XX legion.

Turret 35A Sewingshields Crags

References: PSAN4 iv p.183 (RGC), JRS xxxviii p.84, AA4 xliii p.151-161.

Position: 466 yards to T 35B. Located 1913 and excavated by Miss Janet Birch in 1958.

Statistics: Doorway: 1'6" from east. Width of doorway: c.2'10".

Wall thickness: 3' (E, W and S).

Internal Dimensions: N-S 8' (up to recess).

E-W 12'6".

Depth of recess into Great Wall: ---

Platform: ---

Construction: See notes.

Width of Great Wall at turret: 9'.

Notes: Except at the SE corner, where there were two courses above the offset, the remains of the turret consisted of two courses of walling, including the offset foundation. There was no offset above that of the foundation in the SE corner.

Turret 35B Busy Gap

References: PSAN4 iv p.183 (RGC), JRS xxxviii p.84.

Position: 466 yards from T 35A, 533 yards to MC 36. Located in 1913 and examined by C.E. Stevens in 1947.

Statistics: Doorway: At east. Doorway width: ---.
Wall thickness: 3'6" (E and S - footing course).
Internal Dimensions: N-S ---
E-W 12'

Notes: Only the footing course of the turret remained. Nothing was left of the west wall.

Milecastle 36 King's Hill

References: Horsley p.147, Hodgson p.279, Bruce RW1 p.211, Mac Lauchlan p.37, PSAN4 iv p.183 (RGC), JRS xxxvii p.168, HB11, p.117.

Position: 533 yards from T 35B, 509 yards to T 36A; 1668 yards to MC 37. Examined by C.E. Stevens in 1946.

Notes: Stevens pointed out that MC 36 had a long axis and narrow side walls. Quarrying had destroyed the

south gate. It was impossible to determine the type of the north gateway, since it has been largely reconstructed.

Turret 36A Kennel Crag

References: Horsley, map 7, PSAN4 iv p.183 (RGC), JRS xxxvii p.168.

Position: 509 yards from MC 36, 440 yards to the east junction of Housesteads fort. Located in 1911 and examined in 1946 by C.E. Stevens.

Statistics: Doorway: c.1' from east. Width of doorway: 4'.
Wall thickness: 3' (E, W and S).
Internal Dimensions: N-S 10'6".
E-W 12'10".
Depth of recess into Great Wall: 5'.
Platform: ---
Construction: ---
Width of Great Wall at turret: 10'.

Notes: C.E. Stevens mentions no point of reduction, although the adjoining portion of Hadrian's Wall is broad.

Turret 36B Housesteads

References: Hepple's Notebook (1945), PSAN4 x p.274, HB11 p.119.

Position: Inside Housesteads fort, underneath the north

intervallum road, about 260' from the west rampart. Located by I.A. Richmond and F.G. Simpson in 1945 and excavated in the same year.

Statistics: Wall thickness: 4' (E - footings), 4'6" (W - footings).

Internal Dimensions: N-S ---

E-W 11'6"

Depth of recess into Great Wall: 2'9"

Notes: The turret was levelled to its foundations when the fort was built and so no doorway remains.

Milecastle 37 Housesteads

References: Gordon p.78, Hodgson p.279, Bruce RW1 p.230, Mac Lauchlan p.40, AA1 iv p.269-276, Bruce WB p.138-141, RW3 p.201-206, CW2 xi p.390-461, AA4 xi p.103-120, PSAN4 iv p.184 (RGC).

Position: 325 yards from the west rampart of Housesteads fort, 532 yards to T 37A. Excavated in 1853 by John Clayton, in 1909 by F.G. Simpson and in 1933 by Peter Hunter Blair.

Statistics: Gateway: 2 pairs of responds.

Gateway measurements: Width 10' (north).

Width of passage 11'6".

Length 11'.

Width 10' (south)

Width of passage 11'6"

Length 10'.

Axis: Short

Wall thickness: 8'6" (E, W and S).

Type of joint with Great Wall: See notes below.

Internal Dimensions: N-S 49'7"

E-W 57'7"

Area: 316 sq.yards.

Internal angles: Square.

Internal buildings: At east - stone building, divided into two parts, measuring c.12'9" x c.32'. At west - slight indications of timber building.

Construction: Standard A (where walls are not carried straight up from their foundations).

Width of Great Wall at milecastle: 9' - 7'6".

Notes: The north gateway was constructed, with the foundations of the north wall, in massive masonry, before the rest of the milecastle. Next came the north wall and the north end of the west wall (2' from the north end of the west wall is a clearly marked junction, presumably to indicate the course which the rest of the wall should follow). As a third stage, the rest of the milecastle was built. The type of joint made by the Great Wall

with the east wall of the milecastle is not clear, because of disturbance.

Turret 37A Rapishaw Gap

Reference: PSAN4 iv p.183 (RGC).

Position: 532 yards from MC 37, 537 yards to T 37B. Located in 1911.

Turret 37B Hotbank Crag

Reference: PSAN4 iv p.183 (RGC)

Position: 537 yards from T 37A, 535 yards to MC 38. Located in 1911.

Milecastle 38 Hotbank

References: Gordon p.78, Wallis p.26, Hodgson p.288, Bruce RW1 p.234, Mac Lauchlan p.40, AA4 xiii p.263-269, PSAN4 iv p.183 (RGC).

Position: 535 yards from T 37B, 549 yards to T 39A; 1529 yards to MC 39. Excavated in 1935 by E.B. Birley, Kenneth Steer and I.A. Richmond.

Statistics: Gateway: 2 pairs of responds.

Gateway measurements: Width 9'6" (south).
Width of passage c.12'.
Length 10'.

Axis: Short.

Wall thickness: 8'2" (E, W and S).

Type of joint with Great Wall: ---

Internal Dimensions: N-S 49'

E-W 61'

Area: 332 sq.yards.

Internal angles: Square.

Internal buildings: ---

Construction: Standard A.

Width of Great Wall at milecastle: 9'10".

Point of reduction: At west.

Notes: Like MC 50, SW, MC 38 has a south gateway with a neatly chamfered foundation plinth.

Turret 38A Milking Gap

References: PSAN4 iv p.183 (RGC).

Position: 549 yards from MC 38, 535 yards to T 38B.

Located in 1911.

Turret 38B Highshield Crag

Reference: PSAN4 iv p.183 (RGC).

Position: 535 yards from T 38A, 445 yards to MC 39.

Located in 1911.

Milecastle 39 Castle Nick

References: Gordon p.78, Horsley p.150, Hodgson p.279 footnote, Bruce PSAN1 p.46, RW1 p.243, Mac Lauchlan p.44, Bruce WB p.151f., AA4 xiii p.258f., and p.268, PSAN4 iv p.184 (RGC), HB11 p.143.

Position: 445 yards from T 38B, 513 yards to T 39A; 1806

yards to MC 40. Excavated in 1854 by John Clayton and in 1908 by F.G. Simpson.

Statistics: Gateway: 1 pair of responds.

Gateway measurements: Width 8'5" (south).

Width of passage 9' 7".

Length 9' 7".

Axis: Long.

Wall thickness: 7'.

Type of joint with Great Wall: ---

Internal Dimensions: N-S 61'6".

E-W 50'6".

Area: 345 sq.yards.

Internal angles: Square.

Internal buildings: ---

Construction: Standard A.

Width of Great Wall at milecastle: 7'.

Notes: The gateways do not have the massive masonry which is usually found in milecastle gateways (WB p.152).

Turret 39A Peel Crag

References: CW2 xiii opp.p.306, plate iv, PSAN4 iv p.184 (RGC), HB11 p.143.

Position: 513 yards from MC 39, 767 yards to T 39B.

Located in 1909 and excavated in 1911 by F.G. Simpson.

Statistics: Doorway: At east. Width of doorway: 3'.

Wall thickness: 2'8" (E, W and S).

Internal Dimensions: N-S 13'

E-W 13'2"

Depth of recess into Great Wall: 4'

Platform: ---

Construction: See notes.

Width of Great Wall at turret: 6'7"

Notes: There was no broad foundation to the Great Wall at this point, on the crags. The narrow foundation was considerably stepped on its north side. The walls of the turret rose straight up from a projecting footing course, without further offset.

Turret 39B Steelrig

References: CW2 xiii opp.p.306, plate iv, PSAN4 iv p.184 (RGC), HB11 p.145.

Position: 767 yards from T 39A, 526 yards to MC 40.

Located in 1911 and excavated in 1912 by F.G. Simpson.

Statistics: Doorway: At east. Width of doorway: ---

Wall thickness: 3'10" (E and W).

Internal Dimensions: N-S 12'

E-W 11'5"

Depth of recess into Great Wall: 5'4"

Platform: ---

Construction: See notes.

Width of Great Wall at turret: 9'7"

Points of reduction: At east and west.

Notes: The turret walls rose straight up from a projecting footing course without further offset. Most of the south wall was missing.

Milecastle 40 Winshields

References: Gordon p.78, Horsley p.150, Mac Lauchlan p.44, Bruce WB p.155, CW2 xi p.392 f.f., PSAN4 iv p.184 (RGC).

Position: 526 yards from T 39B, 624 yards to T 40A: 1850 yards to MC 41. Excavated by F.G. Simpson in 1908.

Statistics: Gateway: 1 pair of responds.

Gateway measurements: Width 8' (south).
Width of passage 9'2"
Length 9'2"

Axis: Long.

Wall thickness: 6'9" (E, W and S).

Type of joint with Great Wall: ---

Internal Dimensions: N-S 60'
E-W 48'9"

Area: 325 sq.yards.

Internal angles: Square.

1st period internal buildings: ---

Construction: Standard A.

Width of Great Wall at milecastle: 6'9".

Notes: Standard A construction occurred only on the outside of the milecastle. The foundations of the south wall were stepped. The gateways of MC 40, like those of MC 39, were built in small ashlar.

Turret 40A Winshields

References: PSAN4 iv p.184 (RGC), JRS xxxvii p.168.

Position: 624 yards from MC 40, 642 yards to T 40B.
Located in 1912 and examained by C.E. Stevens in 1946.

Statistics: Wall thickness: 3'3" (W - at first course level)
Internal Dimensions: N-S ---
E-W 13'

Notes: The South wall of the turret was completely destroyed. Of the west wall, only the footing and first courses remained.

Turret 40B Melkridge

References: PSAN4 iv p.184 (RGC), JRS xxxvii p.168.

Position: 642 yards from T 40A, 584 yards to MC 41.
Located in 1912 and examined in 1946 by C.E. Stevens.

Statistics: Doorway: "To east". Width of doorway: ---
Wall thickness: 4' (E), 4'6" (S - footing).
Internal dimensions: N-S ---
E-W --- (19' externally).

Construction: Standard A (Great Wall only).

Notes: The west wall of the turret was partly destroyed.

Milecastle 41 Melkridge

References: Mac Lauchlan p.44, Bruce WB p.155, PSAN4 iv p.184 (RGC), JRS xxxvii p.168.

Position: 1850 yards from MC 40, 1641 yards to MC 42; 584 yards from T 40B, 582 yards to T 41A.

Examined by C.E. Stevens in 1946.

Statistics: Axis: Short.

Notes: Stevens noted that the milecastle had a broad north wall and that the other walls were narrow.

Turret 41A Caw Gap

References: Horsley, map 6, PSAN4, iv p.184 (RGC), AA4 xlvi p.69 - 72.

Position: 582 yards from MC 41, 501 yards to T 41B.

Located in 1912 and excavated in 1967 by Miss Dorothy Charlesworth.

Statistics: Doorway: At east. Width of doorway: 3'2".

Wall thickness: 3'8" - 4'3" (E), 4'3" (W), 4' (S).

Internal Dimensions: N-S ---

E-W 11'8"

Point of reduction: At west.

Notes: There were internal footing offsets on both east and west walls of the turret. Only the footing

and first courses remained. The footing course was very irregular.

Turret 41B Thorny Doors

References: PSAN4 iv p.184 (RGC), AA4 xlvi p.71.

Position: 501 yards from T 41A, 558 yards to MC 42.

Located in 1912. It was searched for in vain by Miss Dorothy Charlesworth in 1967.

Milecastle 42 Cawfields

References: Abbatt p.34-35, Bruce RW1 p.248-252, AA1 iv p.54-56, PSAN4 iv p.184 (RGC), AA4 xiii p.269f.

Position: 558 yards from T 41B. Excavated by John Clayton in 1848. Planned by F.G. Simpson and I.A. Richmond in 1935.

Statistics: Gateway: 2 pairs of responds.

Gateway measurements: Width 10' (north).
Width of passage 11'2".
Length 10'.
Width 10' (south).
Width of passage 12'.
Length 10'.

Axis: Short.

Wall thickness: 8' (E, W and S).

Type of joint with Great Wall: Butt joint.

Internal Dimensions: N-S 48'6"
E-W 58'6"

Area: 315 sq.yards.

Internal angles: Square.

Internal buildings: ---

Construction: Standard A.

Width of Great Wall at milecastle: 9'2".

Points of reduction: At east and west.

Notes: The North wall and north gateway of the milecastle were built as an entirely separate unit of broad wall. The north wall has very small expansions at either side, joined by the narrow wall, which is 7'6" wide. Standard A construction occurs throughout the milecastle, though, on the north wall, the foundations were omitted and rock took their place.

Turret 42A Caw Burn

Reference: PSAN4 iv p.184 (RGC).

Position: Unlocated. Destroyed by quarrying.

Turret 42B Greatchesters

Reference: PSAN4 iv p.184 (RGC).

Position: 457 yards to the east rampart of Greatchesters fort. Located in 1912.

Milecastle 43 Greatchesters

References: PSAN4 iv p.184 (RGC), JRS xxx p.161 and 163f., HB11 p.153.

Position: Within Greatchesters fort. From east rampart to T 42B, 457 yards; From west rampart to T43A, 502 yards. Partly excavated by F.G. Simpson and I.A. Richmond in 1939.

Statistics: Gateway: 2 pairs of responds.

Gateway measurements: ---

Axis: Short.

Wall thickness: 8' (E and W).

Type of joint with Great Wall: ---

Internal Dimensions: N-S ---

E-W 58'

Notes: The milecastle was levelled to its foundations when the fort at Greatchesters was built over it.

Turret 43A Cockmount Hill

Reference: PSAN4 iv p.184 (RGC).

Position: 502 yards from the west rampart of Greatchesters fort, 555 yards to T 43B. Located in 1912.

Turret 43B Allolee East

Reference: PSAN4 iv p.184 (RGC).

Position: 555 yards from T 43A, 537 yards to MC 44. Located in 1912.

Milecastle 44 Allolee

References: Bruce WB p.162, Mac Lauchlan p.47, PSAN4 iv p.184 (RGC), HB11 p.159.

Position: 537 yards from T 43B, 574 yards to T 44A.

Statistics: Axis: Long.

Turret 44A Allolee West

Reference: PSAN4 iv p.184 (RGC).

Position: 574 yards from MC 44, 395 yards to T 44B.
Located in 1912.

Turret 44B Mucklebank

References: AA2 xxiv p.13-18, AA3 ix plate II opp.p.56, PSAN4 iv p.184 (RGC), HB11 p.160.

Position: 395 yards from T 44A, 552 yards to MC 45. Located in 1883 by William Tailford,Clayton's excavator and excavated in 1892.

Statistics: Doorway: At west. Width of doorway: 2'10".
Wall thickness: 3'3" (E and S).
Internal Dimensions: N-S 10'1" - 10'4"
E-W 10'3" - 10'
Depth of recess into Great Wall: 1'2" - 1'3"
Platform: ---
Construction: No further offset above that of the footing course.
Width of Great Wall at turret: 7'3".

Milecastle 45 Walltown

References: Bruce RW1 p.265, Mac Lauchlan p.47, PSAN4 iv p.184 (RGC), HB11 p.161.

Position: 1521 yards from MC44, 1591 yards to MC 46; 552 yards from T 44B, 447 yards to T 54A.

Statistics: Axis: Long.

Notes: The position of the walls is marked by robbed-out trenches.

Turret 45A Walltown Crags East

References: Horsley, map 7, AA2 x p.57f, AA3 ix p.69f., PSAN4 iv p.184 (RGC), HB11 p.161, AA4 xliii p.162-169.

Position: 447 yards from MC 45, 578 yards to T 45B.

Excavated in 1883 by Clayton and in 1959 by Miss Janet Birch, prior to consolidation by the Ministry of Public Building and Works.

Statistics: Doorway: At east? Width of doorway: ---

Wall thickness: 2'10" (E, W and S), 2'9" (N).

Internal Dimensions: N-S 12'6" - 12'9"

E-W 13'6" - 13'2"

Depth of recess into Great Wall: 4'7"

Platform?: ---

Construction: No offset above that of the footing course.

Width of Great Wall at turret: 7'4"

Notes: The Great Wall abuts the turret on either side. Before the wall was built, the turret, like Pike Hall signal station, was a free standing tower.

It was later adopted into the wall system. Where the turret is not built straight onto the rock, its foundations are very deep, reaching, at the south-west corner, a depth of 3' and at the south wall of the turret, a depth of 3'8".

Turret 45B Walltown Crags West

References: AA2 ix p.234-236, AA3 ix p.70, PSAN4 iv p.184 (RGC).

Position: 578 yards from T 45A, 566 yards to MC 46. The turret was destroyed by Greenhead Quarry. Located and excavated in 1883 by Clayton.

Statistics: Wall thickness: 3'2" (E,W and S).
Internal Dimensions: N-S 11'10" (Newbold).
E-W 13'
Depth of recess into Great Wall: 2'6"

Milecastle 46 Carvoran

References: PSAN3 iv p.167, PSAN4 iv p.184 (RGC), BHW p.44, footnote 174.

Position: 566 yards from T 45B. Located in 1907 by F.G. Simpson and J.P. Gibson at a different site from the one given by Horsley (p.152).

Statistics: Axis: Long ?

Notes: C.E. Stevens,BHW p.44, footnote 174: "MC46, examined by me, close to Carvoran fort, had been as good as completely removed, seemingly in Roman times, and essential details could not be recovered,

though it did not seem to be of legion II."

Turret 46a Holmhead

Reference: PSAN4 iv p.184 (RGC).

Position: Probably under modern farm buildings at Holmhead.

Turret 46B Wallend

Reference: PSAN4 iv p.184 (RGC).

Position: Probably under modern buildings.

Milecastle 47 Chapel House

References: Bruce RW1 p.274, Mac Lauchlan p.51, Bruce WB p.171, AA4 xiii p.270-272, PSAN4 iv p.184 (RGC), AA4 xlvi p.100 and p.111-112.

Position: 540 yards to T 47A, 1664 yards to MC 48.
Partially excavated in 1935 by I.A. Richmond and G.S. Keeney.

Statistics: Gateway: 2 pairs of responds (see Chapter III).
Gateway measurements: ---
Axis: Long
Wall thickness: 9' (or over).
Type of joint with Great Wall: ---
Internal Dimensions: N-S 69'
E-W 60'
Area: 460 sq.yards.
Internal angles: Round.
1st period internal buildings: Stone barrack blocks on both sides of the milecastle:

At east - 55' (c) x 17'

At west - 52' (c) x 15'

Construction: Standard A.

Width of Great Wall at milecastle: ---

Notes: Only the east rearward projection of the north gateway was found, defined by road metalling, bordering the cavity from which the masonry had been robbed. The east side of the south gateway displayed massive masonry; its outer jambs had been built of two very large blocks, only one of which remained at the time of excavation, while the backward projection had been built in large masonry.

Turret 47A Foultown

Reference: PSAN4 iv p.184 (RGC).

Position: 540 yards from MC 47, 546 yards to T 47B. Located in 1912.

Turret 47B Gap

Reference: PSAN4 iv p.184 (RGC).

Position: 546 yards from T 47A, 578 yards to MC 48. Located in 1912.

Milecastle 48 Poltross Burn

References: Horsley p.152, Bruce RW1 p.277, Mac Lauchlan p.53, CW1 p.163-165, PSAN2 ii p.214, CW2 xi p.390-461,

CW2 xxix p.314, PSAN4 iv p.185 (RGC).

Position: 578 yards from T 47B, 498 yards to T 48A; 1595 yards to MC 49. Excavated in 1886 and 1909 - 1910 by F.G. Simpson.

Statistics: Gateway: 2 pairs of responds.

Gateway measurements: Width 9'6" (north).
Width of passage 11'6".
Length: 13'
Width --- (south)
Width of passage ---
Length 12'6" (west side destroyed).

Axis: Long.

Wall thickness: 9'2"

Type of joint with Great Wall: Bonded.

Internal Dimensions: N-S 70'
E-W 60' 9"

Area: 472 sq.yards.

Internal angles: Round.

Internal buildings (1st period): Stone barrack blocks on both sides of the mile-castle, divided into 4 rooms of equal size;
At east - 56'3" x 16'6" (externally).

At west - 54'3" x 17' (externally).

Construction: Standard B.

Width of Great Wall at milecastle: 9'2".

Points of reduction: At east and west.

Notes: The outer face of the east wall is considerably stepped because of the slope. The inner face of the west wall is slightly stepped. There are steps in the NE corner, leading to the rampart walk, which abut the north wall.

Turret 48A Willowford East

References: CW2 xxvi p.437f.f., PSAN4 iv p.185 (RGC).

Position: 498 yards from MC 48, 533 yards to T 48B.

Located and excavated in 1923 by R.C. Shaw.

Statistics: Doorway: At west. Width of doorway: ---

Wall thickness: 2'11" (E, W and S).

Internal Dimensions: N-S 13'3" - 14'4".

E-W 12'8" - 13'6".

Depth of recess into Great Wall: 6'6".

Platform: In SE corner.

Construction: Standard B (Great Wall and points of reduction only).

Width of Great Wall at turret: c.9'10".

Points of reduction: At east and west.

Notes: The walls of the turret, which were slightly

askew, had no offset above that of the footing course.

Turret 48B Willowford West

References: CW2 xxvi p.429 f.f., PSAN4 iv p.185 (RGC).

Position: 533 yards from T 48A, 564 yards to MC 49.
Located and excavated in 1923 by R.C. Shaw.

Statistics: Doorway: ---
Wall thickness: 2'7" (E).
Internal Dimensions: N-S ---
E-W 13'9½"
Depth of recess into Great Wall: 7'
Platform: ---
Construction: Standard B (Great Wall and outside of east turret wall).
Width of Great Wall at turret: 9'8".
Points of reduction: At east and west.

Notes: The south wall of the turret was gone and only the foundation of the west wall remained.

Milecastle 49 Harrow's Scar

References: Gordon p.80, Horsley p.152, Bruce RW1 p.278, Mac Lauchlan p.53, CW1 xv p.352f., PSAN4 iv p.185 (RGC), CW2 1vi p.18-27.

Position: 564 yards from T 48B, 481 yards to the east rampart of Birdoswald fort; 1538 yards to MC 50.

Partially excavated in 1898 by Haverfield and in 1953 by I.A. Richmond.

Statistics: Gateway: 2 pairs of responds?

Gateway measurements (foundations only):

Width 10' (south)

Width of passage: ---

Length: 10'6"

Axis: Long.

Wall thickness: 7'7" (E, W and S).

Type of joint with Great Wall: Butt joint.

Internal Dimensions: N-S 76'

E-W 65'

Area: 549 sq.yards.

Internal angles: Round.

Internal buildings: Some evidence of disturbed ground at the east side of the milecastle.

Construction: Standard C.

Width of Great Wall at milecastle: 7'7"

Notes: Massive foundations were the only remains of the south gateway. The turf wall milecastle, underneath the stone one, measured 54' x 50' internally (from post-holes). The vallum stopped 15' west of the TW milecastle rampart, showing that the latter was built before it.

Turret 49A (Turf Wall) Birdoswald Fort

References: PSAN4 iv p.185 (RGC), PSAN4 x p.274, HB11 p.179.

Position: The turret is underneath the headquarters building of Birdoswald fort; the west rampart of the fort is 381 yards from T 49B (SW). Located in 1945 by F.G. Simpson and I.A. Richmond.

Notes: All that remained of the turret was the gap in the turf wall, from which it had been removed when the fort was built, and a scatter of mason's chippings sealed by the later via principalis.

Turret 49B (Turf Wall) Birdoswald

Reference: CW2 xxxv p.234f.

Position: 33 yards east of the correct position in relation to MC 50 (TW), but correctly placed in relation to T 50A (TW). Located in 1934 by F.G. Simpson, I.A. Richmond and Dr. St. Joseph.

Notes: Only the robbed side walls were located. The foundations, like those of other turf wall turrets, were laid in a trench.

Milecastle 50 (Turf Wall) High House

References: CW2 xxxv p.220f. and xxxvii p.166-170.

Position: East of High House. Located in 1933 and excavated in 1934 by F.G. Simpson, I.A. Richmond and Dr. St. Joseph.

Statistics: Gateway: Timbered for 14' on either side, suggesting a tower (north).

Gateway measurements: Width 12' (north).
Length: 20'
Width 12' (south)
Length: 10'6"

Axis: Long

Wall thickness: 20' (at base).

Internal Dimensions: N-S 66'
E-W 55'

Area: 403 sq.yards.

Internal angles: Round.

Internal buildings: Timber building at east side (12'9" x 32') divided into two rooms.

Notes: There is the base of a stair to the rampart walk in the NE corner of the milecastle.

Turret 50A (Turf Wall) High House

Reference: CW2 xxxv p.234f.

Position: In correct position in relation to T 49B (TW). Located in 1934 and excavated in the same year by F.G. Simpson, I.A. Richmond and Dr. St. Joseph.

Statistics: Doorway: ---

Wall thickness: 2'6" (W)

Internal Dimensions: N-S 13'3"

E-W 13'3"

Construction: Standard C.

Notes: The foundations of the turret were laid in a shallow trench and only at the north end of the west trench did a footing course and scrap of walling remain. The width of the trench, at various points, confirmed that the turret had narrow side walls and wider north and south walls. All walls were laid at the outer edges of the trenches.

Turret 50B (Turf Wall) Appletree

Reference: CW2 xxxv p.232f.

Position: 22 yards west of the correct position, measured from MC 51. Located in 1928 and excavated in the same year by F.G. Simpson, I.A. Richmond and Dr. St. Joseph.

Statistics: Doorway: ---

Wall thickness: 2'6" (E), (3'3" N and S, c.3' E and W - footings).

Internal Dimensions: N-S 13'3"

E-W 13'3"

Construction: Standard C.

Notes: The fragment of walling at the east, 2'6" wide,

rested on a foundation which should have taken a wall of over 3' in width. This confirms that the N and S walls were thicker than the side walls. The turret was badly robbed, but the footings remained in two courses, laid directly onto the subsoil and not in a foundation trench.

Turret 49B (Stone Wall) Birdoswald

References: Hodgson p.279, CW 2 xiii p.303 f.f., PSAN4 iv p.185 (RGC).

Position: 381 yards from the west rampart of Birdoswald fort; 541 yards to MC 50. Excavated in 1911 by F.G. Simpson.

Statistics: Doorway: 2' from east. Width of doorway: 3'

Wall thickness: 2'10" (E, W and S).

Internal Dimensions: N-S 12'5"

E-W 13'

Depth of recess into Great Wall: 3'9"

Platform: ---

Construction: Standard C.

Width of Great Wall at turret: 7'7"

Milecastle 50 (Stone Wall) High House.

References: Bruce RW1, p.283, Mac Lauchlan p.56, CW1 xiv p.190, CW2 xiii p.312f.f., PSAN4 iv p.185 (RGC).

Position: 541 yards from T 49B, 544 yards to T 50A; 1629

yards to MC 51. Excavated in 1911 by F.G. Simpson.

Statistics: Gateway: 2 pairs of responds.

Gateway measurements: Width 9'9" (north)

Width of passage: 10'10"

Length: 12'

Axis: Long.

Wall thickness: 7'7" (E, W and S).

Type of joint with Great Wall: Butt joint.

Internal Dimensions: N-S 76'

E-W 60'

Area: 507 sq.yards.

Internal angles: Round.

Internal buildings (1st period): ---

Construction: Standard A (the Great Wall has standard C construction).

Width of Great Wall at milecastle: 7'

Notes: The piers, which stood on massive plinths, and the gateway passage were built in massive masonry. The north wall of the milecastle and the Great Wall formed a continuous work, differing in construction from the side walls.

Turret 50A (Stone Wall) High House

References: CW2 xiii p.307 f.f., PSAN4 iv p.185 (RGC).

Position: 544 yards from MC 50, 540 yards to T 50B.

Located and excavated in 1911 by F.G. Simpson.

Statistics: Doorway: At east. Width of doorway: 3'

Wall thickness: 2'11" (E, W and S).

Internal Dimensions: N-S 12'9"

E-W 13'8"

Depth of recess into Great Wall: 3'5"

Platform: ---

Construction: Standard C.

Width of Great Wall at turret: 7'7"

Turret 50B (Stone Wall) Appletree

References: CW2 xiii p.309 f.f., PSAN4 iv p.185 (RGC).

Position: 540 yards from T 50A, 545 yards to MC 51.

Located and excavated in 1911 by F.G. Simpson.

Statistics: Doorway: At east. Width of doorway: 3'

Wall thickness: 3' (E, W and S).

Internal Dimensions: N-S 12'10"

E-W 13' 7"

Depth of recess into Great Wall; 3'8"

Platform: ---

Construction: Standard C

Width of Great Wall at turret: 7'8"

Notes: The turret walls had no projecting footing course, except at the NE corner (inside).

Milecastle 51 Wallbowers

References: Gordon p.80, Horsley p.153, Hodgson p.297, Bruce RW1 p.283, Mac Lauchlan p.56, PSAN4 iv p.185 (RGC), CW2 xxviii p.384, CW2 xxxv p.254 - 256, CW2 xxxvii p.158f.f.

Position: 545 yards from T 50B, 547 yards to T 51A; c.1610 yards to MC 52. Excavated in 1927 by F.G. Simpson (NE corner), and in 1934 by F.G. Simpson and I.A. Richmond (south gate). The behaviour of the vallum at the milecastle was examined in 1937 by F.G. Simpson and I.A. Richmond.

Statistics: Gateway: 2 pairs of responds?

Gateway measurements: ---

Axis: Long.

Wall thickness: ---

Type of joint with Great Wall: Butt joint.

Internal Dimensions: N-S ---

E-W ---

Area: ---

Internal angles: Round

Internal buildings: ---

Construction: ---

Width of Great Wall at milecastle: ---

Notes: Only the massive foundations of the south gateway

remained. The dimensions of the turf wall mile-castle (beneath the stone one), calculated from the vallum diversion, were 120' x 98', externally.

Turret 51A Piper Sike

References: CW2 xxviii p.382, PSAN4 iv p.185 (RGC).

Position: 547 yards from MC 51, 530 yards to T 51B. Located by F.G. Simpson in 1927.

Notes: The turret projected nearly 2' north of the stone wall.

Turret 51B Lea Hill

References: CW2 xxviii p.382, PSAN4 iv p.185 (RGC), AA4 xliii p.170-192.

Position: 530 yards from T 51A, 533 yards to MC 52. Located in 1927 by F.G. Simpson and excavated in 1958 by Miss Charmian Phillipps.

Statistics: Doorway: At east. Width of doorway: 4'

Wall thickness: 3' and 3'1" (N and S),
2'6" and 2'7" (E and W)

Internal Dimensions: N-S 13'8"
E-W 14'6"

Platform: A very rough platform, in the middle of the north wall.

Construction: Standard C.

Width of Great Wall at turret: 8'

Notes: There were no external or internal offsets on the turret walls, which were laid in small construction trenches on a foundation of small pebbles and stones, set in red clay. The N and S walls had a solid mortar core but the E and W walls had a core of small pitched stones set in clay.

Milecastle 52 Bankshead

References: Horsley p.153, Mac Lauchlan p.57, PSAN4 iv p.185 (RGC), CW2 xxxiv p.147, CW2 xxxv p.247-256.

Position: c.1610 yards from MC 51, c.559 yards to T 52A. Excavated in 1933 and 1934 by F.G. Simpson and I.A. Richmond.

Statistics: Gateway: 2 pairs of responds.

Gateway measurements: Width 10' (north).
Width of passage 12'
Length 12'

Axis: Short

Wall thickness: 6'4" (E, W and S)

Type of joint with Great Wall: Butt joint

Internal Dimensions: N-S 76' 9"
E-W 90' 3"

Area: 770 sq.yards.

Internal angles: ---

Internal buildings: 15' length of wall in NE corner.

Construction: Standard C.

Width of Great Wall at milecastle: 6'4"

Notes: Both gateways were built in massive masonry. The milecastle, which is the largest on the wall, probably housed the garrison which served Pike Hill Signal station, as well as the garrisons of the adjacent turrets.

Turret 52A Banks East

References: CW2 xxviii p.382f., CW2 xxxiv p.148f.f.

Position: East of Pike Hill. Located in 1927 and excavated in 1933 by F.G. Simpson, I.A. Richmond and James McIntyre.

Statistics: Doorway: At east. Width of doorway: 3'6"

Wall thickness: 3'2" (N and S), 2'3" (E and W)

Internal Dimensions: N-S 14'

E-W 14'5"

Platform: In NW corner.

Construction: Standard C.

Width of Great Wall at turret: 7'7"

Notes: "The Walls of the turret have been built without a projecting foundation against the outer side of a large foundation trench, packed inside the tower with mason's chippings and mortar". [The turret is a typical turf wall structure with a chamfered plinth on the north side. The outer faces of the

side walls are rough.] (CW2 xxxiv p.150).

Turret 52B Banks West

Reference: PSAN4 iv p.185 (RGC).

Position: Unlocated.

Milecastle 53 Banks Burn

References: Horsley p.153, Bruce RW3 p.269, CW2 xxxiii p.267-270.

Position: Underneath Banks Burn farmhouse, 393 yards east of T 53A. Excavated in 1932 by F.G. Simpson and I.A. Richmond.

Statistics: Gateway: 2 pairs of responds?

Gateway measurements: Width: --- (south)

Width of passage: ---

Length: 10'6"

Axis: Long.

Wall thickness: 7' (E).

Type of joint with Great Wall: Butt joint.

Internal Dimensions: N-S 76'6"

E-W 72'

Area: 612 sq.yards.

Internal angles: Round.

Internal buildings: ---

Construction: Standard C.

Width of Great Wall at milecastle: 7'7".

Notes: Only the foundations of the south gateway remained.

Except for the north end of the east wall, the milecastle was very badly robbed.

Turret 53A Hare Hill

References: PSAN1 i p.237, Mac Lauchlan p.58, CW2 xxxiii p.262-267.

Position: 393 yards from MC 53. Located c.1855 and excavated in 1932 by F.G. Simpson, I.A. Richmond and James McIntyre.

Statistics: Doorway: At east. Width of doorway: ---
Wall thickness: 2'9" (N and S), 2'6" (E and W).
Internal Dimensions: N-S 14'
E-W 14'5"
Construction: Standard C.
Width of Great Wall at turret: ---

Notes: The turret projected 2' to the north of the Great Wall. Its foundations consisted of stones, packed with clay, in 1" deep trenches. Over the foundations was laid a flag footing course. The third course on the outer face of the south wall was a bevilled plinth.

Turret 53B Craggle Hill

Reference: CW2 xxxiii p.270.

Position: On the slope of Craggle Hill, at the normal position in relation to MC 53. Located in 1932 by

F.G. Simpson, I.A. Richmond and James McIntyre.

Milecastle 54 Randylands

References: Bruce RW1 p.286, Mac Lauchlan p.60, CW2 xxxiv p.144f.f., CW2 xxxv p.236f.f.

Position: Just west of Randylands. Excavated in 1933 and 1934 by F.G. Simpson and I.A. Richmond.

Statistics: Gateway: 2 pairs of responds?

Gateway measurements: ---

Axis: Long.

Wall thickness: 7' (E), 8' (E, W and S - footings).

Type of joint with Great Wall: ---

Internal Dimensions: N-S 77'6"
E-W 63'

Area: 542 sq.yards.

Internal angles: ---

Internal buildings: 1st period stone building (31'3" x 16') divided into two rooms, on the west side of the milecastle.

Construction: Standard C.

Width of Great Wall at milecastle: 8' (footings).

Notes: Evidence of the clay milecastle, underneath the stone one, suggested that it was of similar dimensions to the latter. The foundations of both the Great

Wall and the side walls of the milecastle were contemporary and formed one homogeneous mass. The superstructure of the milecastle was missing so that it was impossible to see how it was joined to the Great Wall. Only the foundations of the gateways remained.

Turret(s) 54A Garthside

References: CW2 xxxiv p.138-144, HB10 p.187.

Position: SE of Garthside. Located and excavated in 1933 by F.G. Simpson, I.A. Richmond and James McIntyre.

Statistics: Turret 1 North (clay wall)

Doorway: At west. Width of doorway: 3'2".

Wall thickness: 3'6" (N and S), 3' (E and W).

Internal Dimensions: N-S 13'6"

E-W 13'6"

Construction: Standard C (N and S walls only).

Turret 11 South (Turf wall)

Doorway: At west. Width of doorway: 4'

Wall thickness: c.3'6" (N, S, E and W).

Internal Dimensions: N-S 13'6"

E-W 13'6"

Construction: Standard C.

Width of Great Wall at turret: ---

Notes: HB10 p.187 "..... There had been two turrets.

The first one, a clay wall turret, had collapsed into the ditch, owing to unstable subsoil, after a measure of use. A new wall, this time of turf was then built, further notth, with the secondary ditch, while the new turret was built behind the old one as an isolated tower. Later came the stone wall which was run up to the new turret."

Turret 54B Howgill

Reference: CW2 xxxiv p.131.

Position: 535 yards west of T 54A. Located in 1933 by F.G. Simpson, Miss K.S. Hodgson and I.A. Richmond.

Notes: The turret projected 2'6" north of the Great Wall.

Milecastle 55 Low Wall

References: Bruce RW1 p.286, Mac Lauchlan p.60, CW2 i p.81-82, HB11 p.196.

Position: Due north of Low Wall, in a field on Low Wall farm. 528 yards to T 55A. Examined in 1900 by Haverfield.

Notes: Haverfield traced part of the west wall of the milecastle to its junction with the Great Wall. The type of joint could not be determined, since only foundations remained.

Turret 55A Dovecote

Reference: CW2 xxxiv p.131.

Position: 528 yards from MC 55. Located in 1933 by F.G. Simpson, Miss K.S. Hodgson and I.A. Richmond.

Notes: The remains of the turret were poor.

Turret 55B Townhead Croft

References: CW2 xxxiv p.131, Letter of 26th September 1959 from Miss K.S. Hodgson to Eric Birley.

Position: Just west of the Kingwater. Located? in 1959 by Miss K.S. Hodgson.

Milecastle 56 Walton

References: Mac Lauchlan p.60, Bruce WB p.195, CW2 i p.82, CW2 ii p.391, CW2 iii p.346-7, PSAN4 iv p.185 (RGC), CW2 xxxiv p.131.

Position: Unlocated. It should lie somewhere near the entrance to Walton Village.

Turret 56A Sandysike

Reference: CW2 xxxiv p.131.

Position: Unlocated.

Turret 56B Cambeck

Reference: CW2 xxxiv p.132.

Position: 2,138 yards west of T 55A. Located in 1933 by F.G. Simpson, Miss K.S. Hodgson and I.A. Richmond.

Notes: The turret projected 2'9" north of the Great Wall. Clay and cobble foundations were all that remained of the turret, except for the north wall, which

was thickened for a plinth. The E-W external measurement was 20'9".

Milecastle 57 Cambeckhill

Reference: CW2 xxxiv p.132.

Position: Unlocated.

Turret 57A Beck

Reference: CW2 xxxiv p.132.

Position: 1,115 yards west of T 56B, the exact position of MC 57 being yet unknown. Located in 1933 by F.G. Simpson, Miss K.S. Hodgson and I.A. Richmond.

Notes: The turret, which was built of red sandstone and mortar, had a cobble foundation.

Turret 57B Newtown

References: ---

Position: Unlocated.

Milecastle 58 Newtown of Irthington

References: Horsley, map 9, Bruce RW1 p.294, RW2 p.267, Mac Lauchlan p.70, HB11 p.202.

Position: About 200 yards west of Newtown of Irthington.

Turret 58A Cumrenton

References: ---

Position: Unlocated.

Turret 58B Chapel Field

References: CW1 xiii p.465, PSANZ vii p.222.

Position: ? Doubtful discovery, in 1894, in the Chapel Field, east of Old Wall.

Milecastle 59 Old Wall

References: Horsley, map 9, Bruce RW1 p.296, Mac Lauchlan p.71, PSAN2 vii p.221, HB11 p.202.

Position: ½ of a mile east of Old Wall?

Notes: In 1894, T.H. Hodgson found several foundation stones on the site east of Old Wall, but no substantial evidence for a milecastle.

Milecastle 60 High Strand or Bleatarn

References: Horsley, map 9, Bruce RW1 p.297, Mac Lauchlan p.71, HB11 p.203.

Position: Unlocated.

Milecastle 61 Wallhead

References: Horsley, map 9, CW1 xiii p.462.

Position: Sought in vain by Haverfield in 1894. It should be east of Wallhead.

Milecastle 62 Walby East

References: MacLauchlan p.72, Bruce WB p.201, PSAN4 iv p.186 (RGC), HB11 p.205.

Position: About 600 yards east of Walby.

Milecastle 63 Walby West

References: MacLauchlan p.73, PSAN4 iv p.186 (RGC), HB11 p.205.

Position: Just over half a mile west of Walby.

Milecastle 64 Drawdykes

Reference: Mac Lauchlan p.73.

Position: In the grounds of Hadrian's camp near Houghton.

Notes: The site of the milecastle was located recently, with that of T 63B. Both positions were surveyed by Mr. Robert Hogg, curator of the Carlisle Museum.

Milecastle 65 Tarraby

References: Horsley, map 9, HB11 p.206.

Position: 200 yards west of Tarraby?

Notes: Altars to COCIDIUS and MERCURY have been found near the presumed site.

Milecastle 66 Stanwix Bank

Reference: HB11 p.209.

Position: Unlocated. Its measured position places it on the east bank of the River Eden.

Milecastle 67 Stainton

Reference: HB11 p.210.

Position: Unlocated.

Notes: Roman coins, found at the southern end of the Silloth railway bridge, may indicate the position of the milecastle.

Milecastle 68 Boomby Gill

Reference: HB11 p.210.

Position: Unlocated.

Milecastle 69 Sourmilk Bridge

References: Mac Lauchlan p.79.

Position: West of Grinsdale.

Notes: Mac Lauchlan noted that there was a great quantity of masonry and foundation stones near the stream which divided Grinsdale from Kirkandrews. He thought that they might mark the position of the milecastle. The 2" Ordnance Survey Map of Hadrian's Wall, however, marks it further east.

Milecastle 70 Braelees

References: MacLauchlan p.80, Bruce WB p.210.

Position: Unlocated.

Notes: Both Mac Lauchlan and Bruce noted that the east side of Kirkandrews churchyard was full of stones and that these might indicate the site of a milecastle. In fact, they probably mark the site of T 69B, since the measured position of MC 70 is further north.

Turret 70B

References: Mac Lauchlan p.80, CW2 lxi p.39.

Position: Exactly a third of a Roman mile east of MC 71. Located in 1960 by Stephen Bartle.

Milecastle 71 Wormanby

Reference: CW2 lxi p.39-40.

Position: 540 yards from MC 72. Located in 1960 by Stephen Bartle.

Milecastle 72 Burgh by Sands

References: Horsley p.156, and map, CW2 lxi p.34-38.

Position: A ½ of a mile west of Burgh. Located in 1960 by Stephen Bartle.

Notes: The core of the west wall was 6' thick. That of the Great Wall, at foundation level, was 7' thick. MC 72 corresponded closely to MC 79, except that it seemed to stand more squarely on the position of the earlier turf and timber milecastle.

Turret 72B Rindle House

References: CW2 lii p.15, HBIl p.215 - 216.

Position: Exactly a third of a Roman mile from MC 73, at the east end of the field north of Rindle House. Located and excavated in 1948 by F.G. Simpson, Miss K.S. Hodgson and I.A. Richmond.

Statistics: Doorway: ---

Wall thickness: 3'10" (N and S - footings),
3' 6" (E and W - footings).

Internal Dimensions: N-S 11'6"
E-W 12'

Platform: ---

Construction: ---

Width of Great Wall at turret: 8' (footings).

Notes: The turret, whose remains were scanty, projected 4' in front of the Great Wall. Its footings, of whitish-grey sandstone, were laid on two courses of clay and cobble foundations.

Milecastle 73 Dykesfield

References: Mac Lauchlan p.83, Bruce WB p.213, CW2 1ii p.14f.f.

Position: On the west side of Watch Hill. Partly excavated in 1948 by F.G. Simpson, Miss K.S. Hodgson and I.A. Richmond.

Statistics: Gateway: ---

Axis: Long.

Wall thickness: 6'8" (foundations).

Type of joint with Great Wall: ---

Internal Dimensions: N-S 62'6"

E-W 60'8"

Area: 421 sq.yards.

Width of Great Wall at milecastle: 8'8½" (footings).

Milecastle 74 Boustead

Reference: PSAN4 iv p.186 (RGC).

Position: Unlocated. If it has not already perished in the marsh, it may be found, using the known position of MC 73 as a basis for measurement.

Milecastle 75 Easton Bank

Reference: PSAN4 iv p.187 (RGC).

Position: Unlocated. If it has not already perished in the marsh, it may be found, using the known position of MC 73 as a basis for measurement.

Milecastle 76 Drumburgh

References: Horsley p.157, CW1 xvi p.80, CW2 lii p.14.

Position: 223 yards east of the axis of Drumburgh fort.

Notes: The milecastle appears as a low mound in a grass field, at the above position.

Turret 76A Drumburgh

References: CW2 lii p.14, HB11 p.219.

Position: Found in the hedge, 39' east of the garden gate, south of Drumburgh school house. Located in 1948 by F.G. Simpson, Miss K.S. Hodgson and I.A. Richmond.

Milecastle 77 Raven Bank

Reference: Mac Lauchlan p.86.

Position: Unlocated.

Milecastle 78 Kirkland

References: Horsley p.157, CW2 xxxv p.217, PSAN4 iv p.187 (RGC).

Position: At Kirkland. "Visible fourteen furlongs from Boulness". (Horsley).

Notes: (FGS, IAR and James McIntyre, CW2 xxxv p.217) "Kirkland milecastle, 78, lies partly in field no.

1753 and partly in field no. 1755 (C. xv, 5). In the former field, the west wall was found, measuring 9'2" across the foundations. One course of masonry stood upon the inner face, above a five inch offset: The outer face had been robbed."

Turret 78a Kirkland

References: Horsley map 9, CW2 lii p.14.

Position: 100' NW of the west corner of Kirkland farm buildings, in the line of the hedge bordering the south side of the road to Port Carlisle. Located in 1948 by F.G. Simpson, Miss K.S. Hodgson and I.A. Richmond.

Milecastle 79 Solway

References: Gordon p.82, Mac Lauchlan p.87, CW2 lii p.17-40, HB11 p.220.

Position: 150 yards west of Fisher's Cross. Located in 1948 by F.G. Simpson and partially excavated in 1949 by I.A. Richmond and J.P. Gillam.

Statistics: Stone Wall Milecastle

Gateway: 1 or 2 pairs of responds.

Gateway measurements: ---

Axis: Square.

Wall thickness: 8'1"

Type of joint with Great Wall: Bonded.

Internal Dimensions: N-S 57' 6"

E-W 57' 6"

Area: 367 sq.yards.

Internal angles: Square.

Internal buildings: Remains of timber building (42' x 11') on the east side of the milecastle.

Construction: ---

Width of Great Wall at milecastle: Under 8'6".

Turf Wall Milecastle

Gateway: ---

Gateway measurements: Width 10' (south).

Length: ---

Axis: Short.

Internal Dimensions: N-S 40'5"

E-W 48'3"

Area: 217 sq.yards

Internal angles: Square.

Internal buildings: ---

Notes: Only the eastern half of the milecastle was excavated. The TW milecastle stood on an artificial platform or sea-bank to prevent flooding. Its short axis distinguished it from MC 50 (TW). There was a staircase ramp in its SE corner.

Turret 79B Jeffrey Croft

References: CW2 xxxv p.217f., HB11 p.222.

Position: In Jeffrey Croft. Located and excavated in 1934 by F.G. Simpson, I.A. Richmond and James McIntyre.

Statistics: Doorway: ---

Wall thickness: 3'2" (W - footings),
3'8" (S - footings).

Notes: The turret foundations consisted of two layers of red cobbles set in clay. The south wall of the turret projected beyond the line of the Great Wall.

Milecastle 80 Bowness

Reference: PSAN4 iv p.187 (RGC).

Position: Unlocated, though presumably close to, or underneath, the fort at Bowness.

CHAPTER V.

The Building of Hadrian's Wall

In 1966, Mr. C.E. Stevens published a revision of his 1947 Horsley Lecture, "The Building of Hadrian's Wall". The new paper, published by the Cumberland and Westmorland Antiquarian and Archaeological society, is an attempt to use the evidence of the structural differences in the turrets, milecastles and curtain of Hadrian's Wall, together with the epigraphic evidence, to produce a theory about the allocation of the building of the wall. The following reconstruction of the building of Hadrian's Wall is a rejoinder to Mr. Stevens' paper.

The centurial stones, which determine the division of work within each legionary block, are discussed at length in Mr. Stevens' paper. No attempt is made in this chapter to divide the legionary blocks between the cohorts and their centuries.

On the basis of centurial stones, Mr. Stevens argues that each legion was divided into two gangs, one to build foundation, and the other, curtain[1]. Only six cohorts, out of the ten in each legion, are regularly attested on the wall. The second, fourth, seventh and ninth cohorts are rare. Mr. Stevens postulates that the six common cohorts, one of which was double, and detachments from two of the rarer ones, were engaged in the building of curtain. He calls them the "eight cohort equivalents" of a legion, and allocates to them, as one

season's work, the sixteen structures, which he takes to be a legionary block. The remaining cohorts were used as structure and foundation gangs.

Professor Birley[2] has pointed out that the four cohorts so rarely attested on the centurial stones of Hadrian's Wall are those which, according to Vegetius[3], were detailed to train recruits. Training would be unlikely to include the building of Hadrian's Wall. Mr. Stevens' theory, that "eight cohort equivalents" built legionary blocks of sixteen structures therefore appears to be invalid.

When several consecutive milecastles belong to the same type, and the turrets associated with them correspond to one of the three types classified by Mr. Stevens, it is logical to suppose that they were all built by the same legion. A stretch of wall containing a group of such structures (all built to the same standard of construction) may be termed a legionary block. It does not follow, as Mr. Stevens thought, that a milecastle and the two turrets on either side of it, in the central wall sector, must be the work of the same legion.

The allocation of milecastles, turrets and curtain to the three legions is set out in fig.2. The schedule, worked out in Chapter III, which sets out the characteristics of the structures belonging to each legion, is repeated below, for convenience:

Legion		MC.	T.	Construction
II	-	short axis	broad wall	A
		2 pairs of responds	east door	
VI	-	long axis	narrow wall	B
		2 pairs of responds	west door	
XX	-	long axis	narrow wall	A
		1 pair of responds	east door	

As Mr. Stevens points out, the wall sector, T 17A - MC 22, inclusive, is the clearest legionary block. MC's 19, 20 and 22 belong to legion VI, as does MC 18, in spite of its slightly unusual north gateway. T's 17A, 17B, 18A, 18B, 19A and 19B have narrow walls and west doorways. Most of them are built to standard B specifications. Since T 22A is the first structure westwards to display standard A construction, there appear to be fifteen structures (from T 17A to MC 22 inclusive) in the block, although if the Portgate is included, there are sixteen. Because of the complications which occur in the sector between T 22A and the North Tyne, it is best to work eastwards from MC 17.

MC's 17, 14 and 13 are assignable to the II legion. T's 12A, 12B and 13A have east doorways and broad walls. T's 15A and 15B have broad walls. Work by the II legion is attested on an inscription (not a dedication slab) found in MC 17 (RIB 1419). Standard A construction prevails throughout

the block. It is difficult to say exactly where the block ends, since none of the structures between T 10B and MC 12, inclusive, where the changeover must have taken place, have been excavated. T 10A can be assigned to the XX legion. Three centurial stones of the same legion have been found near MC 12[4]. It is reasonable to assume that the block belonging to legion II began, and that of legion XX ended, either just east or west of that milecastle. This would give legion II, the fifteen or sixteen structures from c. MC 12 - MC 17 inclusive.

Working eastwards again, MC's 9 and 10 belong to the XX legion. T's 7B and 10A have east doorways and narrow side walls, while T 8B and T 9B have east doorways. The standard of construction in this sector, where obtainable, is standard A. Because of modern building, it is unlikely that the eastern end of this block will ever be found, but from MC 12 to T 7A or MC 7, there are fifteen or sixteen structures.

The remaining nine or ten structures to MC 4, the traditional terminus of the original broad wall at Newcastle, cannot be assigned to any legion, since all have been destroyed or made inaccessible by modern buildings. Two altars, both dedicated by the VI legion, dredged from the River Tyne, on the site of the Roman Bridge at Newcastle, (RIB 1319 and 1320) may imply that the bridge was built by that legion. If this is true, and it can only be a guess, the other two legions may have

divided the sector from MC 4 to T 7A, inclusive, between them.

Mr. Stevens finds some difficulty in explaining the three building stones of legion II from Denton (RIB 1358, 1359 and 1360), which probably came from the curtain between T 7A and MC 8, and which may be connected with four others from Benwell fort (RIB 1341, 1342, 1343 and 1344). He points out that they occur in the so-called "long-mile"[5] (MC 7-8), a name based on the failure of NEEC to find MC 7 in its measured position, in 1928, and its wrong assumption that T 6B stood halfway between Benwell fort and MC 7. MC 7 is probably further west than the committee thought. As Mr. Stevens shows, the only valid assumption about the spacing of structures in this particular sector, is that the curtain lengths between T's 7A and 7B and T 7B and MC 8 are longer than usual. These curtain lengths are exactly those in which the centurial stones of legion II were found. Mr. Stevens explains them by postulating an extension of the wall from MC 4 to the river at Newcastle. The "Lort Burn Extension", a precursor of the one at Wallsend, would allow ships to berth within the frontier line. He thinks that the XX legion were given this extension to build as an addition to their original allocation. To compensate them for the extra work, they were "let off" the piece of wall between T's 7A and MC 8 which, after the block had been re-surveyed, was filled in by legion II - hence the inscriptions.

It is difficult to date these intrusive and ornamental stones of the II legion. They probably belong to a later reconstruction of the wall, in that area, and may, as Brenda Swinbank considered, be Antonine[6]. The doubt about their date and the fact that they are unlike any of the ordinary centurial stones on the wall, makes Mr. Stevens' "Lort Burn Extension" theory seem complicated and unnecessary.

Three legionary blocks from c.T 7A to MC 22 inclusive, have now been established and we can return to the sector from T22A to the North Tyne, T's 25B, 26A and 26B have narrow walls and east doorways. They are associated with standard A construction which is also found at T's 22A and 24B, and with one XX legion milecastle, No.27.

The complications occurring in this block mark it out as later than those to the east, which, as far as we know, were completed to the original broad gauge specifications.

Something happened to prevent legion XX from finishing the curtain of this block, though it does seem to have finished the structures and foundation. At Planetrees (between MC 26 and T 26A) and at T 26B, points of reduction from broad to narrow wall (still on broad foundation) show that here, at least, the legion was building from east to west. It would be interesting to see if other "areas of dislocation" can be found elsewhere on the wall, to be associated with the other two legions.

As Mr. Stevens points out in his paper, MC 48 and parts of T's 48A and 48B display standard B construction, which is the mark of the VI legion. MC 48 is a VI legion milecastle, while T 48A has both a west doorway and narrow side walls. The axes of MC's 44 and 45 are both long and there is a good case for supposing that the gateways of MC 47 were erected by the VI legion (see chapter III).

In 1957, Dr. Peter Salway examined a piece of wall on the west side of the Greenhead to Gilsland road, which cuts through its line in the curtain between T 46A and T 46B (AA4 xxxvii p.211-213). Here he found broad foundation, and though no course remained above the foundations on the north side, there were, on the south side, three courses, uninterrupted by an offset, in broad wall. Although the absence of a second offset does not prove standard B construction, it rules out standard A. Standard B construction does occur in parts of the wall between MC 48 and the River Irthing. In some places, several courses of broad wall were built above the foundation offset, before narrow wall was laid on top. Both the examples, just cited, suggest= that the VI legion had begun to build the first few courses of curtain above foundation, within this sector.

It looks as though Mr. Stevens is right in supposing that the VI legion was at work in the wall sector immediately east of the Irthing and that its work was dislocated here. It

is difficult to place an eastern limit on its allotted length, but the first structure eastwards, which can definitely be assigned to another legion, is MC 43. In the absence of other evidence, it looks as though the VI legion, in its second block, was given extra work to do, with a possible sixteen[7] structures from T 43A to the Irthing, and perhaps the Irthing bridge as well. At the same time, the XX legion, east of North Tyne, had fifteen structures from T 22A to the river, as well as the North Tyne Bridge, which would be longer than that over the Irthing. It is unlikely that legion XX was given any structures west of North Tyne, in this particular block, because the sequence of building at Chesters fort, on Simpson's evidence[8], suggests that the fort ditches came before the broad foundation of the wall, and that the foundation was not laid until the later fort decision had been taken[9].

Neither legion completed its allotted block, although evidence of dislocation in that of legion VI is hard to find. It may have occurred after the first few courses had been laid above foundations, as at Willowford and between T's 46A and 46B. By this time, the legion may have built all the important structures in its block. None have been found (except for T's 44B and 45A) which could be assigned to another legion. It is evident from centurial stones that the XX legion played some part in building the curtain, which is invariably narrow, in this sector[10].

The work of the II legion ought to have been dislocated at the same time. There are plenty of traces of the legion in the central sector of the wall. MC's 37, 38, 41, 42 and 43 and T's 39B, 40B and 41A are assignable to it. T 36B, which was demolished when Housesteads fort was built, was probably the work of the II legion. It clearly precedes dislocation and has very wide foundations.

It is difficult to determine a pattern of work in this sector because so many of the structures are unexcavated. Since it must be assumed that each legion would be allowed to work, within each block, in its own way, comparison may not be made with the order of building in the blocks of the other two legions. From the structural evidence, it looks as though the gateways of MC 37 and the gateways and north walls of MC's 38, 42 and 43 were built by the II legion, before dislocation. Evidently there was no time to begin MC's 39 and 40. They were built later by the XX legion. The easternmost structure in the block is T 36B. All excavated structures between it and the North Tyne, belong to legion XX.

It is probable that the block T 36B - MC43, inclusive, was assigned to legion II, while the XX legion was building east of North Tyne, and the VI legion, just east of the River Irthing. The suggested block for the II legion contains twenty structures, a work-quota roughly equal to that of the other two legions,

who both had to build bridges. Complications occurred in this block. Structures assignable to the II legion are interspersed with those of the XX legion (MC's 39 and 40; T's 39A and 40A). No broad wall has been found here. It looks as though all three legions were dislocated at the same time, in three different areas.

It is generally recognized that dislocation was caused by the decision to place forts on the line of the wall. The implementation of the decision to dig the vallum was either contemporary with, or later than, the decision to construct the forts. It was clearly a result of the fort decision and although forts and vallum may have been constructed simultaneously, dislocation must have been caused by the fort decision. The reason for it is unknown. It may reflect unrest north of the wall or merely difficulty in deploying troops from the Stanegate forts, through milecastle gateways. Several forts overlie wall structures, which were demolished when the forts were built[11]. The fort decision was obviously important, to be carried out as quickly as possible, and surely accounts for the redeployment of the gangs engaged in the building of the wall.[12]

The many traces of the XX legion, both structural and epigraphic[13], in the central wall sector, suggest that, when the other two legions were removed for fort building, this legion was left to complete the construction of the wall. The presence of broad foundation suggests that some, if not all, of

the foundation was laid by legions II and VI, before dislocation. The rest was presumably laid, after dislocation, by the XX legion, except on the crags, where foundation is generally lacking. At the same time, the XX legion probably erected the most important parts of those structures which had yet to be built, particularly the north and south gateways of milecastles as well as the remainder of the turrets. The XX legion would have most work to do in the sector west of North Tyne, up to T 36B, where no building had yet taken place.

The remainder of the structures and curtain had still to be built. By this time, the decision to narrow the wall had been taken, since all the curtain in the central sector is built to a narrow guage[14]. The stage at which the milecastles and curtain were completed, is uncertain. They may have remained unfinished for some time. The walls of MC 47 were broad and, according to the excavators, of standard A construction. Perhaps it was a priority milecastle, helping to guard the Irthing and Tipalt gaps, the whole of which was finished by legion XX, as it completed the laying of broad foundation and the building of key structures.

The walls of every other excavated milecastle in the central sector, except for those of MC 48, are narrow, which implies that they were completed after the decision to narrow the wall had been taken. It is significant, however, that the

walls of MC's 37, 38 and 42 all fit their south gateways, and that, though narrow, they are much wider than those of other narrow wall milecastles in the central sector. They seem to have been planned as broad wall milecastles with narrow side walls, and to have been finished, in accordance with the original specifications, probably by the XX legion, after dislocation. The situation at MC 37, where the north wall tapers from broad to narrow gauge as it approaches the side walls, suggests that the II legion only built the gateways, and that the rest of the milecastle was completed by the XX legion, after the narrow wall decision had been taken. At MC 42, the side walls abut the broad north wall, suggesting two building periods. How long it was before the side walls of such milecastles were built is not clear.[15]

The turrets which can be assigned to legion XX, in the central sector, are T's 29A, 29B, 31B, 33B, 34A, 35A, 35B, 36A, 39A and 40A. To these, T 44B must be added. It is a narrow wall turret, built after dislocation. The milecastles assignable to the same legion are MC's 33, 34, 35, 39 and 40. MC's 28, 29, 30 and 36 have long axes.

It is now possible to construct a relative chronology of the building of Hadrian's stone wall. The sector from, and including, the bridge over the Tyne at Newcastle to c.T 7A was probably built first. Then follow three legionary blocks from c.T 7A to MC 22, of fifteen or sixteen structures each. The

next three blocks were widely dispersed. Legion XX was building in the sector from T 22A to the North Tyne, while legions II and VI were building between T 36B and the Irthing, inclusive. The total number of structures was slightly larger than that of the three previous legionary blocks. At this stage, the legions were dislocated and redeployed to build the forts on the wall. Legion XX was probably left to complete the unfinished structures and curtain between T 22A and the Irthing, with perhaps some help from legion II[16], while the other two legions built forts. There is a dedication slab from the fort at Haltonchesters (RIB 1427) which records building by legion VI, under Platorius Nepos.

Inscriptions have been found which point to a more absolute chronology for the building of the wall. It is generally assumed that legion VI came over to Britain, in AD 122, from Lower Germany, with the new governor, Platorius Nepos. He is first mentioned in this country, with the previous governor, Pompeius Falco, on a military diploma of July 122. Hadrian, whose visit to Britain is recorded by his biographer[17] also came from Lower Germany and probably accompanied Nepos in 122. It is doubtful whether such a monumental programme as the building of Hadrian's Wall, would be started before the arrival of the emperor, and the governor, under whose direction it was to be built. If Nepos arrived in the early midsummer of AD 122, bringing with him the VI legion, there would be only half of

that season left. There may have been time for the VI legion to erect the bridge at Newcastle, and for the other two legions to build the nine or ten structures from MC 4 to c.T 7A. It may be that, due to the surveying of the wall, which would be a lengthy task, the building did not begin until AD 123.

The second season of building, that of AD 123 or 124, was probably the first full one, with all three legions at work in the three adjacent legionary blocks from c.T 7A to MC 22, inclusive. The next season, that of AD 124 or 125 began as planned, with legion XX building in the block just east of North Tyne and legions II and VI transferred to blocks in the central sector of the wall. That the II legion was working in this sector is shown by inscriptions from MC's 37, 38 and 42, recording Nepos as governor. Dislocation, it seems, occurred while Nepos was still in Britain. Two building inscriptions from Benwell and Haltonchesters, giving his name, prove that construction in the forts was begun in the same governorship[18]. The year AD 124 is a preferable date for dislocation, since it allows the construction of forts to proceed far enough for inscriptions to be erected before Nepos left. If dislocation occurred in 125 there would be insufficient time for this to happen, unless his term of office ended in 126.[19] For this reason, the building of the wall probably began in AD 122.[20]

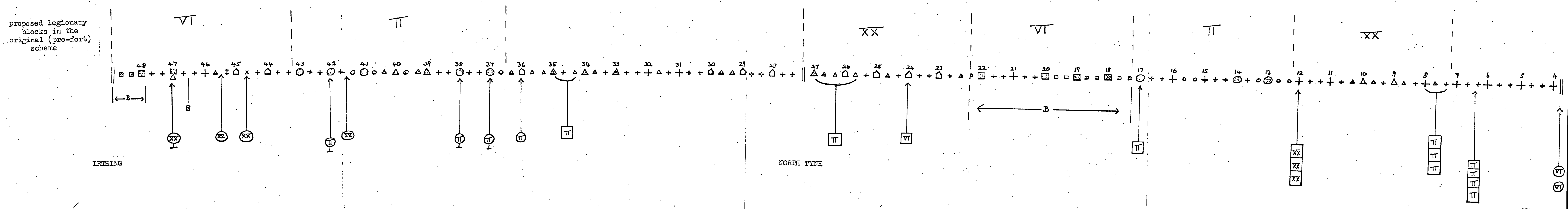
The only piece of epigraphic evidence from a wall

structure, erected after the dislocation of the legions, is the dedication slab (RIB 1852) from MC 47, which records the names of both Hadrian and legion XX. The layout, unusual for a milecastle dedication slab[21], suggests that it was redesigned to omit the name of Nepos, which it originally recorded.[22] It looks as though it was erected after Nepos left Britain, soon after September 124, and it is possible that the milecastle was completed by the XX legion after that event. The original plan for Hadrian's Wall could almost certainly have been carried through, within the governorship of Platorius Nepos, and certainly before the end of AD 125.

The decision to narrow the wall was taken after the rest of the broad foundation and (probably) MC 47 was built. A reasonable date, which would allow time for this task to be finished, is AD 126 or 127, under the next governor of Britain, whose name is unknown. That work on the wall was still in progress in AD 128, or later, is implied by the evidence from Greatchesters. Here the narrow wall is bonded with the fort wall. An inscription, probably from the east gate of the fort, records Hadrian as Pater Patriae, a title which he assumed in AD 128.[23].

The eastern extension of the wall from Newcastle to Wallsend was built to the narrow gauge. It can therefore be dated after the decision to narrow the wall had been taken,

probably in 126. The fact that it was not built to the intermediate gauge, found west of MC 54, and associated with the later (probably Antonine), conversion from turf to stone in that area, points to a Hadrianic date. The west gateway of Wallsend fort is of one build with the narrow wall, showing that the fort is a secondary one, built after the narrow wall decision.[24]



ALLOCATION OF STRUCTURES

legion	certain MC	certain T	probable MC	probable T
II	⬭	○		○
VI	▭	▫		▫
XX	△	▵	△	▵
unknown	+	+		

KEY

- ⌂ long axis
- ρ Port Gate
- ‖ Bridge
- B Standard B Construction

× 44b - built for the narrow wall but with a west door.

‡ 45A - signal tower, built independently of the wall.

INSCRIPTIONS

- (XX) exact findspot known
- [XX] exact findspot uncertain
- ⊥ milecastle dedication slabs

FIG 2 Hadrian's Wall MC 4 to the River Irthing The allocation of structures and curtain to the three legions.

Footnotes to Chapter V

1. BHW p.12f.f.

2. RHW p.257.

3. de re mil. 11,6.

4. RIB 1385, 1390 and 1391.

5. NCH xiii p.527f.

6. DNAAS x part iv p.382 - 399. Cf. RIB 2054, which must be post-Hadrianic.

7. If T 45A, a free-standing signal tower later incorporated into the wall, is discounted.

8. PSAN3 x p.216 - 217.

9. This suggests an administrative hitch or demarcation dispute, cf. BHW p.31 - 34. Mr. Stevens considers that there was a similar dispute at Housesteads, but this is not so. No broad foundation was laid there. The ends of the western fort ditches were overlain by the narrow wall.

10. RIB 1762 and JRS L p.237 no.11.

11. For example, Chesters, Housesteads and Greatchesters. The spacing of forts on Hadrian's Wall has been discussed in a paper by Brenda Swinbank and J.E.H. Spaul (AA4 xxxix p.221 - 238).

12. Mr. Stevens has one again raised the question of the vallum at Limestone corner. The structures here seem to post-date the earthwork. If this is the case, it could point to an early date for the digging of the vallum. It may have taken the wall foundation gangs longer to reach this area than the vallum diggers. In that case, the vallum may have been dug in AD 124 or 125.

13. RIB 1645, 1762, 1852 and JRS L p.237 no.11.

14. This explains the points of reduction at many turrets in the central sector of the wall, as well as the situation at MC's 39 and 40, where the north and south gateways were built to a broader gauge than the milecastle walls.

Footnotes to Chapter V (continued)

15. At MC's 38 and 42, the north walls had been built to broad gauge specifications. The situation at MC 37 suggests that legion II was in process of building here, when the order to stop was received.

16. RIB 1569 and 1574.

17. SHA Hadrian XI.

18. RIB 1340 and 1427.

19. Platorius Nepos was still governor in September 124, when his name appeared on a diploma. The usual term for a governorship was three years. Cf. A.R. Birley, "The Roman Governors of Britain" in "Epigraphische Studien" 4, p.69f.

20. Mr. Stevens considers that the building of the wall was begun by legions XX and II in AD 120, in the governorship of Pompeius Falco, because the building stone (not a dedication slab) of legion II at MC 17 (RIB 1419) does not bear the name of Platorius Nepos and should, therefore, antedate his arrival. He thinks that the decision to build the forts was taken as a result of Hadrian's visit in 122, the year in which the VI legion came to Britain, cf. BHW p.39f. If this is so, it is possible that the fort decision was not implemented until 123, which would allow time for the Nepos inscriptions to be erected in the central sector.

21. Cf. RIB 1634, 1637, 1638 and 1666.

22. It has been suggested that, unlike legion II, legion XX did not place the governor's name on their milecastle dedication slabs. This is unlikely.

23. RIB 1736. The hoard of nine coins, ending with one of Hadrian (AD 128), found under a flag in a "smithy", in the north-west corner of the fort, need not be primary. Cf. AA2 xxiv p's 33, 43 and 62.

24. Cf. the other forts in the so-called secondary sequence. Carvoran was rebuilt at the end of Hadrian's reign, while the precise date of Carrawburgh is still uncertain.

CHAPTER VI

The Turf Wall

The turf wall runs westward from the River Irthing to Bowness on Solway and accounts for about one third of the whole wall. Its builders are unknown. A fragment from an oak inscription from MC 50, TW, (RIB 1935) dates the eastern end of it to the governorship of Platorius Nepos. The fact that the stone fort at Birdoswald overlies the turf wall, shows that this stretch of it was built before AD 124.

The stone wall building programme east of the Irthing must have been affected by the simultaneous construction of the turf wall. The three legions may have been divided into two construction teams, each,one to work on the stone wall and the other on the turf wall. It is possible that entirely different units were used to build the turf wall.[1]

There are several hints that the turf wall, like its eastern counterpart, was built in blocks (fig.3.). T's 51B, 52A and 53A have doorways to the east. The TW MC's 49, 50, 51 and 54 have long axes. The stretch of wall between MC 49 and MC 54 would make a legionary block of sixteen structures.

Very little work has been done in the structures west of MC 54. T 54A has a west doorway and thicker side walls than the preceding turrets, while MC 79, TW, has a short axis and a

staircase ramp, in a different position to the one in MC 50, TW. This is the only evidence for structural differences in the milecastles and turrets of the turf wall.

The turf wall and its milecastles, between the Irthing and MC 54[2], were very soon replaced in stone by the VI legion. The new stone milecastles had long axes[3] and gateways with two pairs of responds, like MC 48. Dedication slabs by the VI legion from MC 50, SW, and T 50A, SW (RIB 1934, 1938 and 1939) were probably erected when the wall was built.

The three new turrets[4], 49B, 50A and 50B, built to the north of their turf wall counterparts, had narrow side walls and east doorways. Until now, these features have been taken to be the hallmark of the XX legion. The conversion of this part of the wall to stone may have been a joint effort, with the VI legion building the milecastles and the XX legion the turrets. On the other hand, the VI legion may have changed the position of their turret doorways from east to west, to conform to the practice of the other two legions. In nearly all these structures, the walls were carried straight up from their projecting foundations without further offset. This type of construction is known as standard C.

Little is known of the turf or stone walls, west of MC 54. The stone wall here was built, at least in places, to a wider gauge than that from MC 49 to MC 54, which was narrow.[5]

There is no evidence that the turf wall west of MC 54 was built later than that between the Irthing and MC 54. The pottery from the earliest of the two turf wall turrets at Garthside (54A)[6], is similar to that from MC 50, TW.

The date of conversion from turf to stone, west of MC 54, was much later than it was in the east. When the first (clay wall) turret, 54A, collapsed, after considerable use, a second turret was erected behind it and a new turf wall in front of it. This was replaced in stone at an unknown date. The occupation in the first turret suggests that it was late. At MC 79, SW[7], the pottery indicates a late Antonine building date.

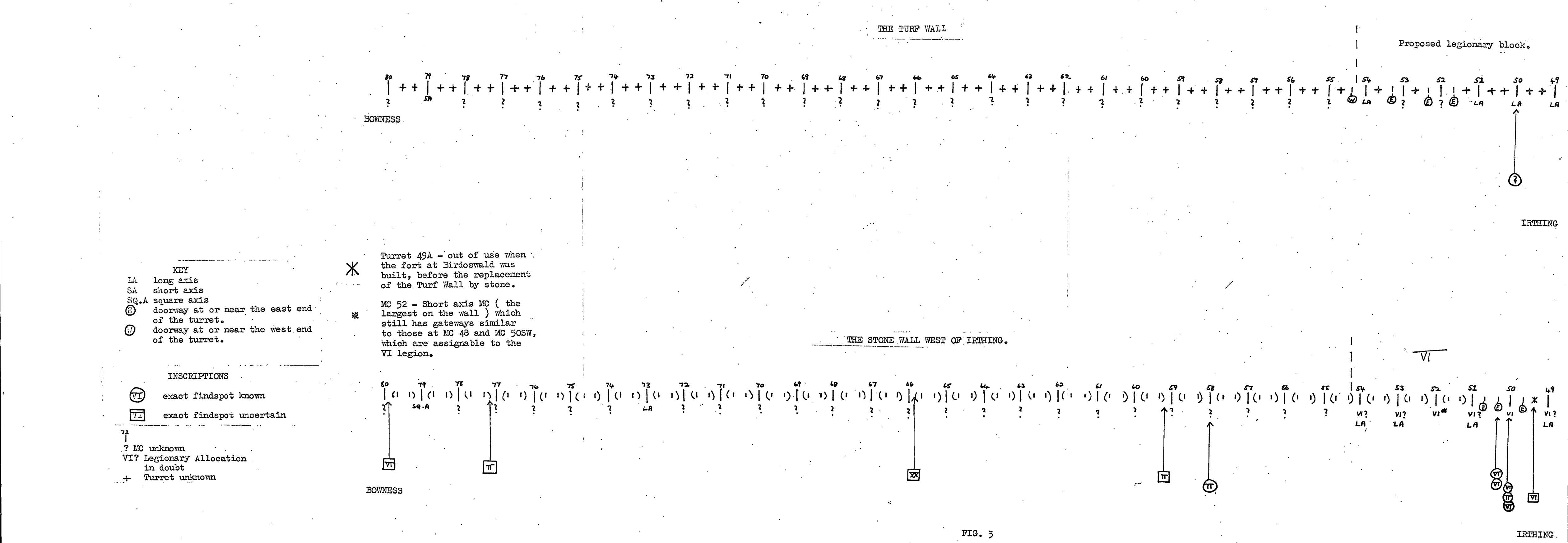

THE TURF WALL
Proposed legionary block.
BOWNESS
IRTHING
KEY
LA long axis
SA short axis
SQ.A square axis
E doorway at or near the east end of the turret.
W doorway at or near the west end of the turret.
INSCRIPTIONS
VI exact findspot known
VI exact findspot uncertain
73
? MC unknown
VI? Legionary Allocation in doubt
+ Turret unknown
Turret 49A - out of use when the fort at Birdoswald was built, before the replacement of the Turf Wall by stone.
MC 52 - Short axis MC (the largest on the wall) which still has gateways similar to those at MC 48 and MC 50SW, which are assignable to the VI legion.
THE STONE WALL WEST OF IRTHING.
VI
BOWNESS
IRTHING.

FIG. 3

Footnotes to Chapter VI

1. For the suggestion that legion IX Hispana played a part in these operations, see E. Birley, "Roman Britain and the Roman Army" p.27f.

2. MC 54, SW, had road levels of wall period IA and IB in its gateways and a IB pivot-stone matching one found at MC 48 (CW2 xxxiv p.145). This shows that the TW MC was replaced by one in stone, like those to the east, at a relatively early date.

3. Except for MC 52, which has a short axis. Its shape may have been determined by its garrison. It probably had to supply troops to the signal station at Pike Hill, as well as to the turrets on either side of it.

4. The new stone wall followed the course of the turf wall which it replaced, except between MC 49 and MC 51, where it runs north of the old turf wall.

5. Cf. CW2 xxxiv p.130 - 137 (MC 53 - T 57A), CW2 xxxv p.256 (Stanwix), CW2 xxxii p.149 - 151 (Carlisle Sewage Works), CW2 xxxv p.213f.f. (west of T 71B), CW2 lii p.9 - 16 (MC 76 - T 76A), CW2 lii p.17 (MC 79).

6. HB 10 p.188 "This is a secondary ditch. The older one, still outlined by certain features of growth, followed the wall to T 54A, excavated in 1933, where the reason for the change became plain. There had been two turrets. The first one, a clay wall turret, had collapsed into the ditch owing to unstable subsoil, after a measure of use. A new wall, this time of turf, was then built further north, with the secondary ditch, while the new turret was built behind the old one as an isolated tower. Later came the stone wall, which was run up to the new turret."

7. CW2 lii p.28f.f.

CHAPTER VII

Conclusion

In any attempt to reconstruct the building of Hadrian's Wall, it is inevitable that hypotheses should take the place of missing facts. It is now time to distinguish between the two.

Although we know the plans of many milecastles and turrets, some questions about their structure still remain. There is, for example, no structural evidence for signalling and look-out towers in milecastles, although the jambs of the north gateway in most milecastles are large enough to support them. In the gateways of MC's 39 and 40, where only small masonry has been found, further investigation of the foundations is necessary, to see whether they are strong enough to hold such towers.

The most severe gap in our knowledge of milecastles concerns the arrangement of the internal barrack accommodation. A few milecastles have produced evidence of living quarters on one side only. In two cases, barracks have been found on both sides. Full-scale excavation of several milecastles is needed, before an accurate estimate of the number of men stationed there, can be given.

Nothing is known about the structure of turrets above ground-floor level. We have to rely on the evidence from other frontiers to supplement that from Hadrian's Wall. Whether

turrets possessed a floor or observation platform at seond-storey level, a flat or gabled roof, or second-storey windows, is unknown. An examination of the original turf wall ditch at T 54A (at the point where the first turret collapsed into it), may yield valuable evidence about the roofing, stonework and windows of turrets.

The evidence for the allocation of turrets and milecastles to three construction teams has been firmly established. Three types of milecastle have been distinguished, through differences in their axes and gateways. There are three types of turret, each associated with a particular type of milecastle, which are distinguished by the position of their doorways and the thickness of their side walls. A series of milecastles and turrets, of the same type, and with the same standard of construction in their walls, made up a legionary block. Such blocks form the basis for any discussion on the building of Hadrian's Wall.

The most important evidence for the allocation of structures is epigraphic. Only the II legion is firmly tied down, by inscriptions, to one type of milecastle and turret. The other two types can be assigned only tentatively to the XX and VI legions. If a new dedication slab of either legion were to be found, in a milecastle whose axis, gateway type and standard of construction showed that it belonged exclusively to one of these

types, it might become necessary to rethink the whole question of the allocation of the structures to the three legions.

The discussion, in Chapter V, of the south gateway of MC 47, makes the re-excavation of the milecastle urgent. It is important that its standard of construction should be checked, since, on present evidence, it does not agree with the milecastle's axis and gateway type. If the standard A construction, noted by the 1935 excavators, proved to be in doubt, then the building of the entire milecastle would have to be assigned to the XX legion, who are attested on a dedication slab, found inside it. All milecastles possessing long axes, standard B construction and gateways with 2 pairs of responds, would then have to re-allocated to the XX legion, with their associated turrets, while those milecastles with long axes, standard A construction and gateways which have one pair of responds, would have to be given to the VI legion.

There would be difficulties in doing this. The VI legion dedication slab from MC 50, SW, would be out of place in a XX legion milecastle. The three XX legion building stones, from the central sector, would be anomalies in a sector built largely by the VI legion. It is therefore best to regard MC 47 as a hybrid and to accept, for the time being, the theory worked out in chapter V.

Further excavation of turrets, in the central sector

of the wall, would be valuable in determining which structures belonged to the XX legion and which to the II legion. The continuous consididation of the wall by the Ministry of Public Building and Works, will, in time, bring more centurial stones to light, some of which may bear the names of legions. The record of exact findspots will show where particular legions were building.

The turf and stone walls, west of T 54A, have been sadly neglected. It would be interesting to know whether they were built, like the wall east of Irthing, in blocks. More pressing is the problem of when the stone wall replaced the turf wall, west of MC 54. The only evidence, at present, is from MC 79, in the far west. MC 55, which was partially examined in 1900, by Haverfield, may prove a worthwhile subject for excavation.

It is impossible to know, in detail, how the wall was built. A new inscription could completely alter the picture worked out in chapter V. Two points are clear. In the first place, the structural differences between milecastles and turrets must remain, with the inscriptions, the basic evidence for the allocation of structures to the three legions, attested on the wall. Secondly, as C.E. Stevens has pointed out, the building of Hadrian's Wall was no example of "smoothly executed planning". It was a complicated process, much modified as time went on.

There is no reason to suppose that the untangling of the story, as new evidence comes to light, will be any simpler.

Appendix I

The Cumberland Coast

i. Introduction.

It was R.G. Collingwood who first realized[1] that, if Hadrian's Wall was to perform its function, the Cumberland coast would need protection from raiders, especially those from the north. He felt that the frontier system ought to continue down the coast, as a series of unconnected signal towers. There would be no need to continue the wall beyond Bowness, because the coastal defence system would have to deal only with sea-raids.

The existence of such signal towers had been known for a long time. In 1880, Mr. Joseph Robinson of Maryport, helped by Chancellor Ferguson, had found four signal stations or towers on the Cumberland coast. They were all about 20' square with 3' side walls (3A, 3B, 13B and 25B)[2]. Mr. Robinson's initiative remained unfollowed for fifty years, until Collingwood, thinking in terms of the turrets on Hadrian's Wall looked once more at the Cumberland coast and made a survey of the ground between St. Bees Head and Bowness. His theories about the purpose of Hadrian's Wall, together with his new fieldwork and that of Mr. Robinson, made him certain that there was a signalling system on the Cumberland coast.

The discovery of Cardurnock fortlet in 1938 by Professor Richmond, proved that the coastal system possessed, in

its towers and fortlets, the equivalents of the turrets and milecastles of Hadrian's Wall. The Cardurnock fortlet was excavated in 1943 and 1944 and two new fortlets, north-east of it, were located[3]. These discoveries demonstrated that the structures of the Cumberland coast were regularly spaced, at least as far down as Cardurnock.

Mr. R.L. Bellhouse has since carried on the investigation of the coastal system and confirmed the regularity of the spacing of milefortlets and towers. He has added considerably to our knowledge of both types of structure, showing that they occur much further down the coast than Cardurnock.

The structures of the Cumberland coast were spaced like those of Hadrian's Wall. There was a milefortlet at every Roman mile. Between two fortlets, at regular intervals, were placed two towers. The former are usually numbered from 1 to 40 down the coast from Bowness to St. Bees Head.[4]

ii. The structures of the Cumberland coast.

a) The milefortlets.

For many years, milefortlet 5 (Cardurnock), a large rectangular structure, was considered to be typical of the coastal fortlets. Mr. Bellhouse has recently indicated, however, that milefortlets 1 and 9 are square in shape. The 1968 excavations at Brownrigg showed that milefortlet 22 was also square (65' x 68' internally) and much more like a milecastle

in size than Cardurnock. Milefortlet 5 appears to be the exception.

Only two milefortlets, 5 and 22, have been excavated. Milefortlet 5, in its first period, which probably began around AD 130, measured 180' x 160' over its turf ramparts. The width of the ramparts varied from 29' on the north side to 21' on the east. They enclosed a nearly rectangular shape, measuring 128' x 95'.

Outside the rampart, separated from it by a berm of varying width, was a ditch, 6'3" deep and 18' wide, interrupted by a 13' wide causeway of undisturbed subsoil, at the east end of the curve of the north-west angle. Nearly opposite the causeway, was a narrow passage through the rampart, 3'6" wide.

Most of the interior, to the east of a gravelled road, was allotted to two regular building plots, measuring 110' x 28' each and divided from each other by a gravel path running north to south. The edge of the plots was marked by stone channels, built with two lines of large cobbles and slabs, which passed beneath the northern rampart, as drains. Thick clay, covered the building plots, over which had been placed rafts of beams, an arrangement obviously designed to support the building on sandy soil.

In the south-east corner, behind the rampart, was a floor of red clay, perhaps the site of a shed or cook-house.

At the south-west angle a timber look-out tower had been erected. Four large rectangular post-holes, 3"-4" long and about 2' wide and deep, were cut into the hard gravel ridge below the rampart. The tower (perhaps equivalent to a milecastle gateway tower) would have been about fourteen feet square.

Milefortlet 22 was nearly square in shape (65' x 68' internally). Its turf rampart was 32' wide at north and south and 21' wide at east and west. The 6' wide entrance was cut through the middle of the rampart on the seaward side and led onto a gravelled road which ran along the edge of the cliff-top. The three sides of the milefortlet which faced the land were surrounded by a ditch, 20' wide and c.5' deep. The cliffs replaced the ditch, on the seaward side.

There were no traces at milefortlet 22 of a signalling tower on the rampart, like the one at Cardurnock. The only traces of buildings inside were two hearths (one on either side of a gravelled road) and some flagging.

Neither milefortlet seemed to differ, in purpose, from a milecastle. At Cardurnock, a walled enclosure protected the barrack accommodation and there was a signalling tower. Its abnormal size may indicate that a bigger garrison was required here than anywhere else on the wall or coast. At milefortlet 22, neither barrack accommodation nor signalling tower have survived. The size of the structure, however, corresponded closely to that of a milecastle. The pottery from the ditch suggests that

its construction date was slightly earlier than that of Cardurnock.

b) The towers.

The coastal towers were similar in structure to the turrets of Hadrian's Wall and their purpose was probably the same. They were usually about 20' square externally and 13' square inside, although two oblong towers (2A and 13A) have been found. The foundations of the towers, which were about 4' wide, were made of clay and cobble. They differed in depth according to soil conditions. At towers 12A, 13B and 16A, the foundations were 3', 3'3" and 3'6" deep respectively, because they were built on sand. At towers 20B and 21B, foundations to a depth of 1' and 1'3" respectively, indicate a more substantial subsoil (boulder clay).

Over the foundations were laid the two footing courses and then the tower walls, which were always about 3' wide. Evidence for the differences in tower footings will be discussed below.

Platforms, like those in turrets, have been found in two towers only. In tower 16B, the platform lay against the left wall and in tower 13B, against the back wall.[5] Doorways were found in towers 12B and 15A, to the right on the back wall. Doorways and platforms can be inferred in several more towers, though as yet there is no evidence for doors, windows and roofs.

Mr. R.L. Bellhouse, in his forthcoming articles (see chapter II) makes out a good case for fixed wooden staircases in

towers and wall turrets, resting at an angle of something like 60° on the platforms. In such solid, well-built structures, a moveable ladder would have been out of place.

Mr. Bellhouse considers that the tower staircase reached up through a trapdoor, onto a flat observation roof, about 25' above ground level - 3' lower than the height which he estimated for turret roofs. There is, of course, no evidence about the roofs of the coastal towers. They may have been gabled like those of the Danubian frontier towers. If this was so, the towers, like the turrets, probably possessed a second storey observation floor or platform. Their height was no doubt the same as that of the turrets, which Parker Brewis reasonably inferred as 25' (to the gables).

Since the coastal towers were not joined together by a wall, they would not need connecting doors at second storey level, through which to continue a parapet walk. In every other way, it seems likely that they were built on the same lines as the wall turrets.

iii. The structural differences found in milefortlets and towers.

It is impossible to determine who built the coastal structures, since no inscriptions have been found in any of them. Only two milefortlets in the whole series have been excavated, while the shapes of only two others are known.

Milefortlet 1 (Biglands) and milefortlet 9 (Skinburness) appeared to be square in shape. Milefortlet 22 was also square

while milefortlet 5 was rectangular. The latter seemed to be much bigger than the average milefortlet.

Several towers have been examined and Mr. Bellhouse has made a detailed study of the structural differences between them. He has found no difference in their foundations other than that of depth, which is attributable to varying soil conditions. Clay and cobble foundations are universal except at tower 3A, where cement was used instead of clay.

The main differences between towers occur in the treatment of the two footing courses. They are tabulated by Mr. Bellhouse as follows:-

"1) Both footing courses full width of the foundations, presumably one inset above, reducing width to 3 ft. (12A, 13A, 16B, 20B).

2) First footing course full width, second inset 2-3 ins., and presumably another inset at wall height. (21B).

3) Both footing courses inset, another (inset) above to normal wall width. (15A).

4) Both footing courses fully inset to normal wall width. (3B, 12B, 25B and 13B?)".

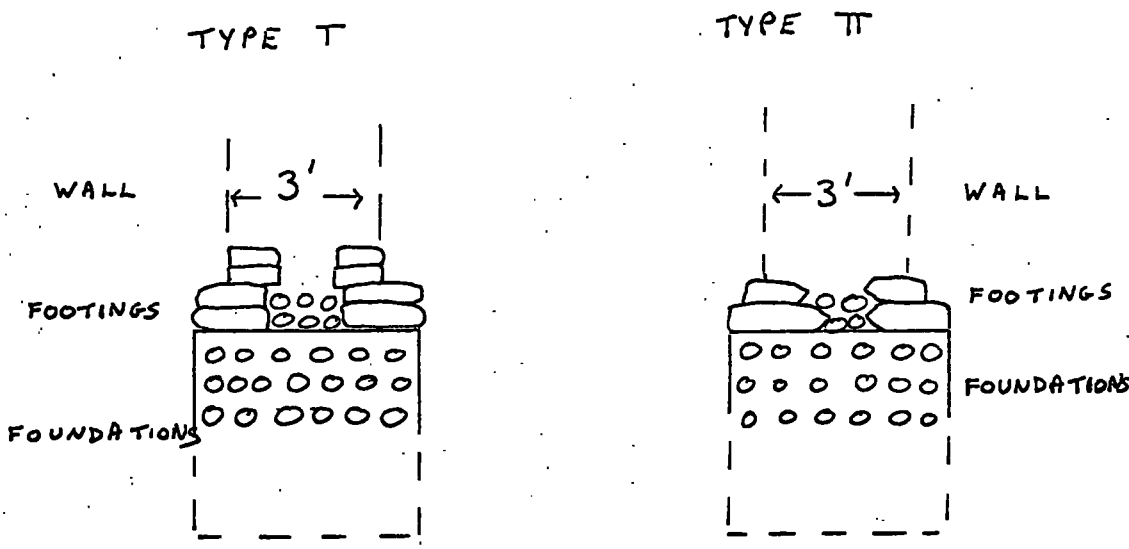
These four types of footing, illustrated in Mr. Bellhouse's forthcoming article, are sketched below (fig.4).

The type of masonry used in the towers is no more a

guide to the peculiarites of different working parties, than that used in the turrets of Hadrian's Wall. It reflects the type of stone most readily available in the vicinity of the tower. Platform positions are important because the position of the tower doorway (as in the turrets) can be inferred from them. Only two are certain. In tower 16B, the platform lies against the left wall and in tower 13B, against the back wall. Mr. Bellhouse considers that the platform in tower 13A probably lay against the left wall. The doorway positions at tower 12B and 15A are known. In both cases, they lie to the right, on the back wall. Doorways to the right, on the back wall, have been inferred by Mr. Bellhouse at towers 12A,16B and 13A and to the left at towers 3A and 13B.

The evidence for differences between the coastal towers is slight. Examples of doorways to the right and inferred examples to the left (13B is reasonably certain) imply two different construction teams. Little can be made of the differences in the treatment of the footing course. The systematic excavation of several milefortlets and their related towers would have to be undertaken before an attempt could be made to work out how the Cumberland coastal system was built.

Below is appended a schedule of structural details in the milefortlets and towers of the Cumberland Coast.



Details of tower foundations and footings on the Cumberland Coast from the drawings of R.L.Bellhouse.

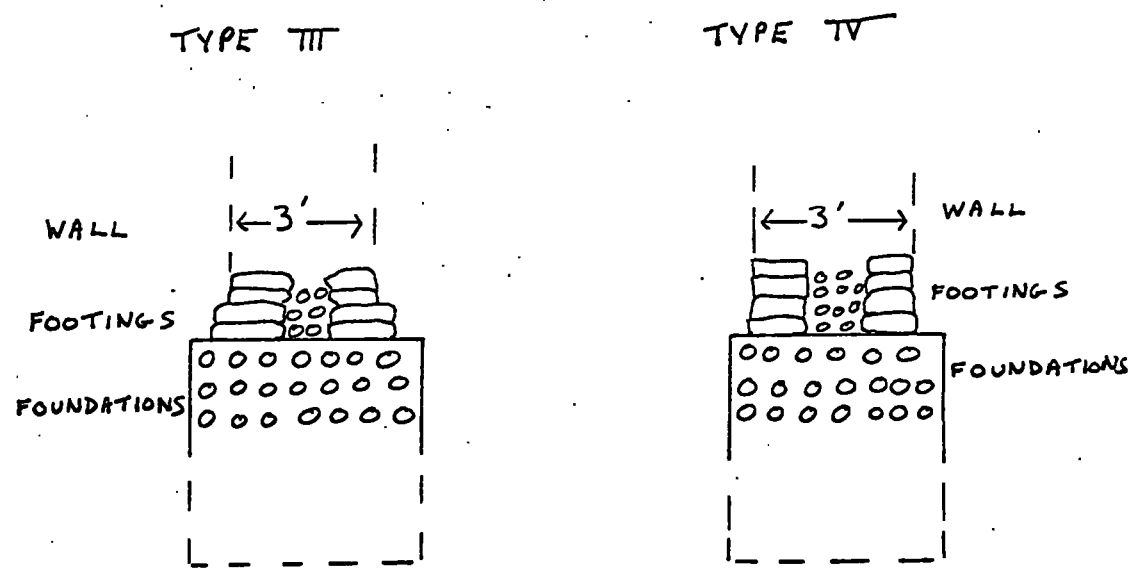


FIG. 4

iv. The statistics of the Cumberland coast.

The bibliography of the Cumberland coast system of milefortlets and towers is well documented in "Research on Hadrian's Wall" (p.129 - 131). It is repeated here, for convenience, together with the measurements of structures, where these are available. Brackets indicate unlocated sites.

Milefortlet 1 Biglands

Reference: CW2 liv p.35f. and plate i.

Examined in 1954 by R.L. Bellhouse.

Statistics: Rampart width: 30'.

Notes: The milefortlet was square in shape and the rampart was made of marsh silt.

(1A),(1B), (2), (2A).

Tower 2B Campfield

Reference: CW2 xlvii p.83 (map).

Milefortlet 3 Pasture House

References: CW1 v p.128, CW2 xlvii p.83 (map).

Tower 3A Pasture House West

References: CW1 v p.128, CW2 xlvii p.79 (map).

Examined in 1880 by Joseph Robinson.

Statistics: Internal Dimensions: N-S 13'

E-W 13'

External Dimensions: N-S 19'

E-W 19'

Doorway: To left (inferred by Bellhouse).

Tower 3B Herd Hill North

Reference: CW2 xlvii p.79 (map).

Milefortlet 4 Herd Hill

Reference: CW2 liv p.54f.

Tower 4A Pow Drain

Reference: CW2 xlvii p.79 (map).

(4B)

Milefortlet 5 Cardurnock or Castlesteads

Reference: CW2 xlvii p.78f.f.

Located in 1938 by I.A. Richmond and excavated in 1943 and 1944 by F.G. Simpson and Miss K.S. Hodgson.

Statistics: Rampart width: 29' (N), 25' (S and W), 21' (E).

Depth of ditch: 6'3"

Width of ditch: c.18'

Internal Dimensions: N-S 128'

E-W 95'

Internal area: 1351 sq.yards.

Entrance: At NW corner (3'6" wide)

Internal buildings: 2 building plots, each measuring 110' x 28'.

Notes: The interior of the milefortlet was not quite rectangular. The edges of the two building plots, which were separated from each other by a

N-S gravel path, were marked by stone channels, built with two lines of large cobbles and slabs. At the north, they passed below the rampart in the form of drains. Thick clay covered the building plots, over which were laid rafts of beams, to support the buildings on the sandy soil. At the south-west angle of the turf rampart, were the post-holes for a 14' square timber look-out tower.

(5A), (5B), (6), (6B), (7), (7A), (7B), (8), (8A), (8B) and (6A)

Milefortlet 9 Skinburness

Reference: CW2 liv p's 33 and 36 and plate i.

Notes; The milefortlet appears to be square in shape.

(9A), (9B), (10), (10A), (11), (11A), (11B) and (10B)

Milefortlet 12 Blitterlees

Reference: CW2 lxvi p. 38 - 40.

Located in 1963 by R.L. Bellhouse and examined in 1967.

Statistics: Rampart width: 28' (S).

Tower 12A

References: CW2 lxvi p. 38 - 40, Archaeological Newsbulletin for Northumberland, Cumberland and Westmorland, May 1968.

Located in 1963 by R.L. Bellhouse and excavated in 1967.

Statistics: External Dimensions: N-S 19' (before alteration)
E-W 19'

Doorway: To right?

Foundations: Width 3'4"

Depth 3'

Notes: The foundations consisted of cobbles set in grey clay.

Tower 12B Silloth Golf Course

Reference: CW2 lvii p.22f.f.

Located in 1955 by Mr. John Inglis and examined by R.L. Bellhouse in 1956.

Statistics: Internal Dimensions: N-S 11'6"

E-W 11'6"

Doorway: To right.

Foundations: Width c.5'

Depth: ---

Notes: The walls of the tower had no offset above that of the foundations. Four courses of the original tower still remained. A smaller structure had been built on top of it.

Milefortlet 13 Wolsty

Reference: CW2 liv p.47.

Tower 13A Wolsty North

Reference: CW2 liv p.40f.f.

Examined in 1954 by R.L. Bellhouse.

Statistics: Internal Dimensions: N-S 12'6"

E-W 13'5"

Foundations: Width 4'.

Notes: Only the clay and cobble foundations remained.

R.L. Bellhouse inferred that there was a platform to the left and therefore a doorway to the right.

Tower 13B Wolsty South

References: CW1 v p.258f.f., CW2 xxix p.146f.

Located and examined in 1880 by Joseph Robinson.

Statistics: Internal Dimensions: N-S 12'6"

E-W 12'6"

External Dimensions: N-S 20'6"

E-W 20'6"

Doorway: To left?

Foundation: Width 4'

Depth 3'3"

Notes: Only the clay and cobble foundation remained. There was a platform (against the back wall).

(14)

Tower 14A Beckfoot North

Reference: CW2 xxi p.270f.

(14B), (15).

Tower 15A Bank Mill

References: CW2 liv p.36f.f., CW2 lvii p.18f.f.

Examined in 1954 and 1956 by R.L. Bellhouse.

Statistics: Internal Dimensions: N-S 13'10"

E-W 13'10"

Doorway: To right.

Wall thickness: 3' (W)

Foundation: Width 4' (W)

Depth ---

Notes: The foundations were of clay and cobble. There was an inner and outer plinth on the west wall, above the first two courses of walling, which were themselves recessed 3" from the foundation.

(15B), (16)

Tower 16A Cote How

References: CW2 xxxviii p.157f.f., CW2 lvi p.62f.f.

Located in 1934 by Mr. H. Valentine and excavated in 1937 by Mr. H. Duff and I.A. Richmond.

Statistics: Foundation: Width 3'10" - 4'

Depth 3' 6"

Notes: Only the foundations of the north wall and the northern part of the west wall remained. They were exceptionally deep, presumably to give stability to the tower in firm sand.

Tower 16B Mawbray Sandpit

Reference: CW2 liv p.42f.f.

Excavated in 1954 by R.L. Bellhouse.

Statistics: Internal Dimensions: N-S 12'6"

E-W 12'6"

External Dimensions: N-S 20'6"

E-W 20'6"

Doorway: To right?

Wall thickness: c.3'

Foundation: Width 4' (W)

Depth ---

Notes: The two footing courses were of the same thickness as the foundations. They were offset from the wall above by 3" - 4" on both sides. There was a platform in the SE corner (against the left wall).

(17), (17A), (17B), (18), (18A), (18B), (19), (19A), (19B), (20), (20A).

Tower 20B Swarthy Hill

Reference: CW2 lxiii p.141-142.

Located and examined by R.L. Bellhouse in 1962.

Statistics: Internal Dimensions: N-S ---

E-W ---

External Dimensions: N-S 21'

E-W 22'

Foundations: Width 4'9" - 5'

Depth 1'

Notes: Only the foundations and one footing course, the

full width of the foundations, remained undisturbed (S and W sides). The foundations were laid in boulder clay.

(21), (21A).

Tower 21B Brownrigg

Reference: CW2 lxvi p.37f.

Examined in 1962 by R.L. Bellhouse and since destroyed in a sandpit.

Statistics: External Dimensions: N-S 21'
E-W 20'6"

Foundations: Width 4'6" (E), 4'9" (elsewhere)
Depth 1'3".

Notes: The first footing course was the same width as the clay and cobble foundations. The surviving second course on the east was 4' wide.

Milefortlet 22 Brownrigg

References: CW2 lxiii p.143 - 147, Archaeological Newsbulletin for Northumberland, Cumberland and Westmorland, Dec. 1968.

Examined in 1962 and excavated in 1968 by R.L. Bellhouse.

Statistics: Rampart width: 32' (N and S), 21' (E and W)

Depth of ditch: c.5'

Width of ditch: 20'

Internal Dimensions: N-S 68'

E-W 65'

Internal area: 491 sq.yards

Entrance: In the middle of the front rampart (NW) - 6' wide.

Internal buildings: ---

Notes: Milefortlet 22, unlike Cardurnock, was nearly square in shape. In plan it was more like a milecastle. The entrance, through which ran a gravel road, gave straight onto the cliff edge. There was no ditch on the seaward side, because the milefortlet was well protected by the steep cliffs. The rampart was of turf.

Tower 22A

Reference: CW2 lxiii p.141.

Tower 22B

Reference: RHW p.130.

(23), (23A), (23B), (24), (24A), (24B), (25), (25A).

Tower 25B Risehow

References: CW1 v p.124f., CW2 xxix p.144f.

Located in 1880 by Joseph Robinson.

Statistics: Internal Dimensions: N-S 13'7"

E-W 13'7"

External Dimensions: N-S 20'

E-W 20'

Wall thickness: 3'

Notes: The floor of the tower was made of cobbles and clay.

(26), (26A), (26B), (27), (27A), (27B)

Milefortlet 28 Tottergill

Reference: CW2 xlviii p.217f.

(28A), (28B).

Milefortlet 29 Oyster Bank

Reference: CW2 xxix p.159

There are no details available about the milefortlets and towers south of milefortlet 29.

The Cumberland Coast - Schedule I

Tower	Internal Dimensions	External Dimensions	Footings (Bellhouse types)
3A	13' x 13'	19' x 19'	---
3B	---	---	4
12A	---	19' x 19'	1
12B	11'6" x 11'6"	---	4
13A	13'5" x 12'6"	---	1
13B	12'6" x 12'6"	20'6" x 20'6"	4?
15A	13'10" x 13'10"	---	3
16A	---	---	---
16B	12'6" x 12'6"	20'6" x 20'6"	1
20B	---	21' x 22'	1
21B	---	20'6" x 21'	2
25B	13'7" x 13'7"	20' x 20'	4

Milefortlet	Rampart Width	Ditch		Internal Area
		Depth	Width	
1	30'	---	---	---
5	29' - 25' - 21'	6' 3"	c.18'	128' x 95'
12	28'	---	---	---
22	21' - 32'	c.5'	20'	68' x 65'

The Cumberland Coast - Schedule II

Tower	Doorway Position	Platform	Foundations Width	Foundations Depth	Wall Thickness
3A	To left?	---	---	---	---
12A	To right?	---	3' 4"	3'	---
12B	To right	---	c. 5'	---	---
13A	To right?	On left wall?	4'	---	---
13B	To left?	On back wall	4'	3' 3"	---
15A	To right	---	4'	---	3'
16A	---	---	3'10" - 4'	3' 6"	---
16B	To right?	On left wall	4'	---	c. 3'
20B	---	---	4' 9" - 5'	1'	---
21B	---	---	4' 6" - 4' 9"	1' 3"	---
25B	---	---	---	---	3'

Milefortlet	Internal Buildings	Entrance
1	---	---
5	110' x 28' (2 plots)	NW corner (away from sea)
12	---	---
22	---	In middle of front (seaward facing) rampart.

Footnotes to Appendix I.

1. CW2 xxix p.138 - 165.

2. CW1 v p's 128f., 124 - 125 and 258f.f.

3. CW2 xlvii p.78 - 84.

4. There is no concrete evidence that the coastal system continued down as far as St. Bees Head. The last located site is milefortlet 29 at Oyster Bank. Nevertheless, St. Bees Head is the logical place for the system to end. Beyond it, the coast falls away southwards and no longer faces that of Scotland. If the coastal system did end here, it is easy to divide it into the convenient number of forty Roman miles. There may have been a similar system of signal stations on the Durham coast but no trace of one has been found. The east coast would need less protection from the north, than the exposed west coast.

5. The means of identifying the walls of towers, used here, are those explained by R.L. Bellhouse, in his forthcoming article in Cumberland and Westmorland Transactions, "Roman sites on the Cumberland coast 1966 - 67." It is as follows:

> "On the wall, the north wall faces the enemy; on the coast, the west wall faces the enemy, hence front wall, back wall, left wall and right wall can be used disregarding the points of the compass, the reader imagining himself as viewing the structure from behind and facing the enemy."

The same method could also be applied to turrets.

Appendix II

Pike Hill Signal Station

The signal tower on Pike Hill, though a part of the wall system, is not a turret. The turf and stone walls butt against its north-east corner and must have done the same at the north-west corner. Since the tower was orientated at an angle of 45^{o} from the line of the wall, both walls, when they were built, had to make a double turn, to incorporate it (see fig.5). The explanation for this curious relationship probably lies in its position. Northwestwards, it faces Gillalees Watch Tower, Nether Denton fort and Walltown turret (45A). The other two sides face Boothby fort on the Stanegate and the outpost fort at Netherby. Its very deep foundations may denote extra height and its purpose was probably that of long distance signalling.

Pike Hill tower was roughly twenty feet square. The earliest pottery from it is Hadrianic. Although it was probably planned as a link in the Stanegate system, the absence of a surrounding ditch, like the ones at Mains Rigg and Barcombe towers, suggests that it was not planned before the wall. It was, however, built before the turf wall and was not, like the tower on Walltown crags, incorporated into the turret system.

References: CW1 i p.214f., CW2 xxxii p.145 - 147, CW2 xxxiii p.271 - 274, HB11 p.189f. (with plan p.190), RHW p.140 - 141.

Position: About 220 yards east of T 52A.

Located in 1870 and excavated in 1931 and 1932 by F.G. Simpson and James McIntyre.

Statistics: Doorway: At south-east. Width of doorway: 2'8"

Wall thickness: 3'

Internal Dimensions: ---

Platform: ---

Construction: See notes

Width of Great Wall at tower: ---

Notes: Pike Hill signal tower possessed unique foundations. It stood on a platform of mortared rubble, faced with walling, 2' wide and 1'4" deep. This consisted of three courses of large flags, bedded in clay, The tower walls, which were built in good masonry, were set back 3" from the edge of the platform, and rose without further offset. Only the southern tip of the tower remained after the destruction of 1870 (when the modern road was built). At the outer corners of the doorway, there were vertical rebates, 5½" square, showing that the masonry had been built up to a wooden door-frame. There was a small hearth against the inner face of the south-east wall.

PIKE HILL SIGNAL - TOWER
(CW2 xxxiii fig. 26 p. 273)

From the plan by F.G.Simpson.

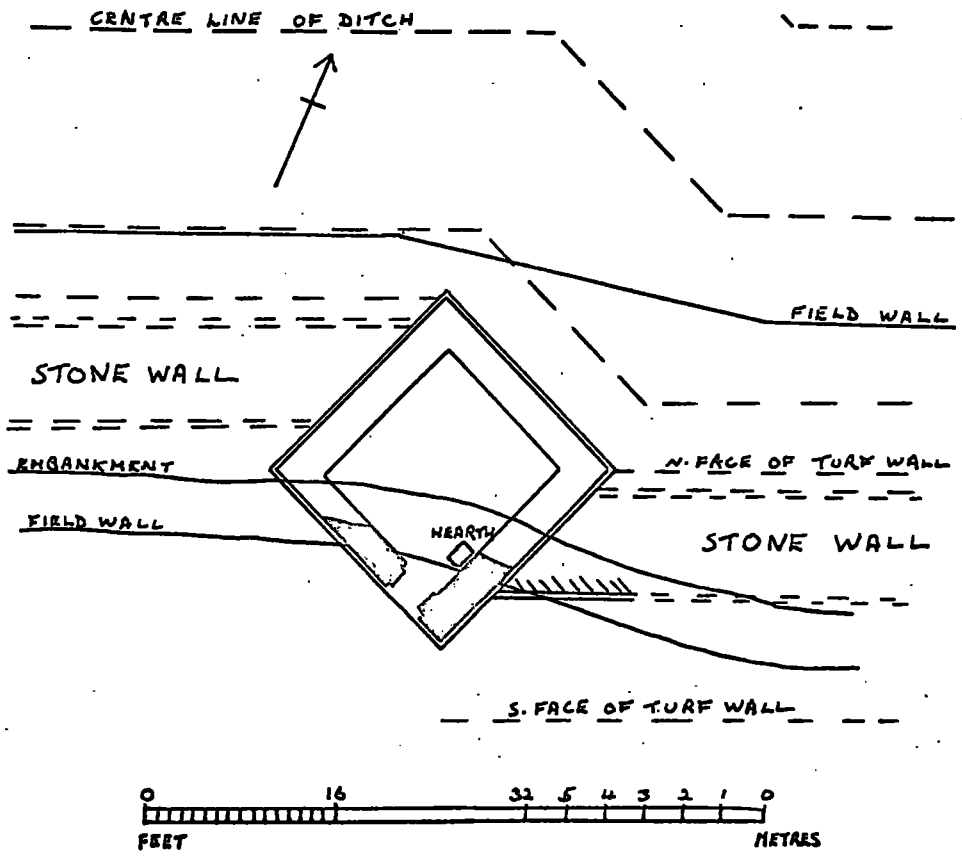


FIG. 5.

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Notes to the Plans

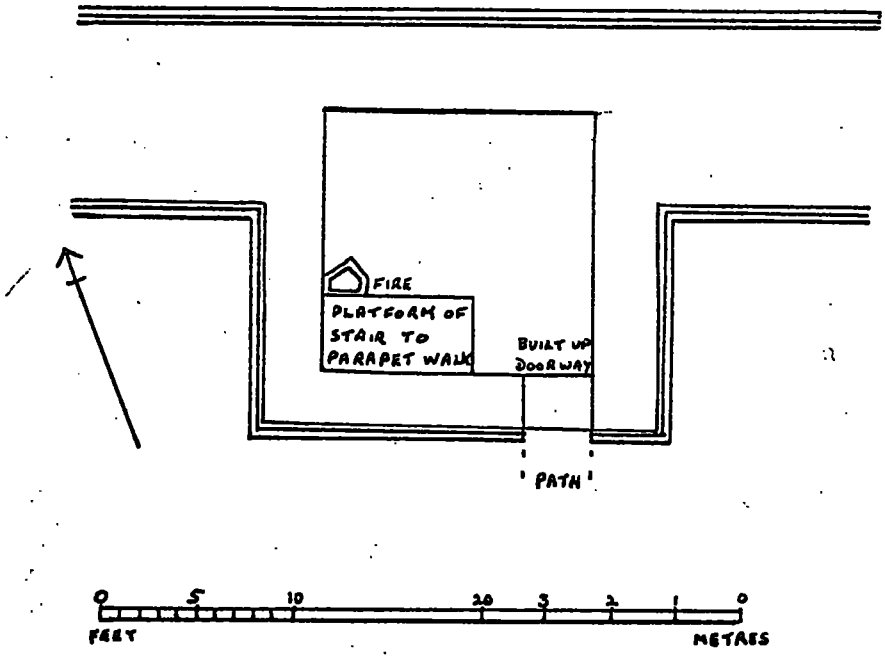
All available milecastle and turret plans have been reproduced below, to a uniform scale, as follows:

Structure	Scale
Turrets	1" to 10'
Milecastles	1" to 20'
Milecastle Gateways (1st period)	1" to 6'
Milefortlet 5	1" to 40'

In every case, a metre scale has been added.

The sketches in Thomas Hepple's Notebook are not drawn to scale. The scales which I have added, are designed to indicate the external measurements of the structures.

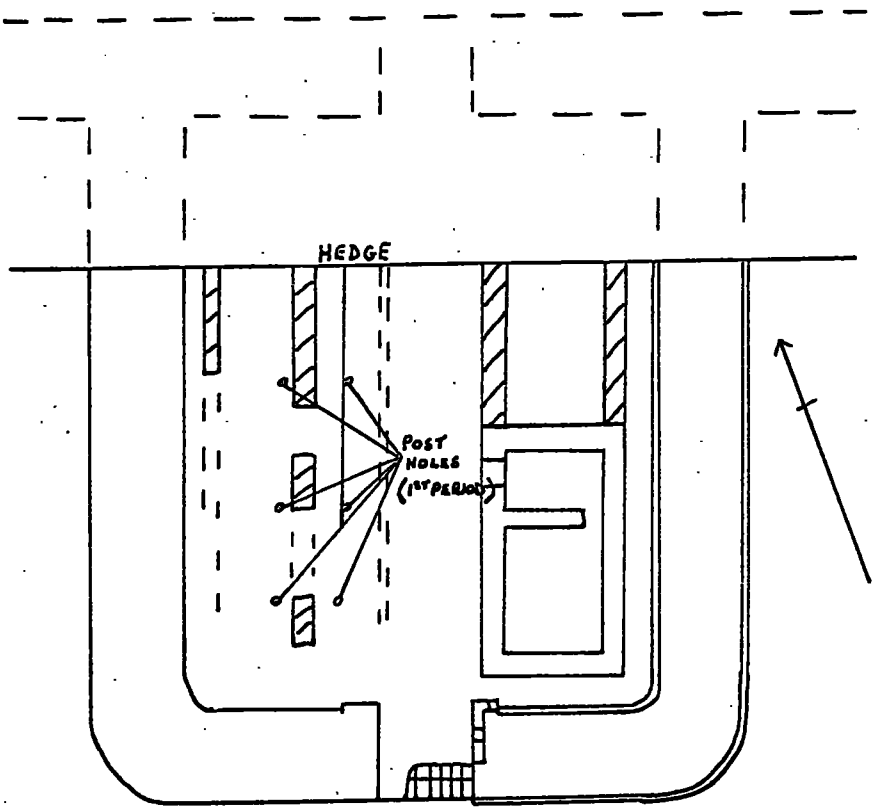
TURRET 7B DENTON HALL
(AA4 vii PL.xxxvii)

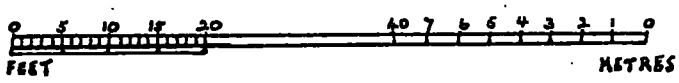


From the plan by Parker Brewis.

MC 9 CHAPEL HOUSE
(AA4 vii PL.xlii)

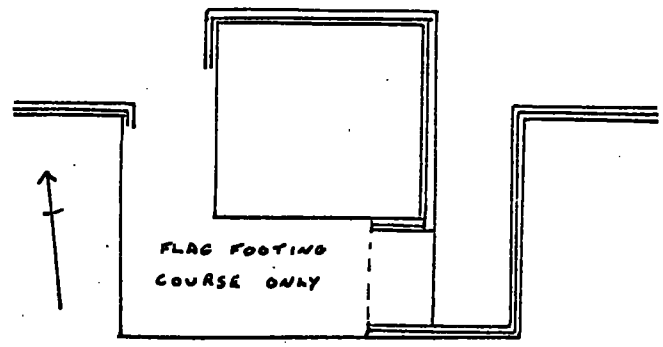
From the plan by Parker Brewis.



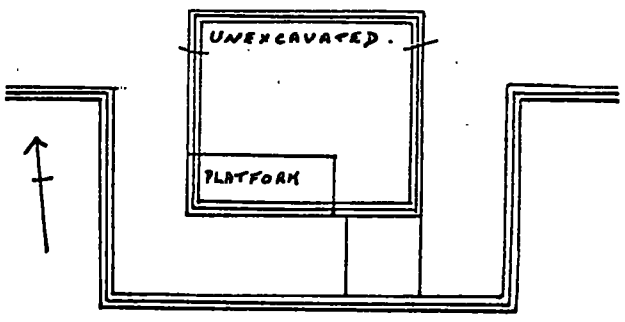


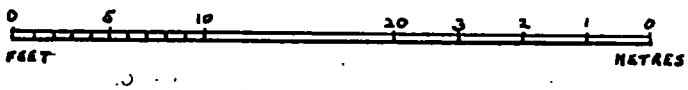
— ORIGINAL WORK
— 2ND PERIOD BUILDING

TURRET I2A HEDDON WEST
(AA4 viii p. 323 fig. 9)



TURRET I2B NORTH LODGE
(AA4 viii p. 323 fig. 9)

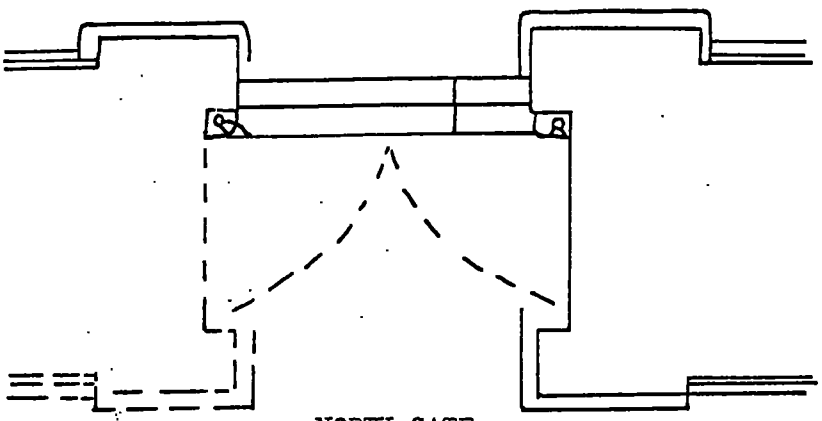




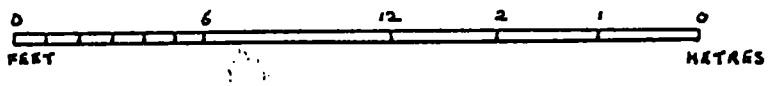
From the plans by Parker Brewis.

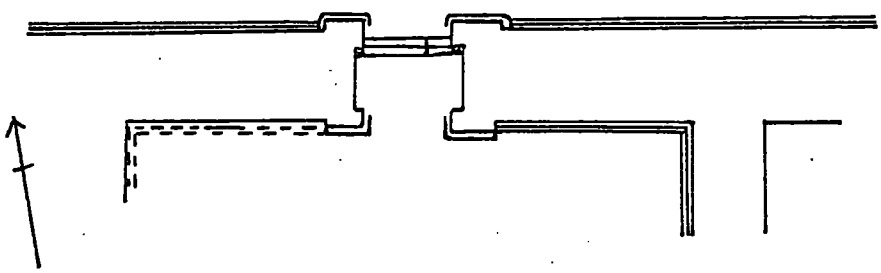
MC I3 RUDCHESTER BURN
(AA4 viii p.320)

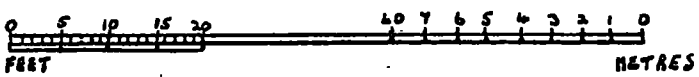
From the plan by Parker Brewis.



NORTH GATE



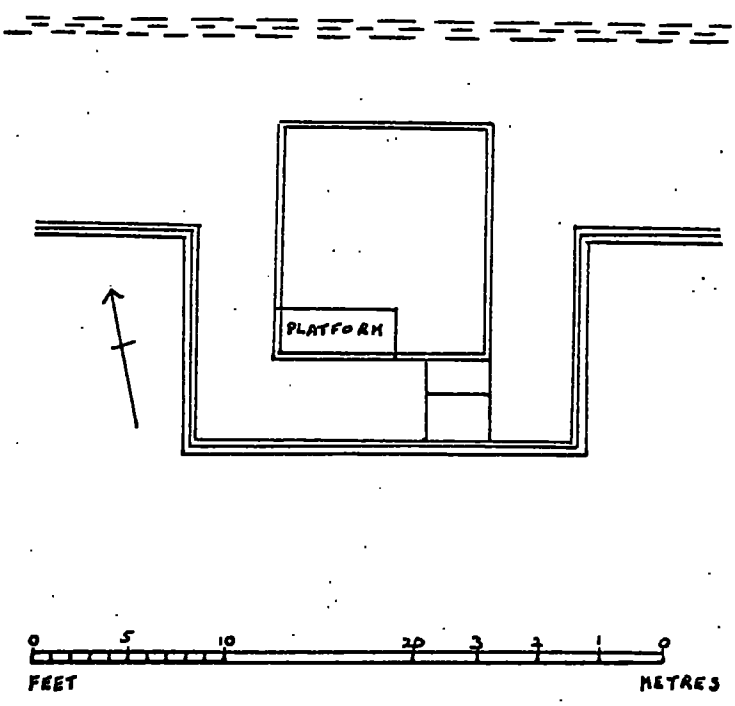




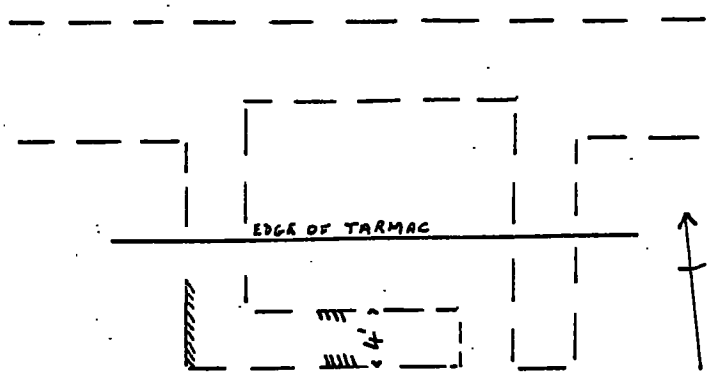
TURRET I3A RUDCHESTER EAST

(AA4 viii p.323 fig. 9)

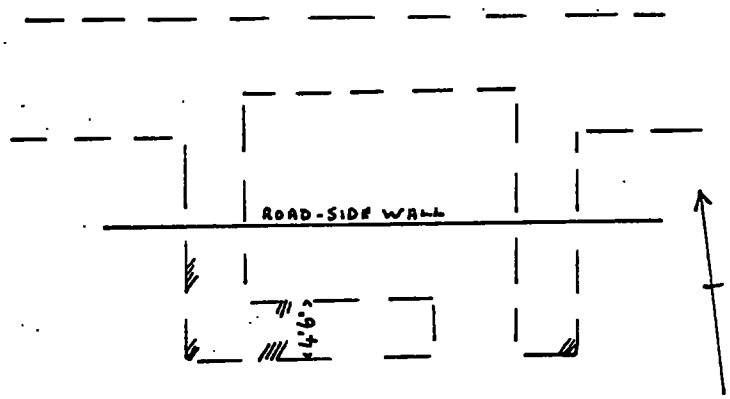
From the plan by Parker Brewis.

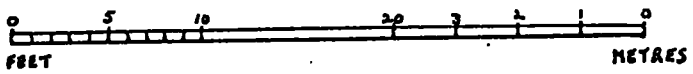


TURRET I5A WHITCHESTER WEST
(sketch in Thomas Hepple's notebook)



TURRET I5B HARLOW HILL EAST
(sketch in Thomas Hepple's notebook)



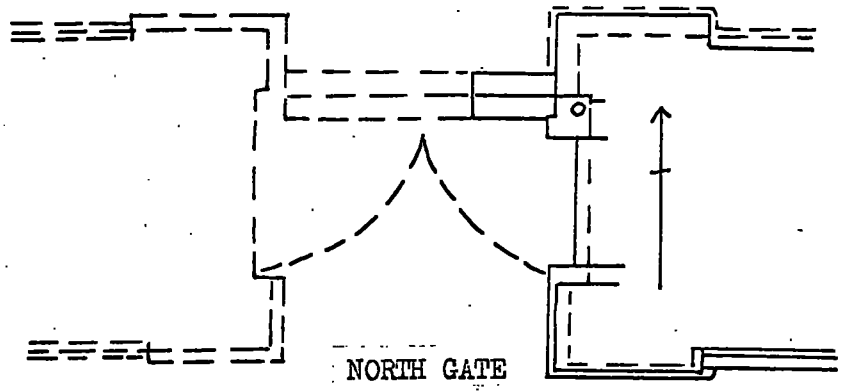


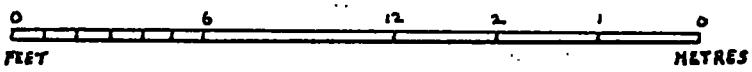
SKETCHES NOT DRAWN TO SCALE

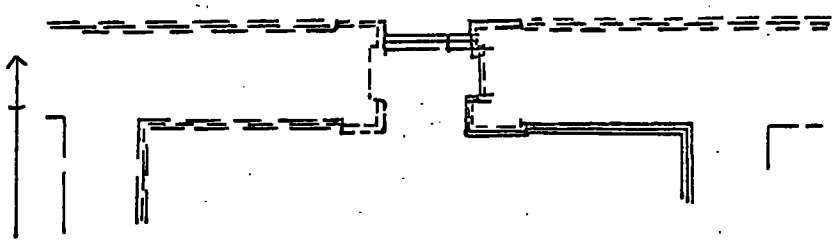
From the sketches by Thomas Hepple.

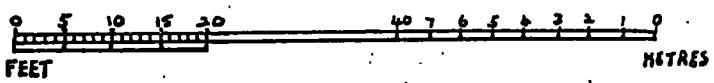
MC I7 WELTON
(AA4 ix PL. xliv)

From the plan by Parker Brewis.

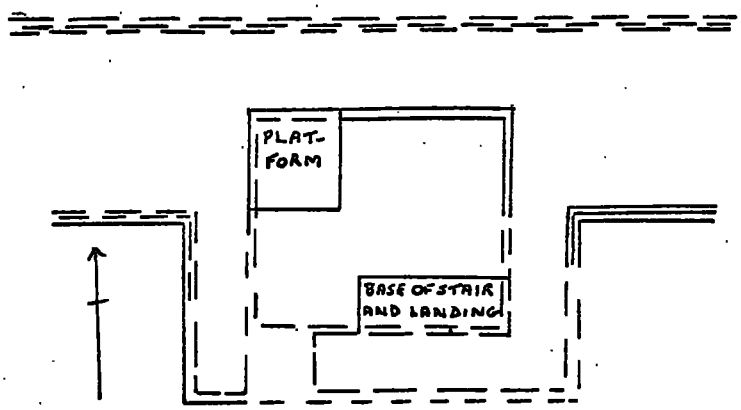




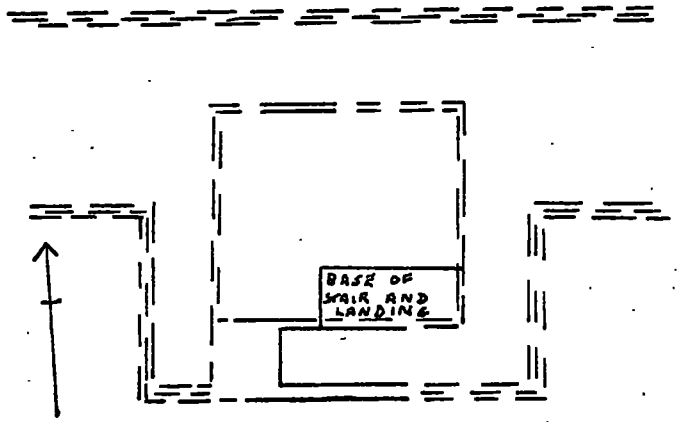


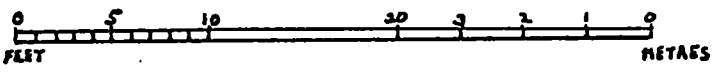


TURRET I7A WELTON EAST
(AA4 ix PL. xlv opp. p.258)



TURRET I7B WELTON WEST
(AA4 ix PL.xlv opp. p.258)

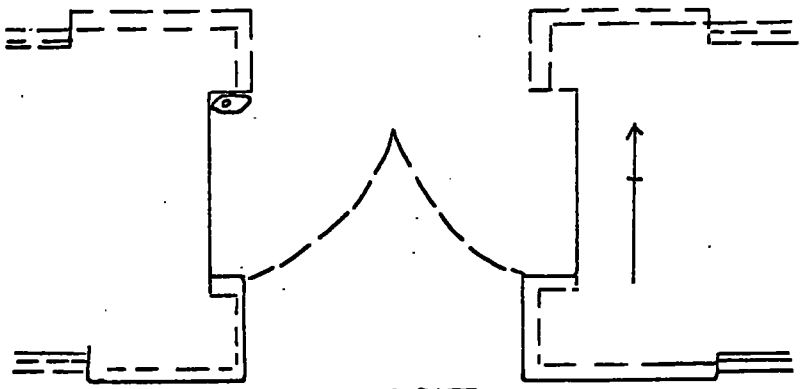




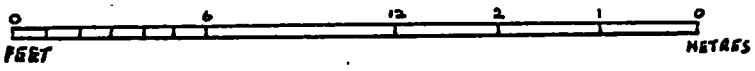
From the plans by Parker Brewis.

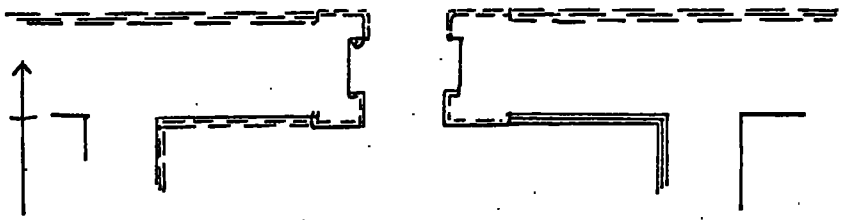
MC I8 EAST WALHOUSES
(AA4 ix PL. xlvi opp. p. 258)

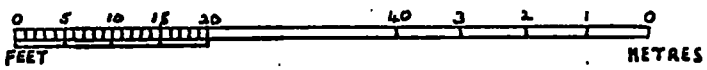
From the plan by Parker Brewis.



NORTH GATE

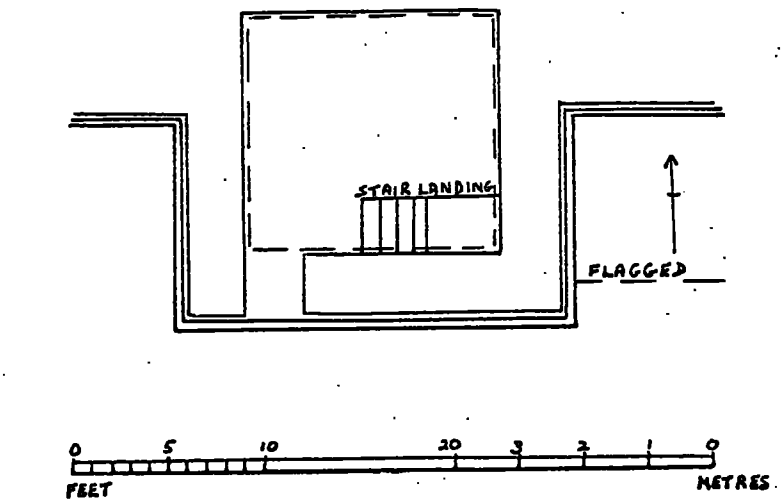






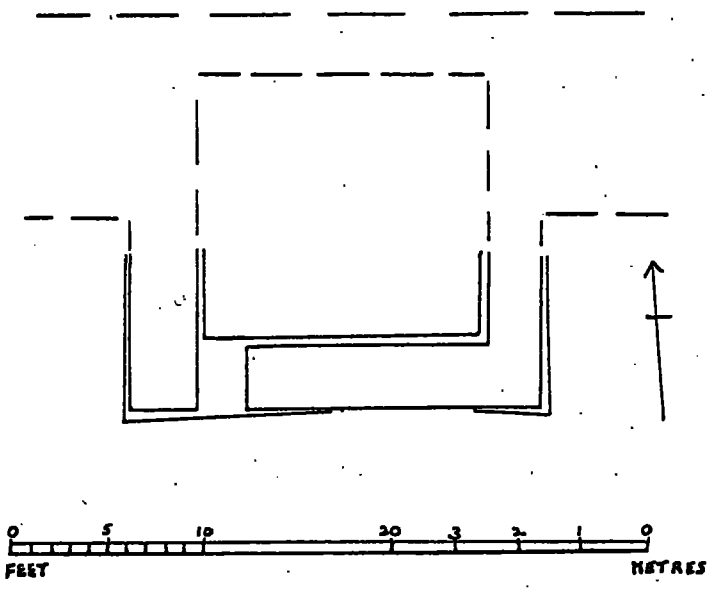
TURRET I8A WALLHOUSES EAST
(AA4 ix PL. xlvii opp. p. 258)

From the plan by Parker Brewis.

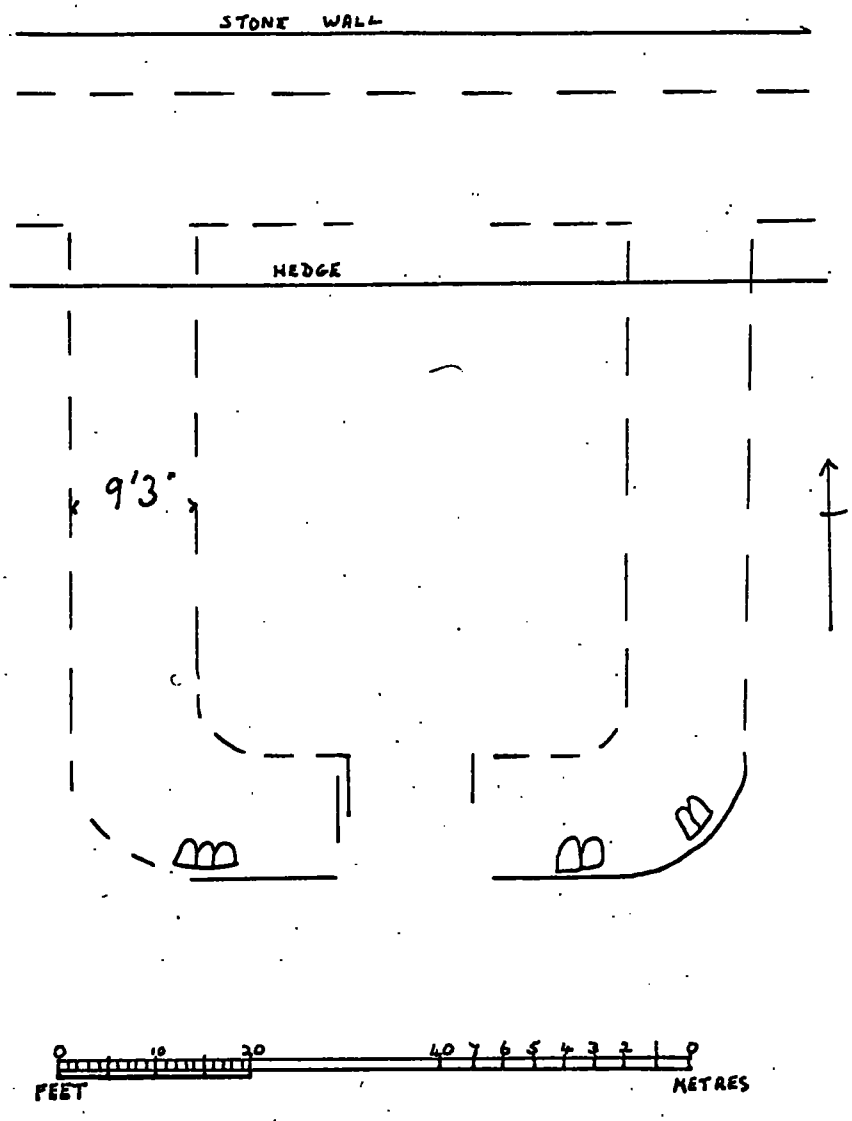


TURRET 18B WALLHOUSES WEST
(AA4 xliii fig. opp. p. 102)

From the plan by Charmian Woodfield.



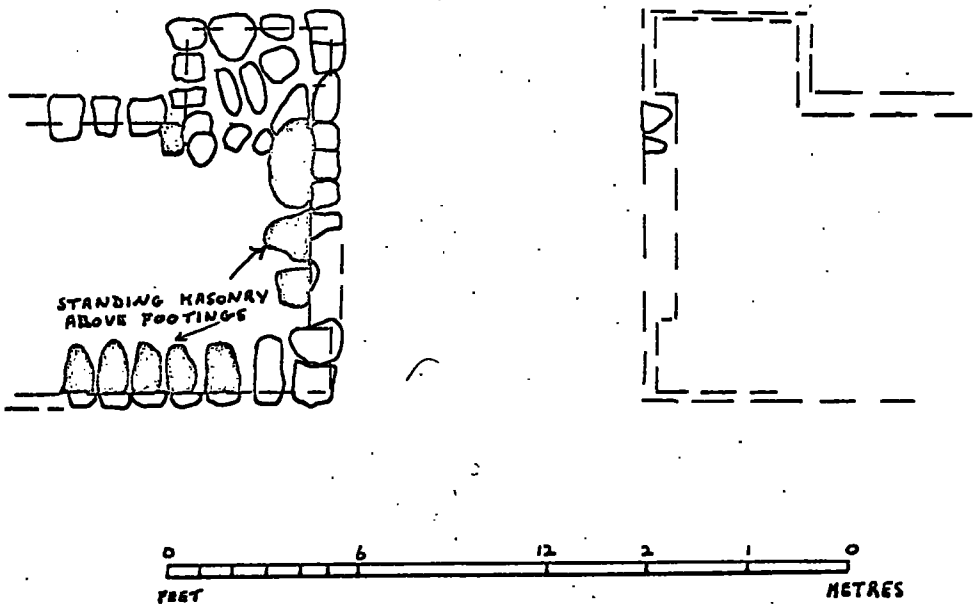
MC I9 MATFEN PIERS
(sketch in Thomas Hepple's notebook)



SKETCH NOT DRAWN TO SCALE.

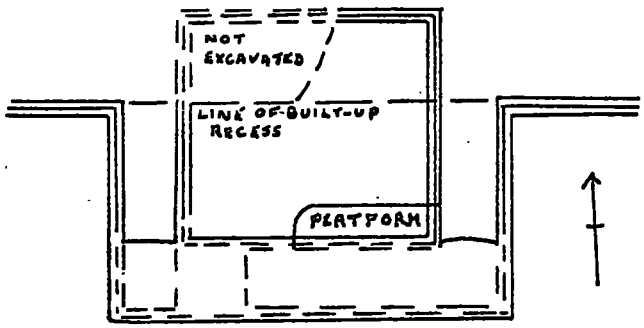
From the sketch by Thomas Hepple.

MC I9 MATFEN PIERS
(AA4 xiii p. 26I fig. I)
SOUTH GATE

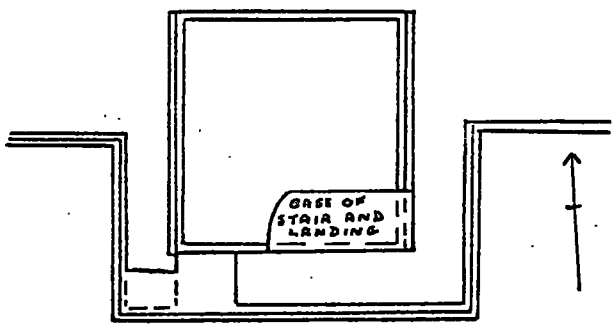


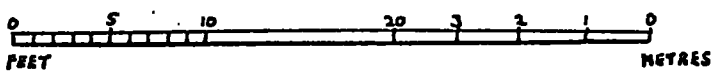
From the plan by I.A.Richmond and F.G.Simpson.

TURRET I9A CLAREWOOD EAST
(AA4 x PL. vi opp. p. I00)



TURRET I9B CLAREWOOD WEST
(AA4 x PL. vi opp. p. I00)

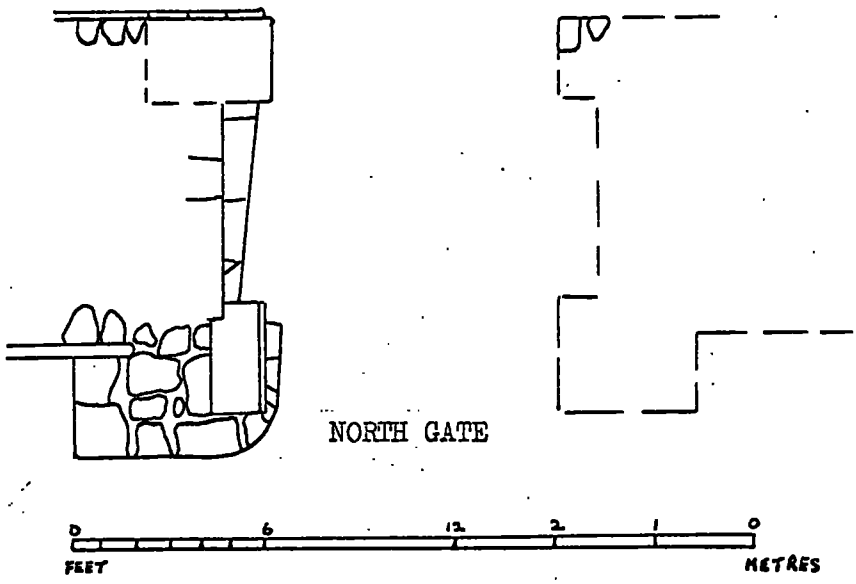


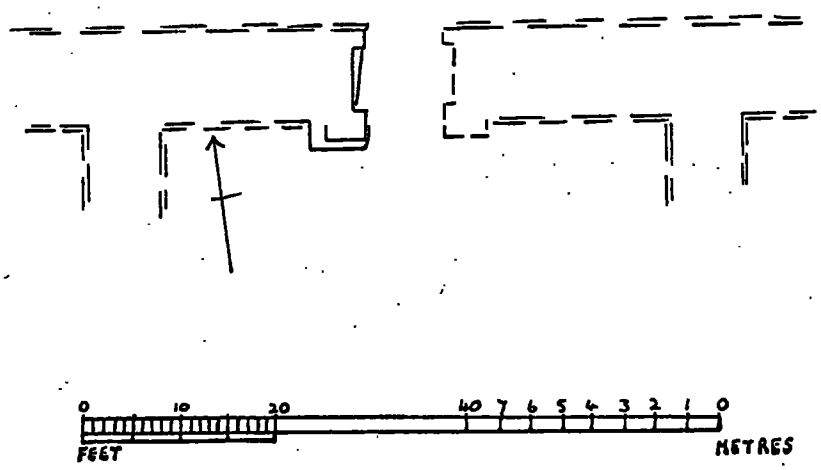


From the plansby Parker Brewis

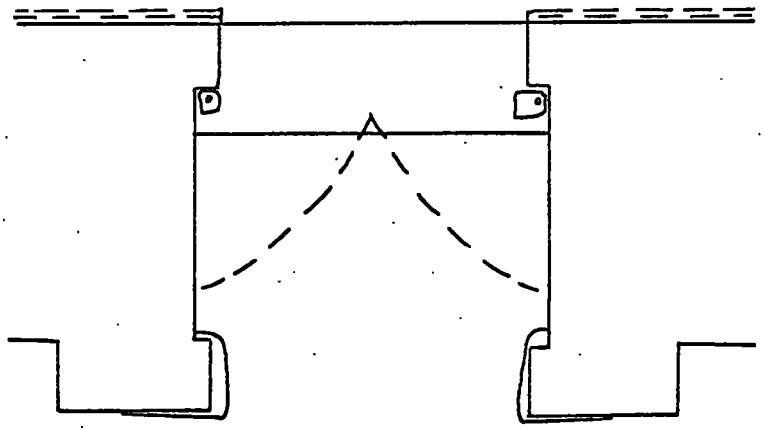
MC 20 HALTON SHIELDS
(AA4 xiii fig. I p. 26I)

From the Plans by F.G.Simpson
and I.A.Richmond.

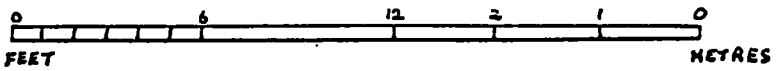


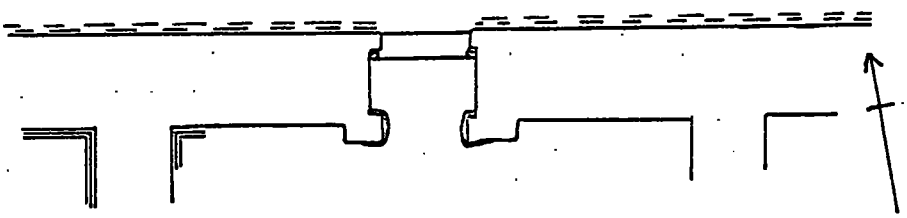


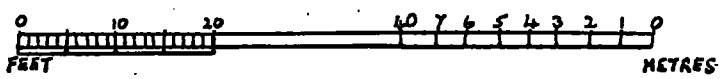
MC 22 PORTGATE
(AA4 viii fig. 7 p. 318)



NORTH GATE

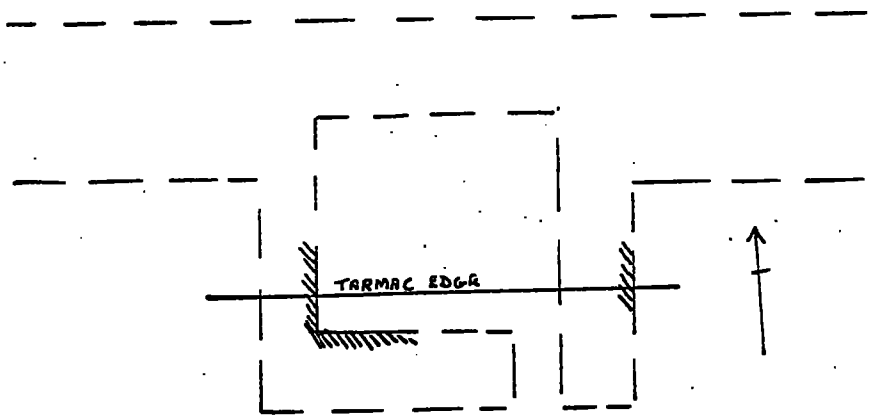




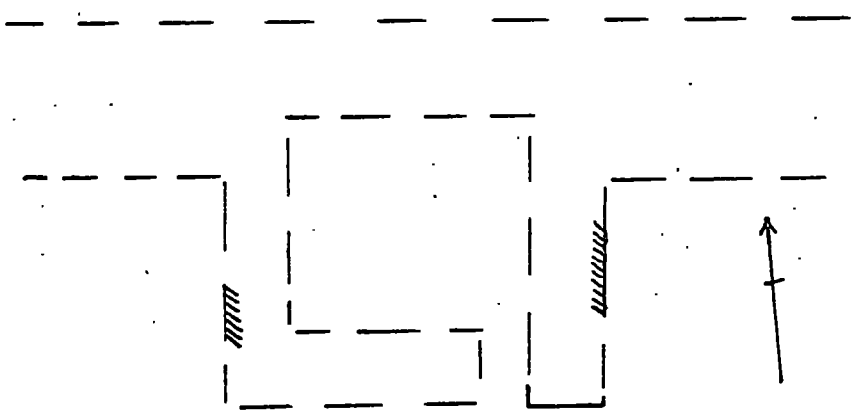


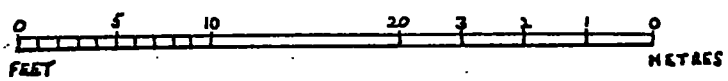
From the plans by Parker Brewis.

TURRET 22A PORTGATE
(Sketch in Thomas Hepple's notebook)



TURRET 22B STANLEY
(Sketch in Thmas Hepple's notebook)



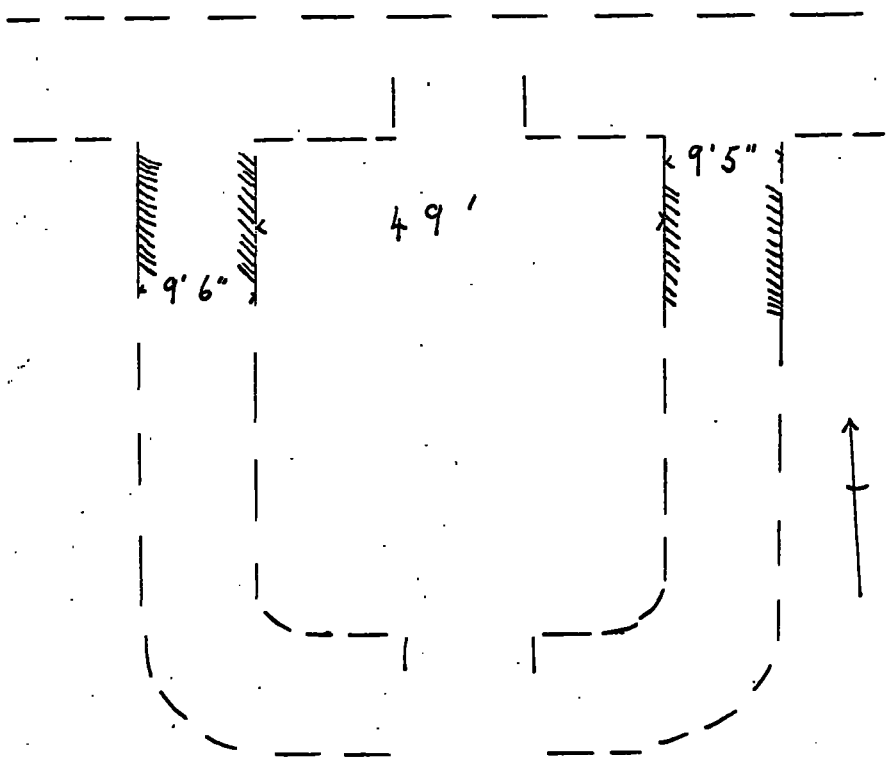


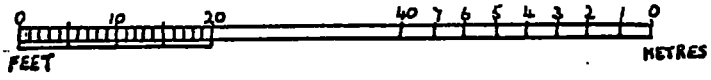
SKETCHES NOT DRAWN TO SCALE.

From the sketches by Thomas Hepple

MC 23 STANLEY
(sketch in Thomas Hepple's notebook)

From the sketch by Thomas Hepple.

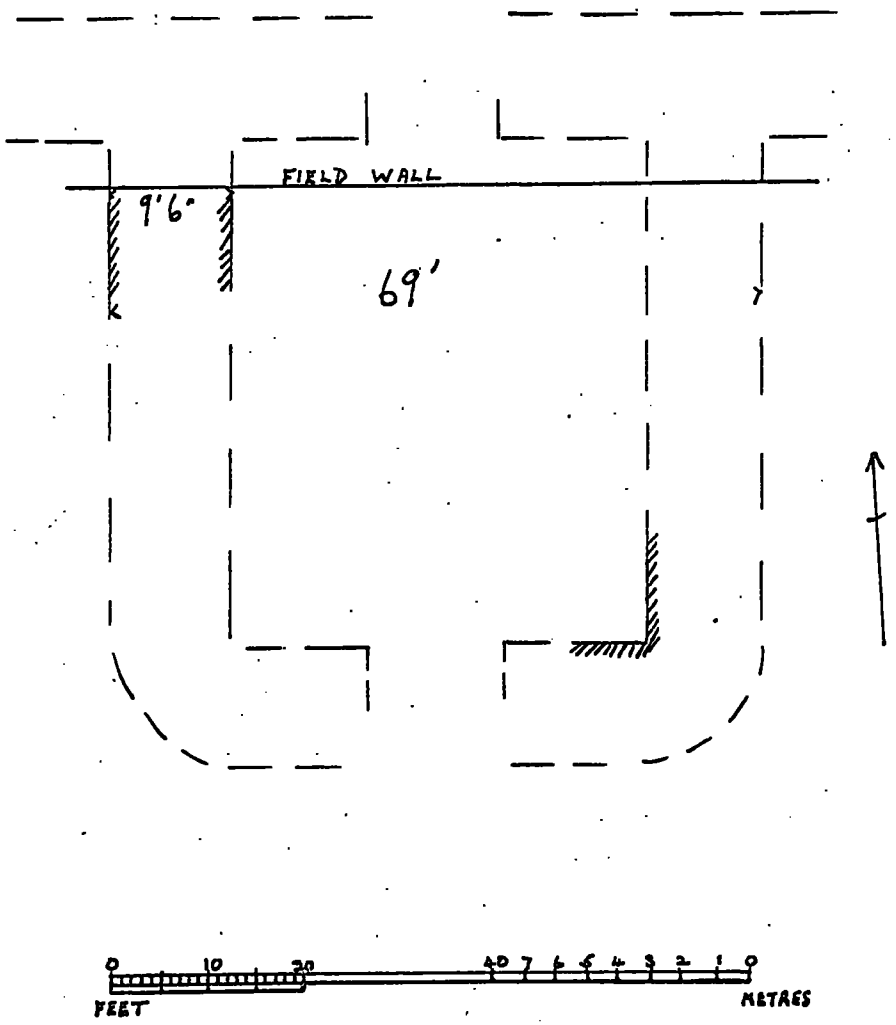




SKETCH NOT DRAWN TO SCALE.

MC 24 WALL FELL
(sketch in Thomas Hepple's notebook)

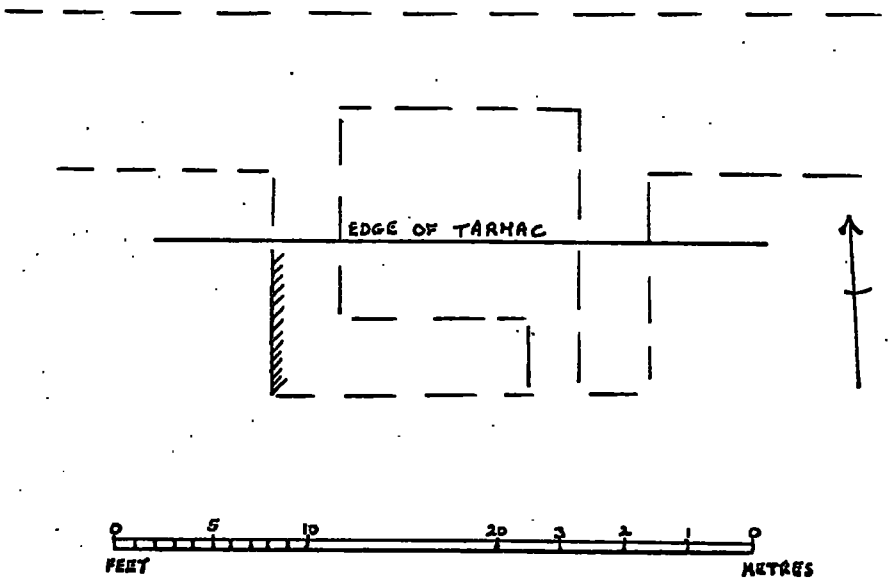
From the sketch by Thomas Hepple.



SKETCH NOT DRAWN TO SCALE.

TURRET 24A GREENFIELD
(Sketch in Thomas Hepple's notebook)

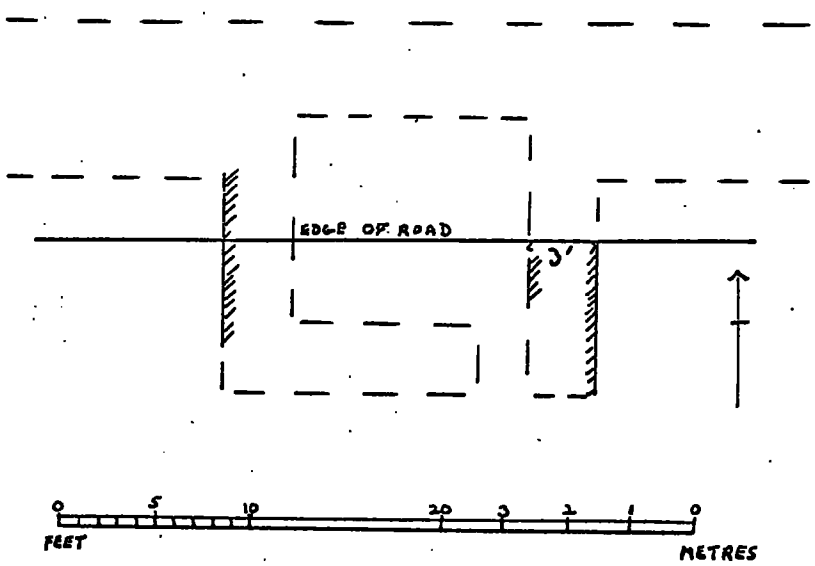
From the sketch by Thomas Hepple.



SKETCH NOT DRAWN TO SCALE.

TURRET 24B TITHE BARN
(Sketch in Thomas Hepple's notebook)

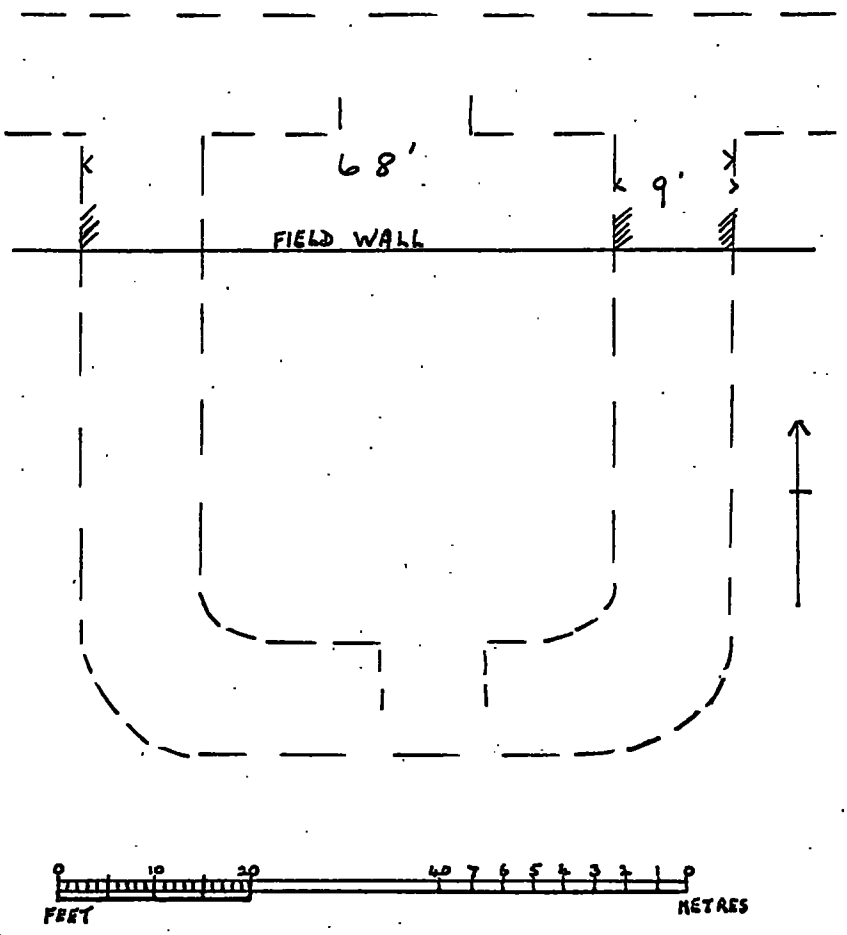
From the sketch by Thomas Hepple.



SKETCH NOT DRAWN TO SCALE.

MC 25 CODLAW HILL
(sketch in Thomas Hepple's notebook)

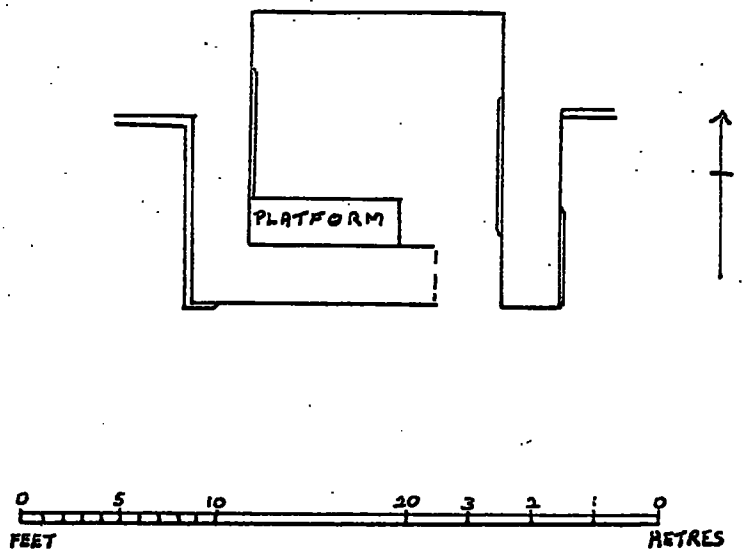
From the sketch by Thomas Hepple.



SKETCH NOT DRAWN TO SCALE.

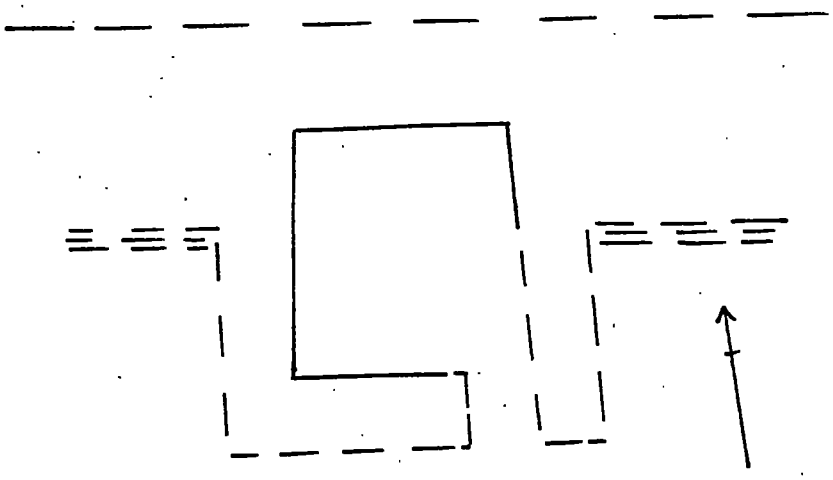
TURRET 25B ST. OSWALD'S
(AA4 xliii p. I22)

From the plan by Charmian Woodfield.



TURRET 26A HIGH BRUNTON
(AA4 xliii p. I42)

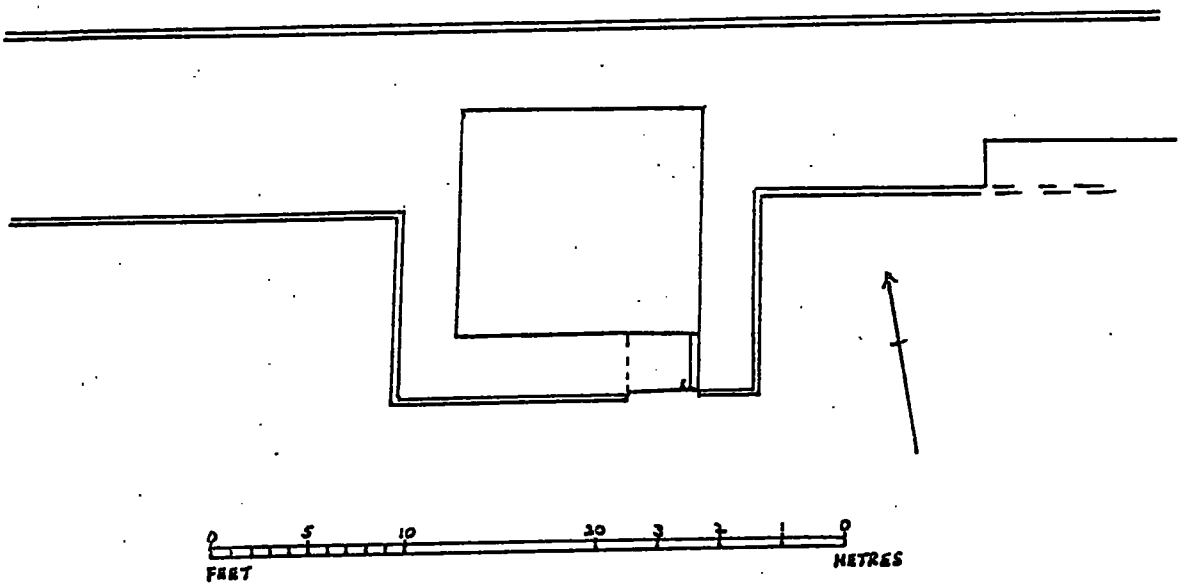
From the plan by Charmian Woodfield



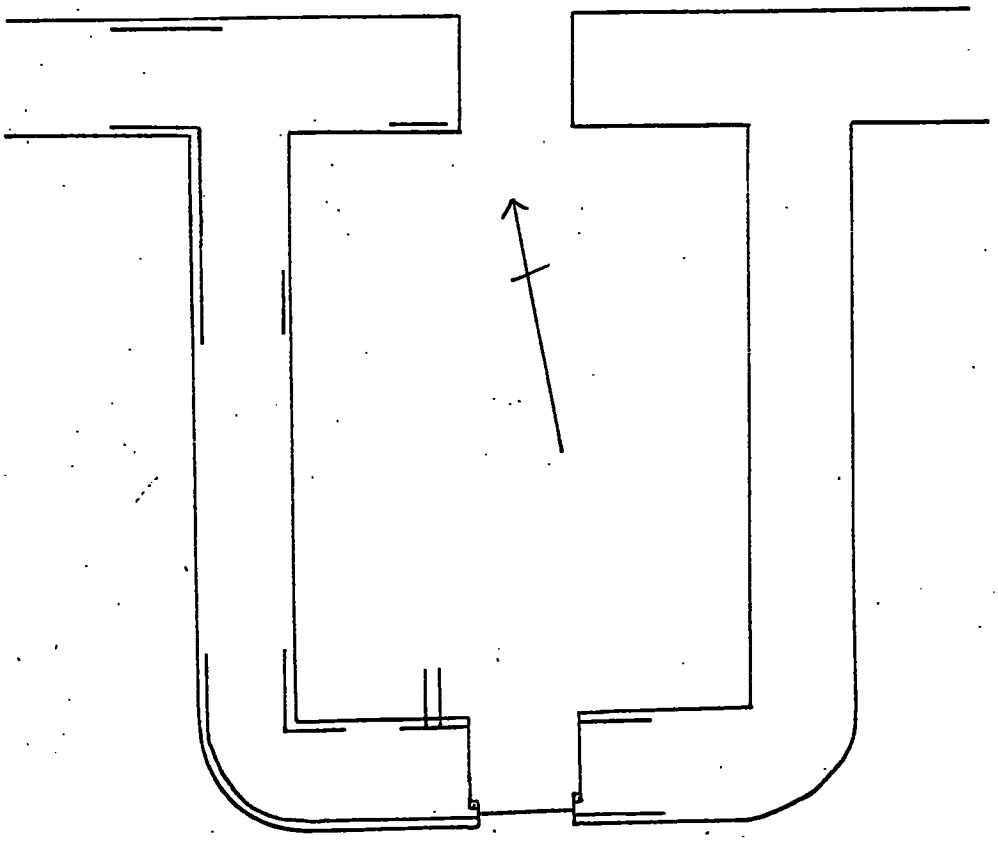
TURRET 26B BRUNTON
(AA3 ix PL. ii opp. p.56)

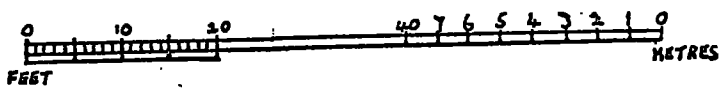
From the plan by Philip Newbold.

(Point of Reduction added.)



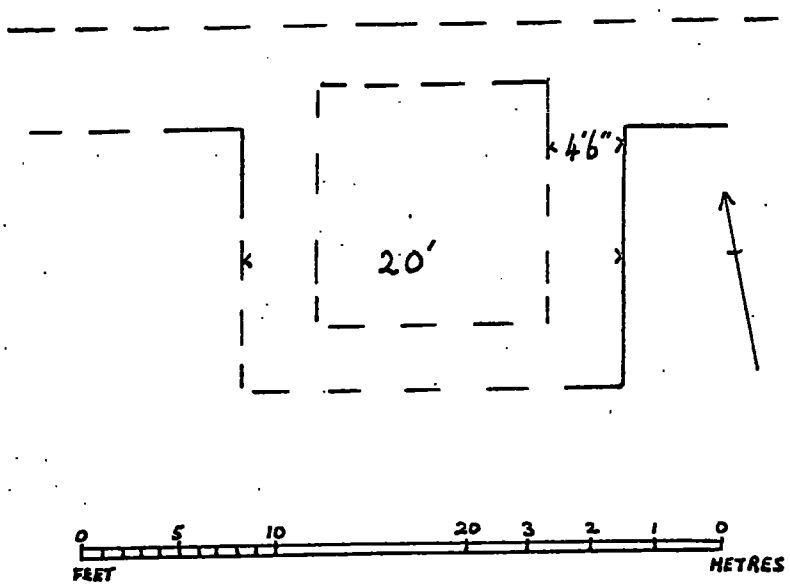
MC 27 LOW BRUNTON
(AA4 xxxi p. 167)





From the plan by Mr. J.P.Gillam.

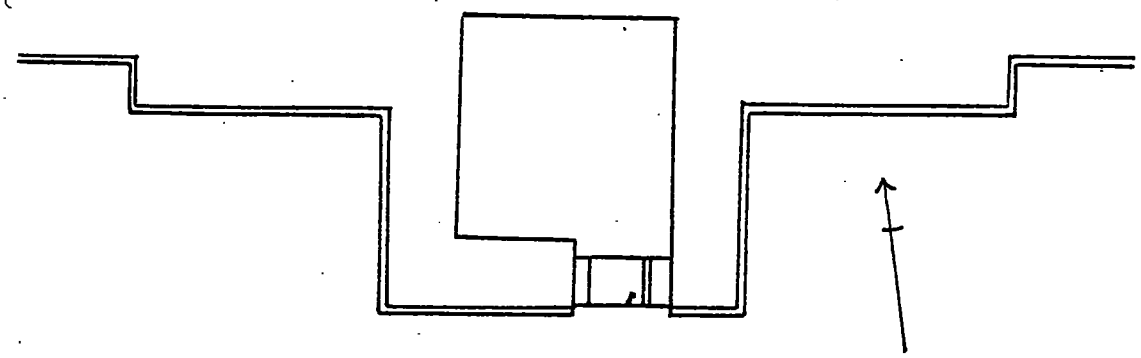
TURRET 27A CHESTERS
(sketch in Thomas Hepple's notebook)



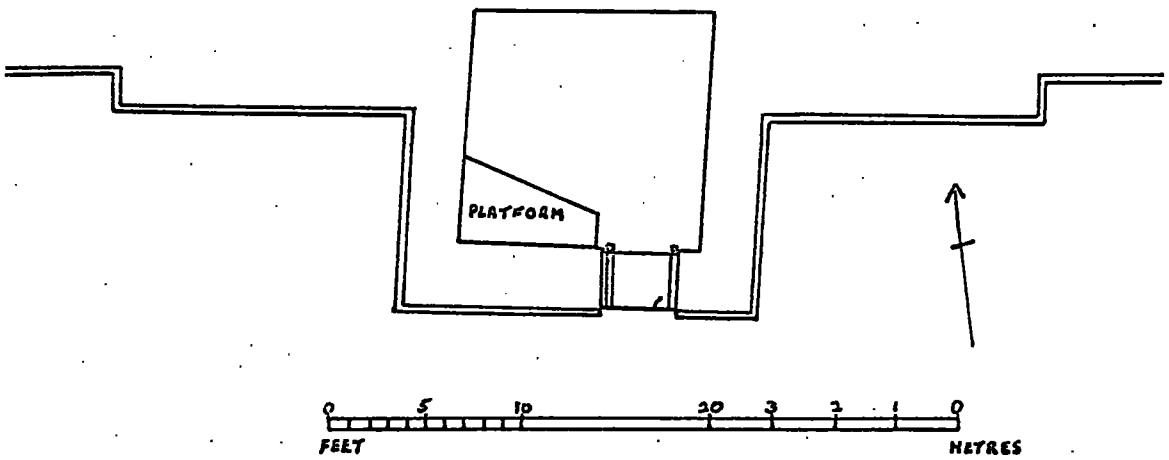
SKETCH NOT DRAWN TO SCALE

From the sketch by Thomas Hepple.

TURRET 29A BLACKCARTS
(AA3 ix PL. ii opp. p.56)

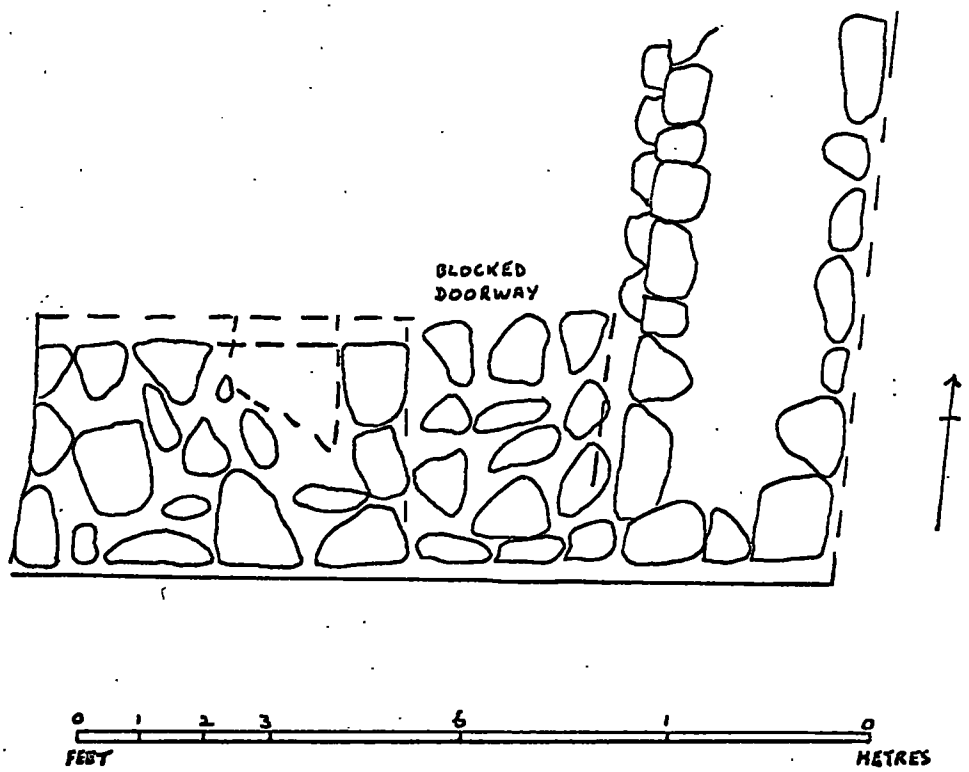


TURRET 29B LIMESTONE BANK
(AA3 ix PL. ii opp. p. 56)



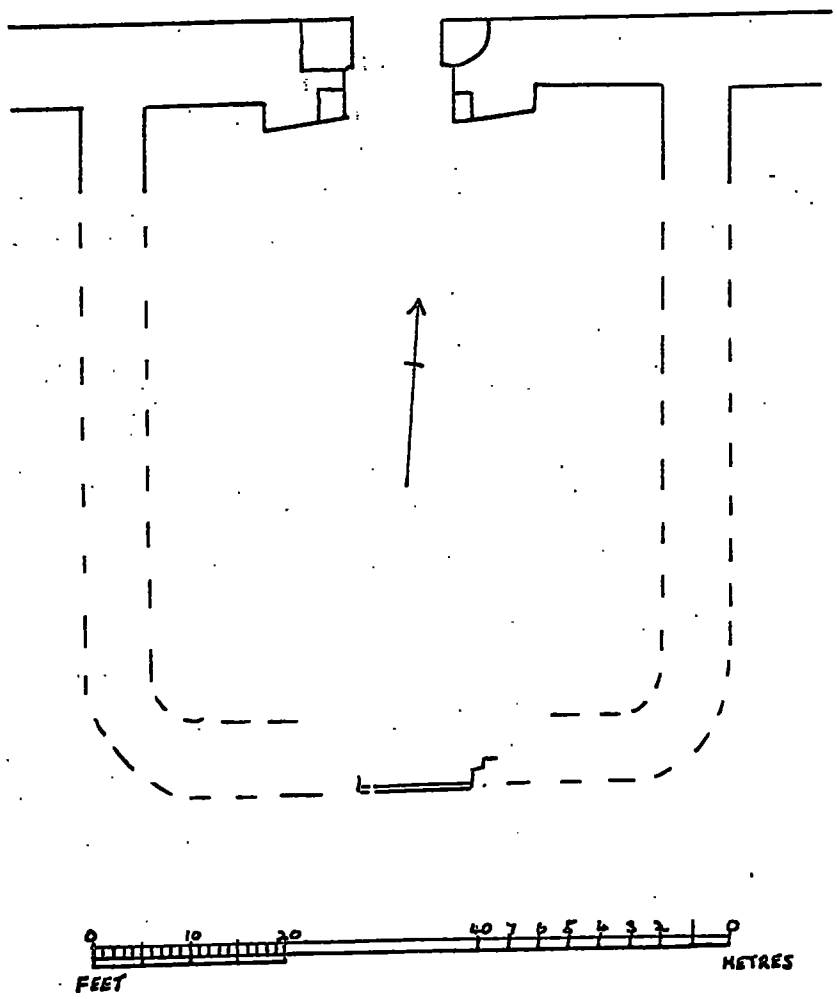
From the plans by Philip Newbold.

TURRET 31B CARRAW EAST
(unpublished plan by F. Cramner)



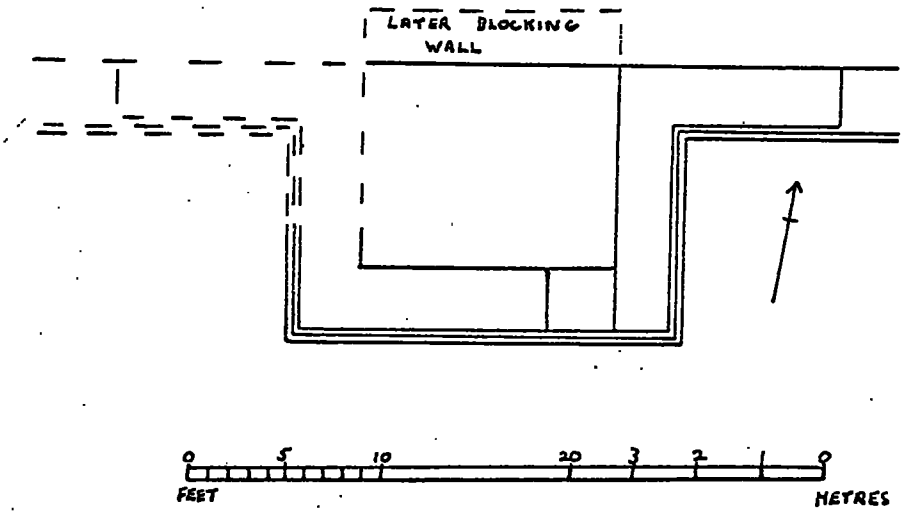
From the plan by F. Cramner.

MC 33 SHIELD-ON-THE-WALL
(AA4 xiii p. 263)



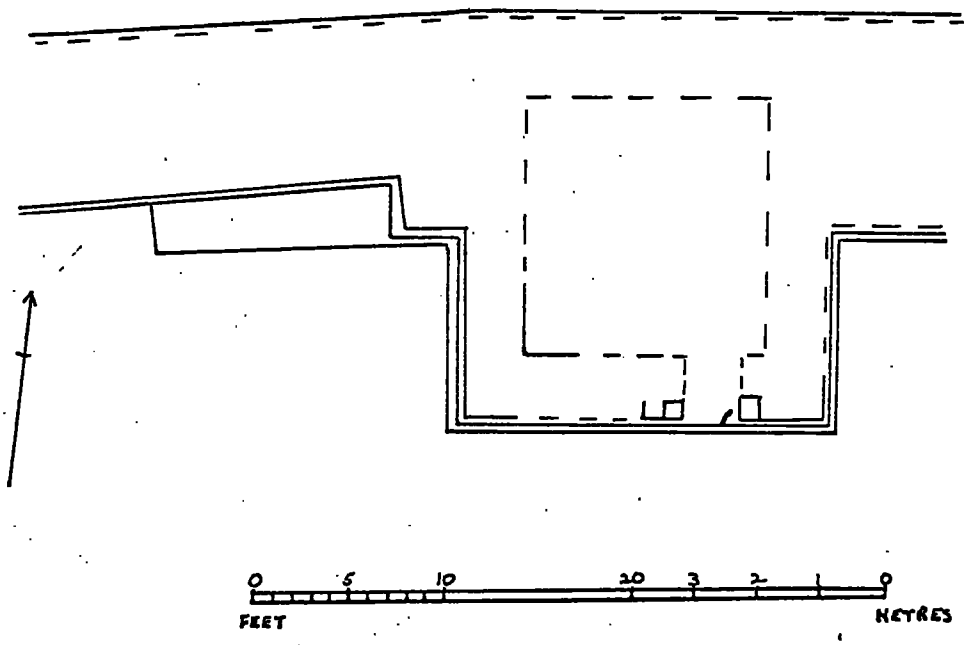
From theplan by I.A.Richmond and E.B.Birley.

TURRET 33B COESYKE
(Unpublished plan by Joyce Moss)



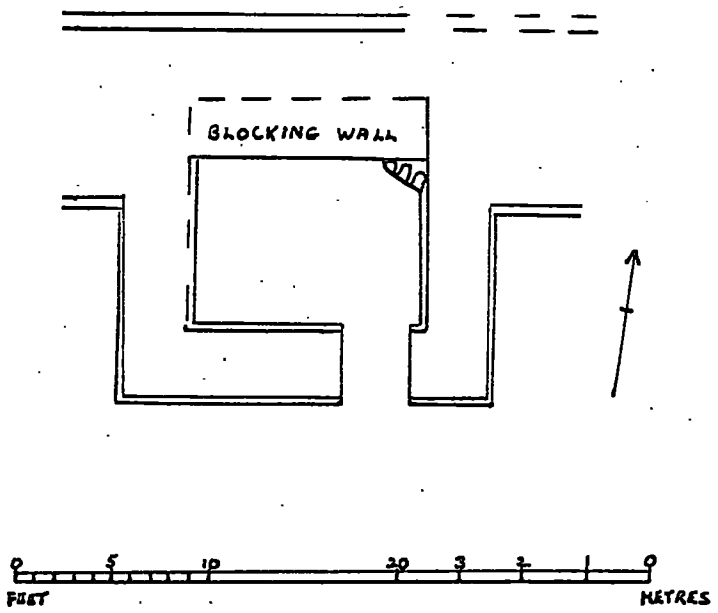
From the plan by Joyce Moss.

TURRET 34A GRINDON WEST
(Unpublished plan by C.E.Stevens)



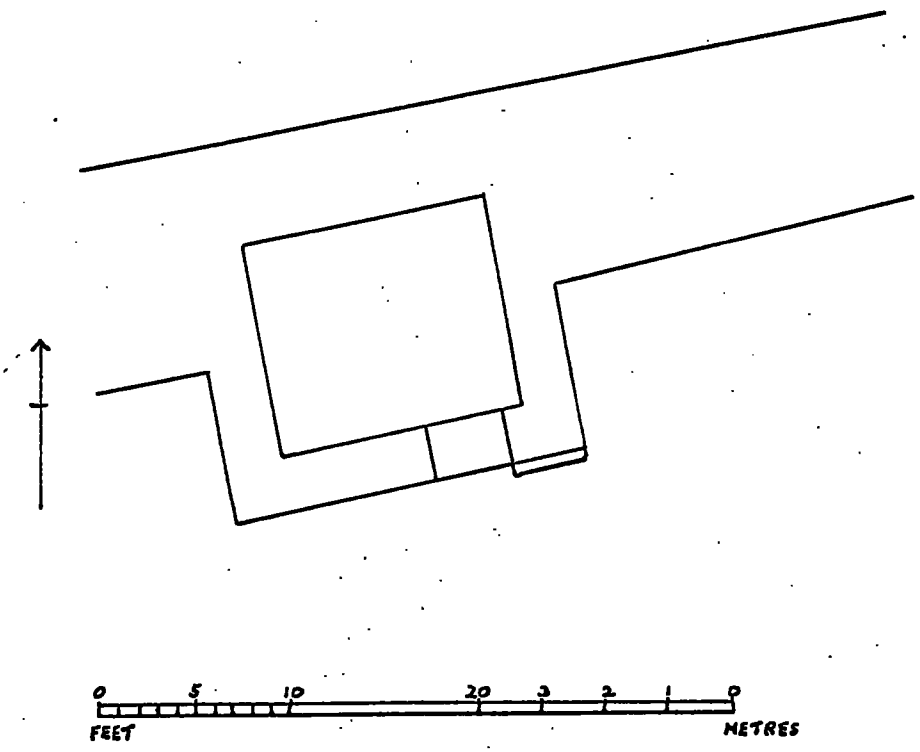
From the plan by C.E.Stevens.

TURRET 35A SEWINGSHIELDS CRAGS
(AA4 xliii p. I58)



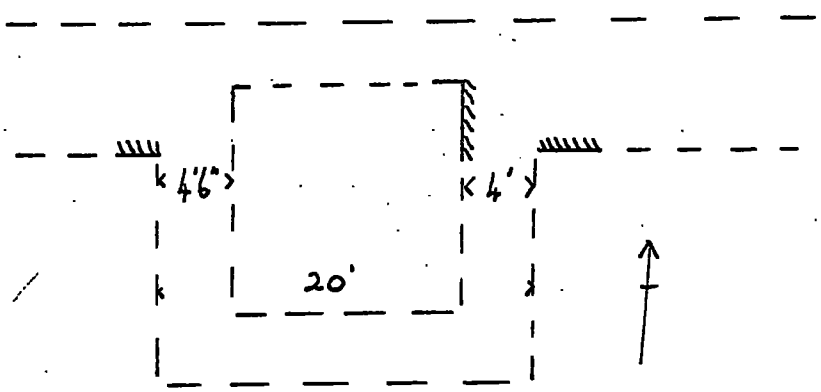
From the plan by Janet Birch.

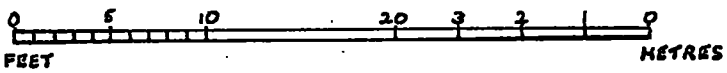
TURRET 36A KENNEL CRAG
(Unpublished plan by C.E.Stevens)



From the plan by C.E.Stevens.

TURRET 36B HOUSESTEADS
(sketch from Thomas Hepple's notebook)

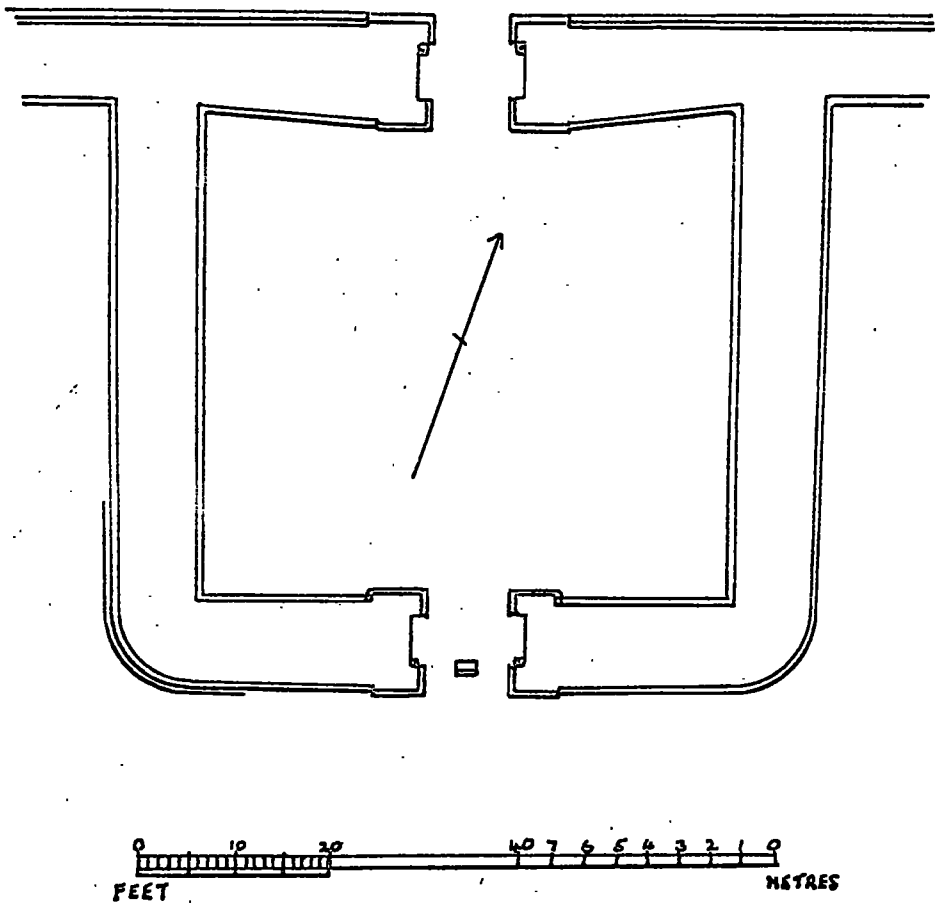




SKETCH NOT DRAWN TO SCALE.

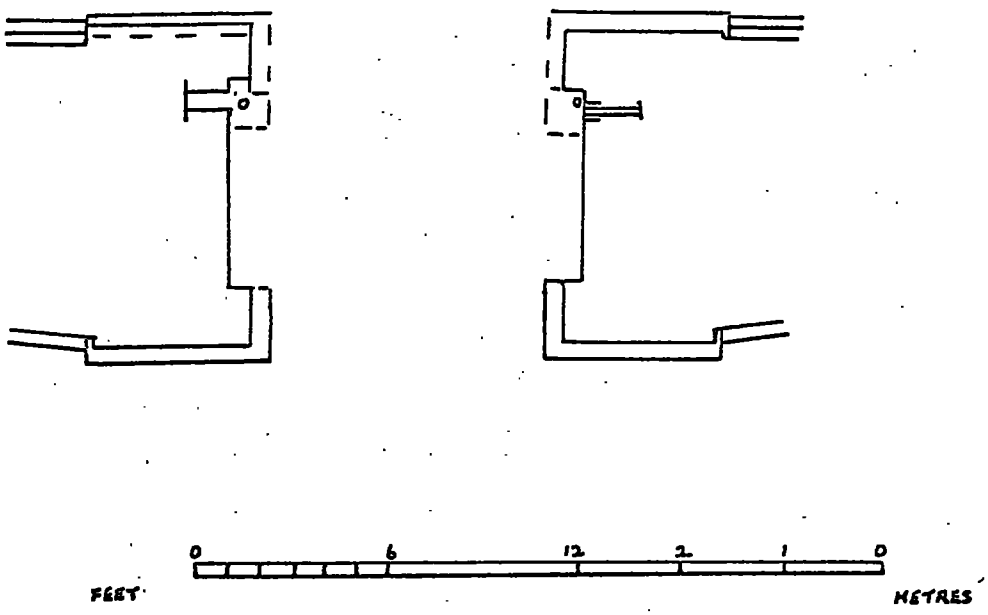
From the sketch by Thomas Hepple.

MC 37 HOUSESTEADS
(AA4 viii p.311)



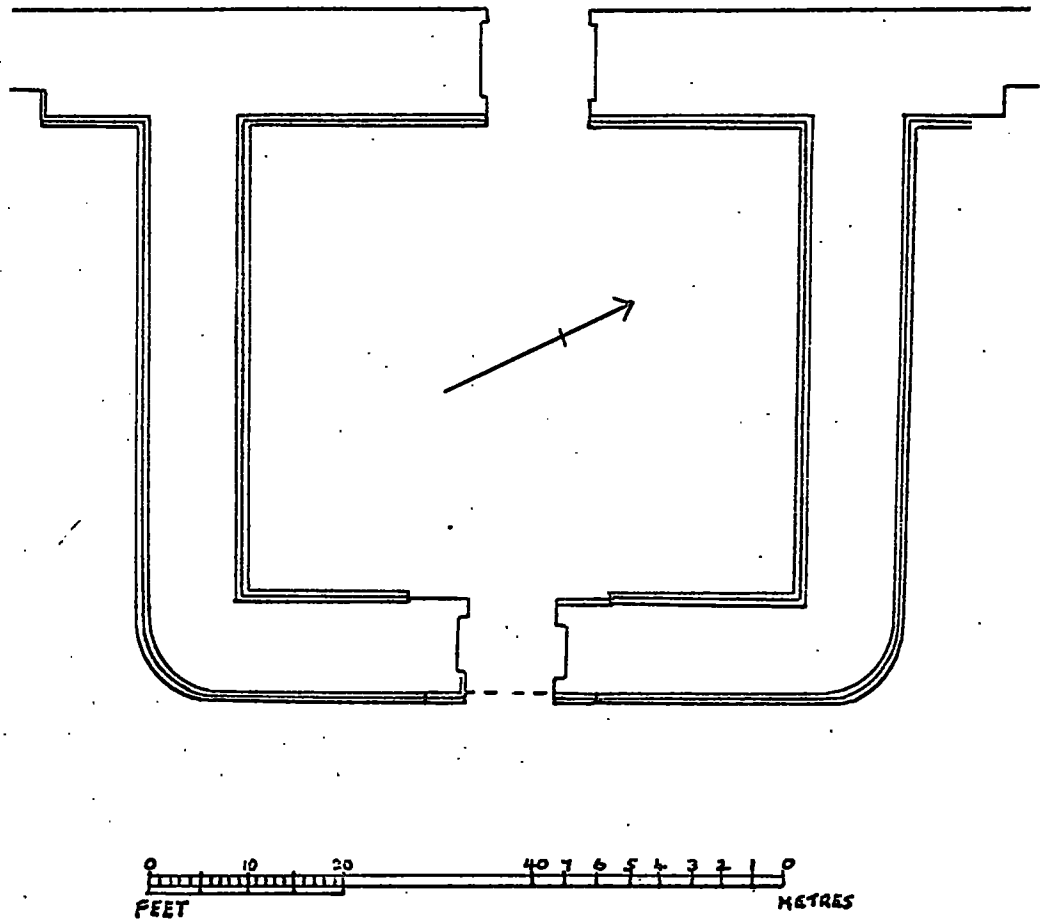
From the plan by F.G.Simpson.

MC 37 HOUSESTEADS-NORTH GATE
(Unpublished plan by F.G.Simpson)



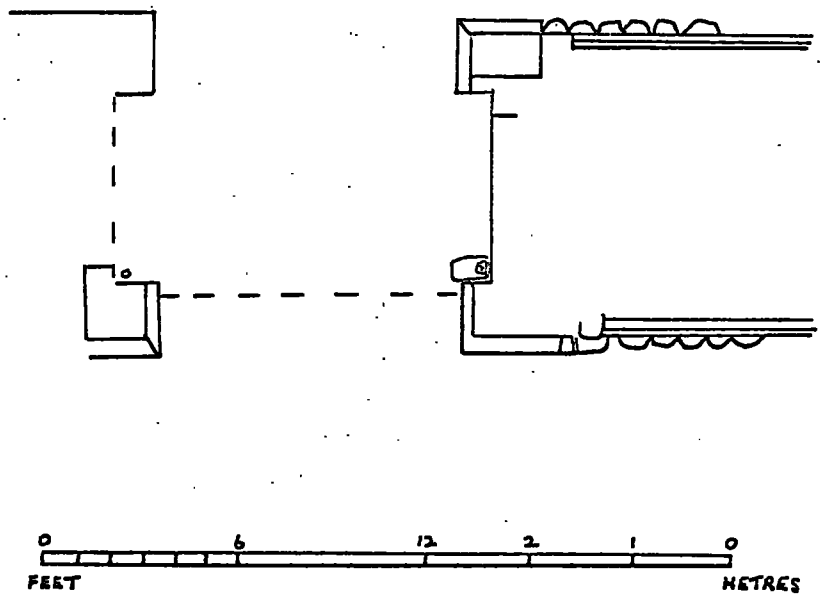
From the plan by F.G.Simpson.

MC 38 HOTBANK
(AA4 xiii p.264)



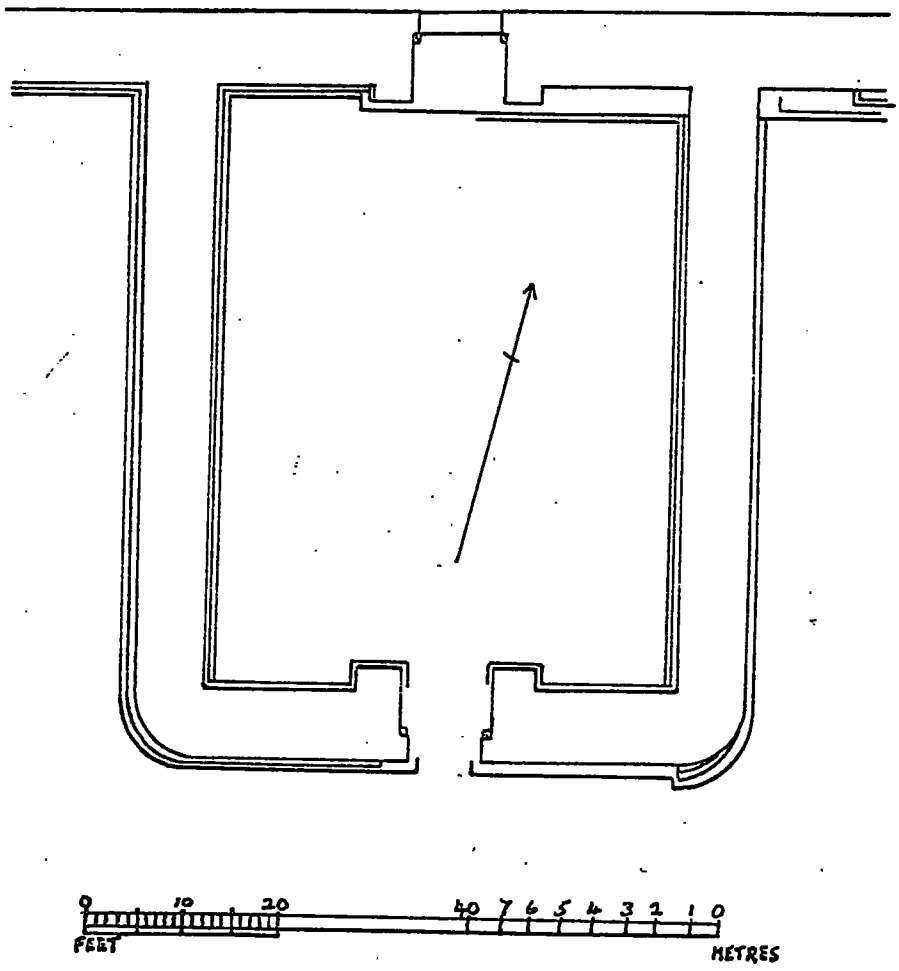
From the plan by K.A.Steer, E.B.Birley, and I.A.Richmond.

MC 38 HOTBANK - SOUTH GATE
(AA4 xiii p. 264)



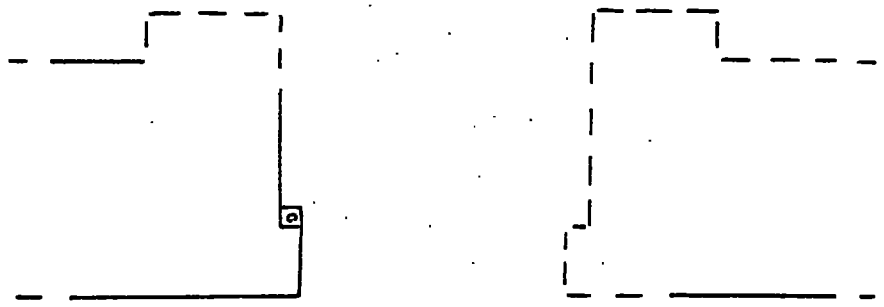
From the plan by K.A.Steer, E.B.Birley, and I.A.Richmond.

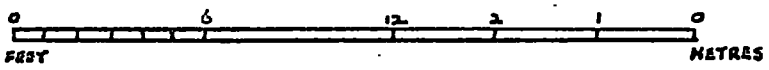
MC 39 CASTLE NICK
(AA4 xiii fig.5)



From the plan by F.G.Simpson.

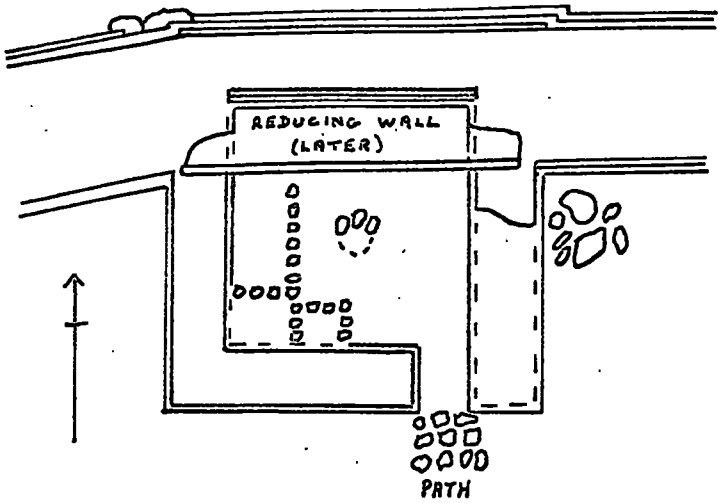
MC 39 CASTLE NICK-SOUTH GATE
(unpublished plan byF.G.Simpson)





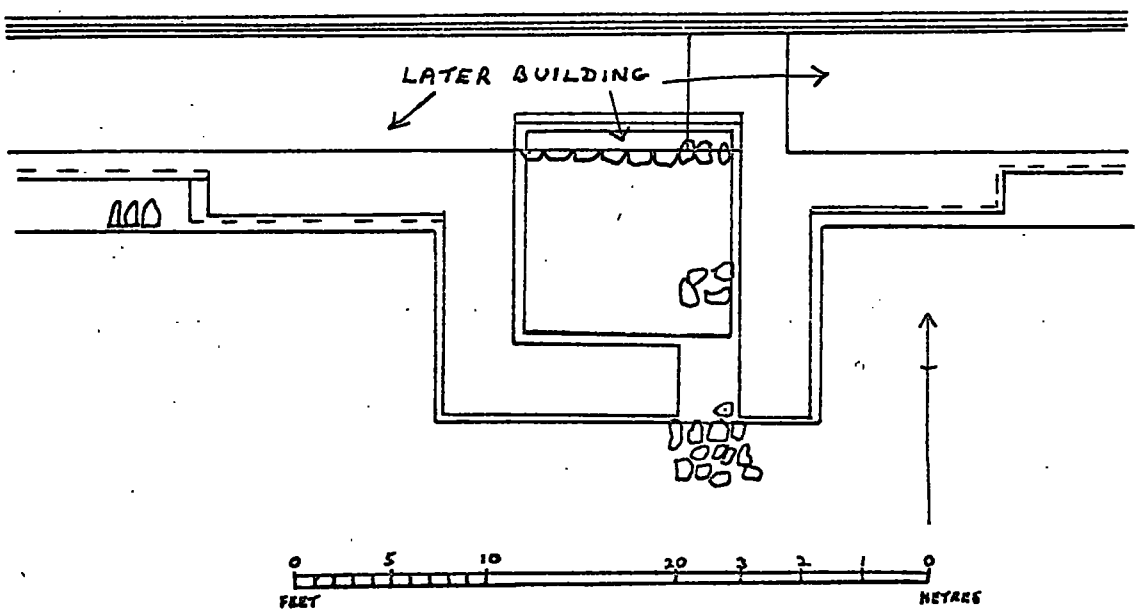
From the plan by F.G.Simpson.

TURRET 39A PEELCRAG
(Unpublished plan by F.G.Simpson)

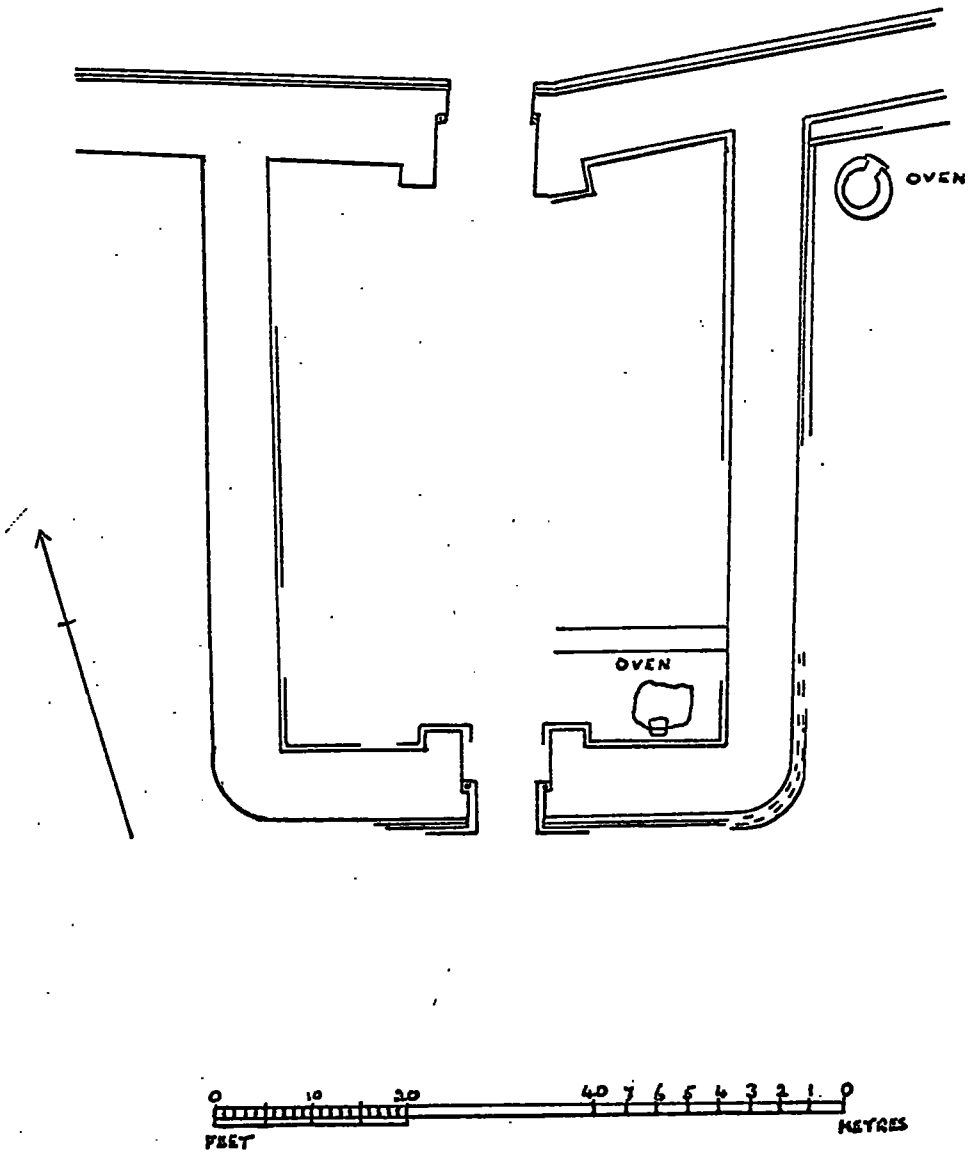


From the plans by F.G.Simpson.

TURRET 39B STEELRIG
(Unpublished plan by F.G.Simpson.)

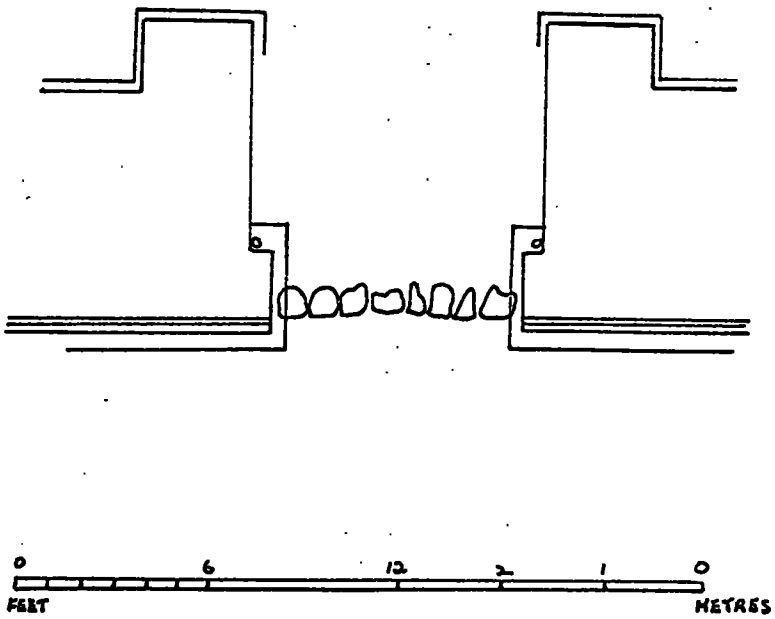


MC 40 WINSHIELDS
(unpublished plan by F.G.Simpson)



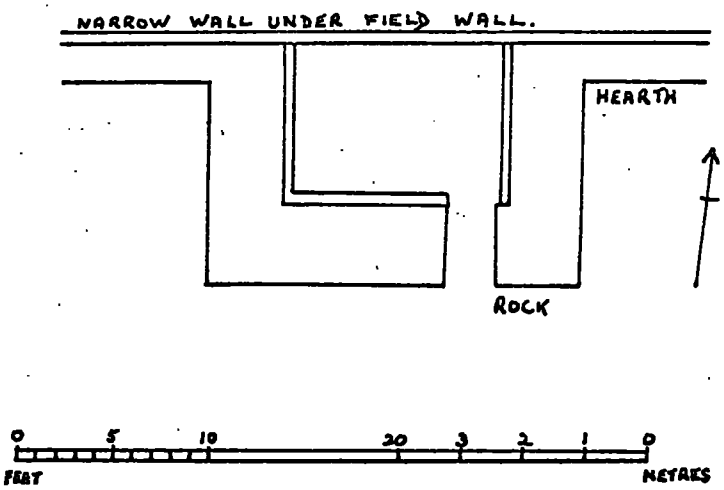
From the plan by F.G.Simpson.

MC 40 WINSHIELDS - SOUTH GATE
(unpublished plan by F.G.Simpson).

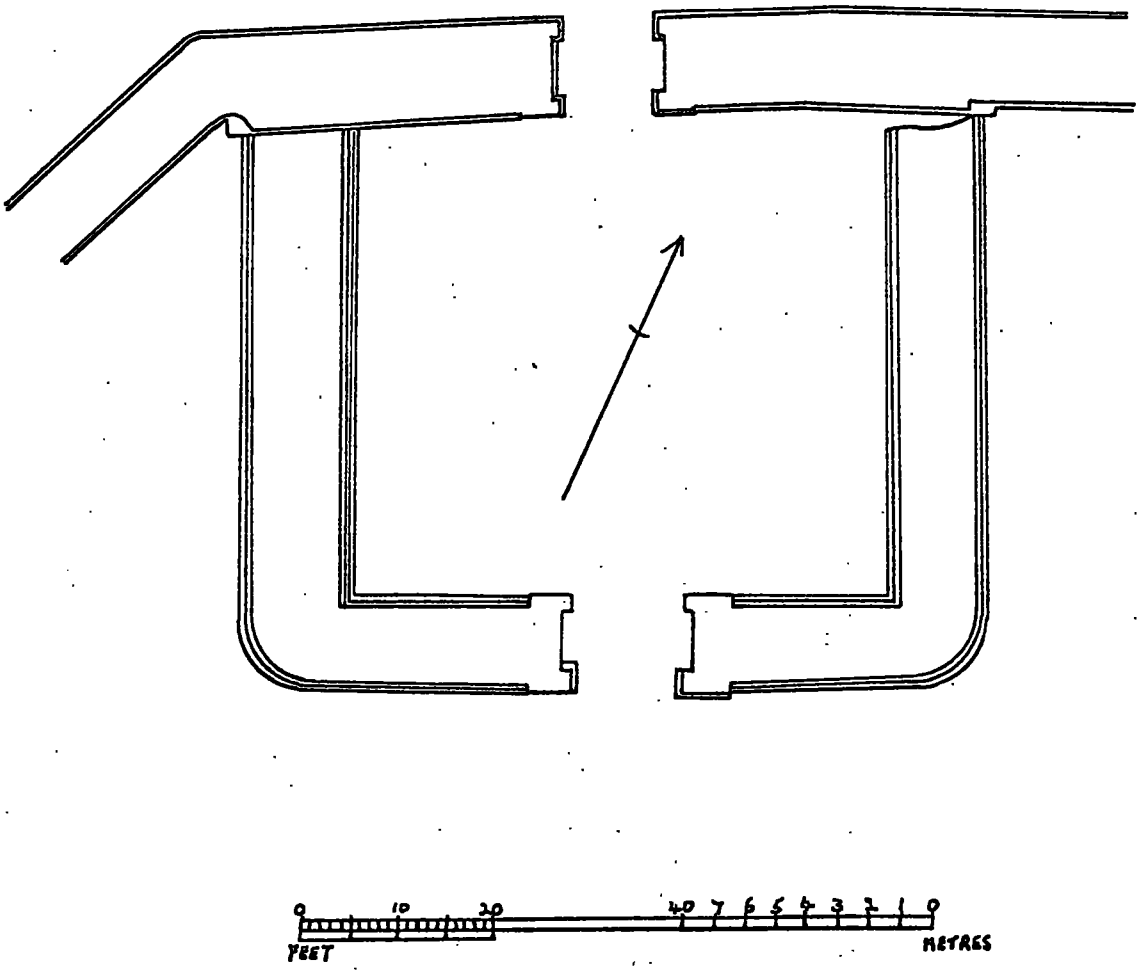


From the plan by F.G.Simpson.

TURRET 41A CAW GAP
(Plan, to be published in AA4 xlvii,
by Miss D.Charlesworth)

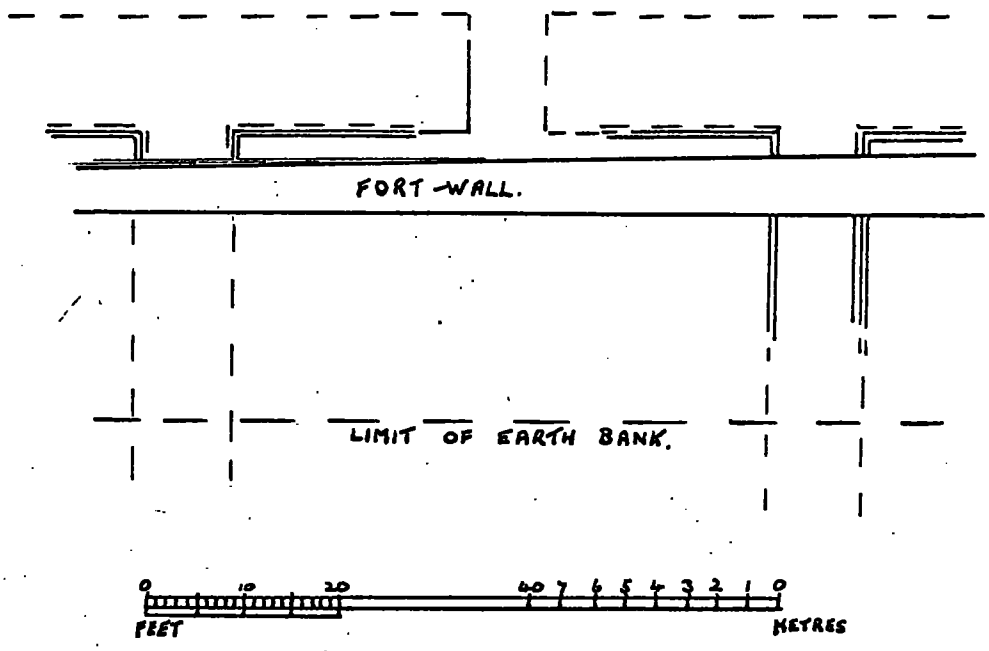


MC 42 CAWFIELDS
(AA4 xiii fig.6 p. 269)



From the plan by I.A.Richmond.and F.G.Simpson.

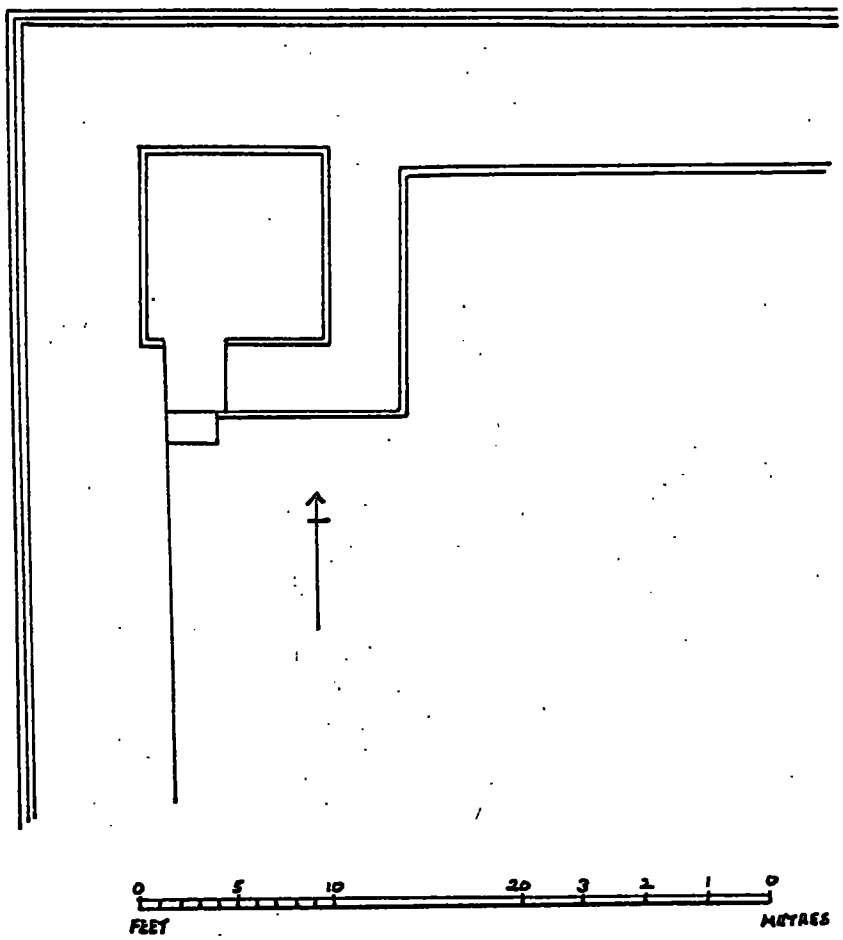
MC 43 GREATCHESTERS
(JRS xxx fig.I2 p.I6I)



From the plan by F.G.Simpson and I.A.Richmond.

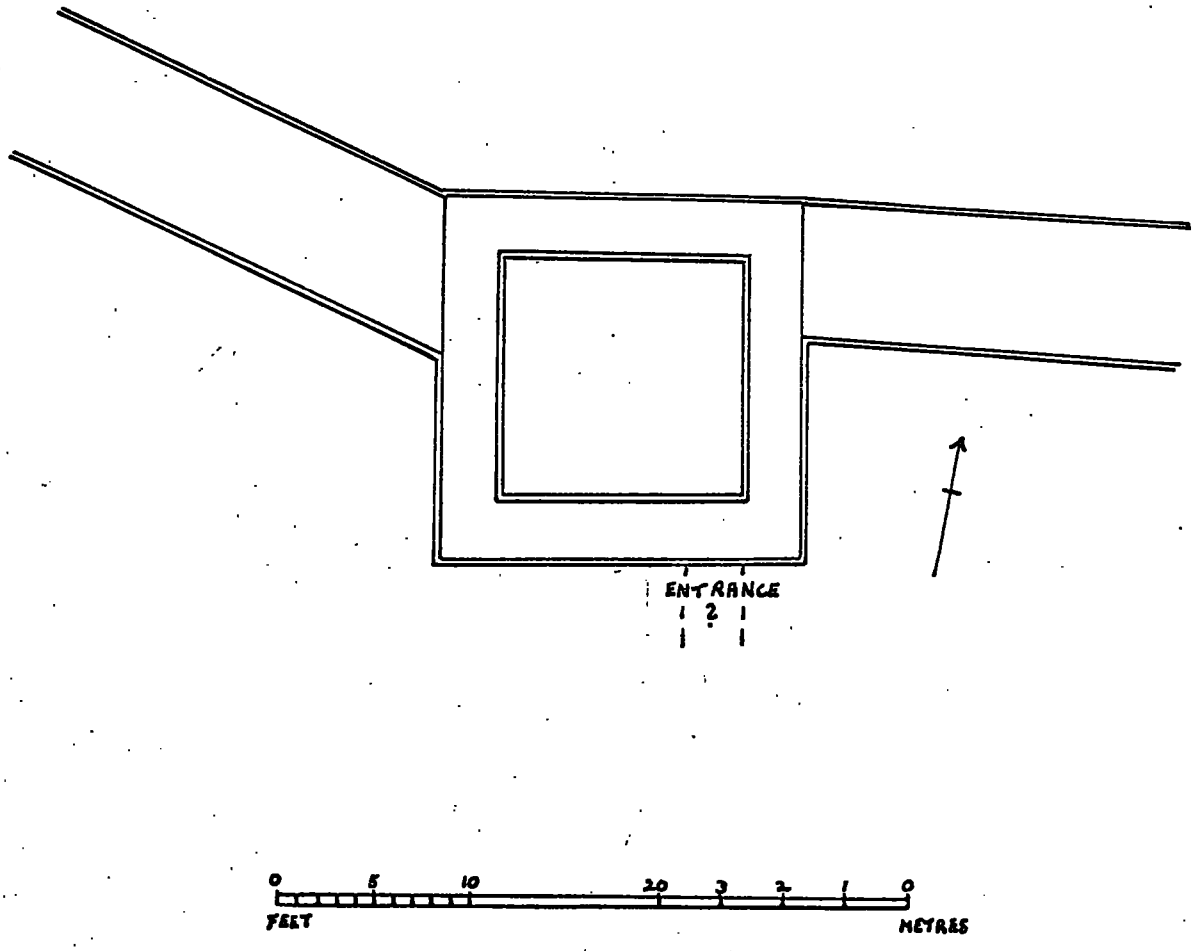
TURRET 44B MUCKLEBANK
(AA3 ix PL. ii opp. p. 56)

From the plan by Philip Newbold.

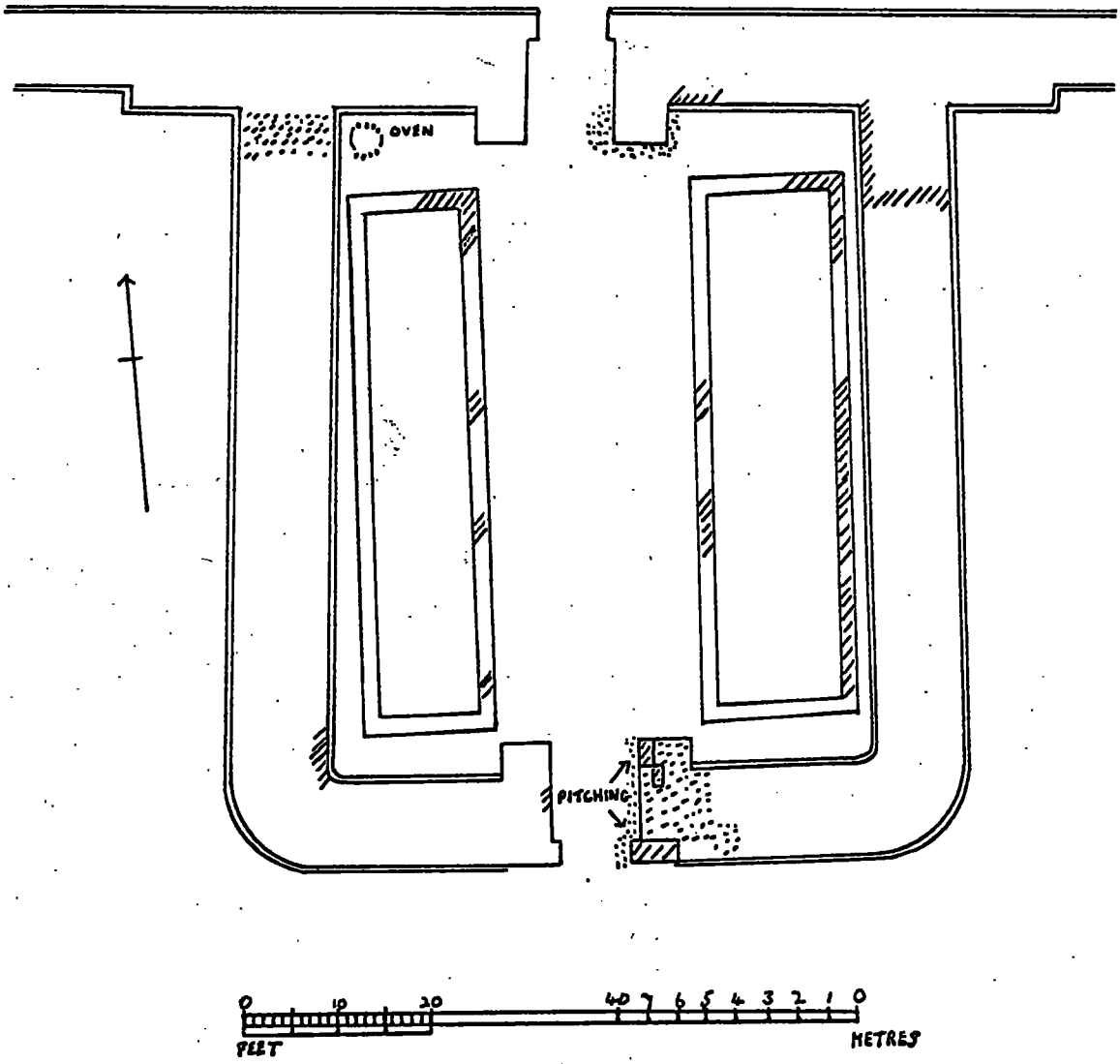


TURRET 45A WALLTOWN CRAGS
(AA3 ix fig. 5 p. 68)

From the plan by Philip Newbold.

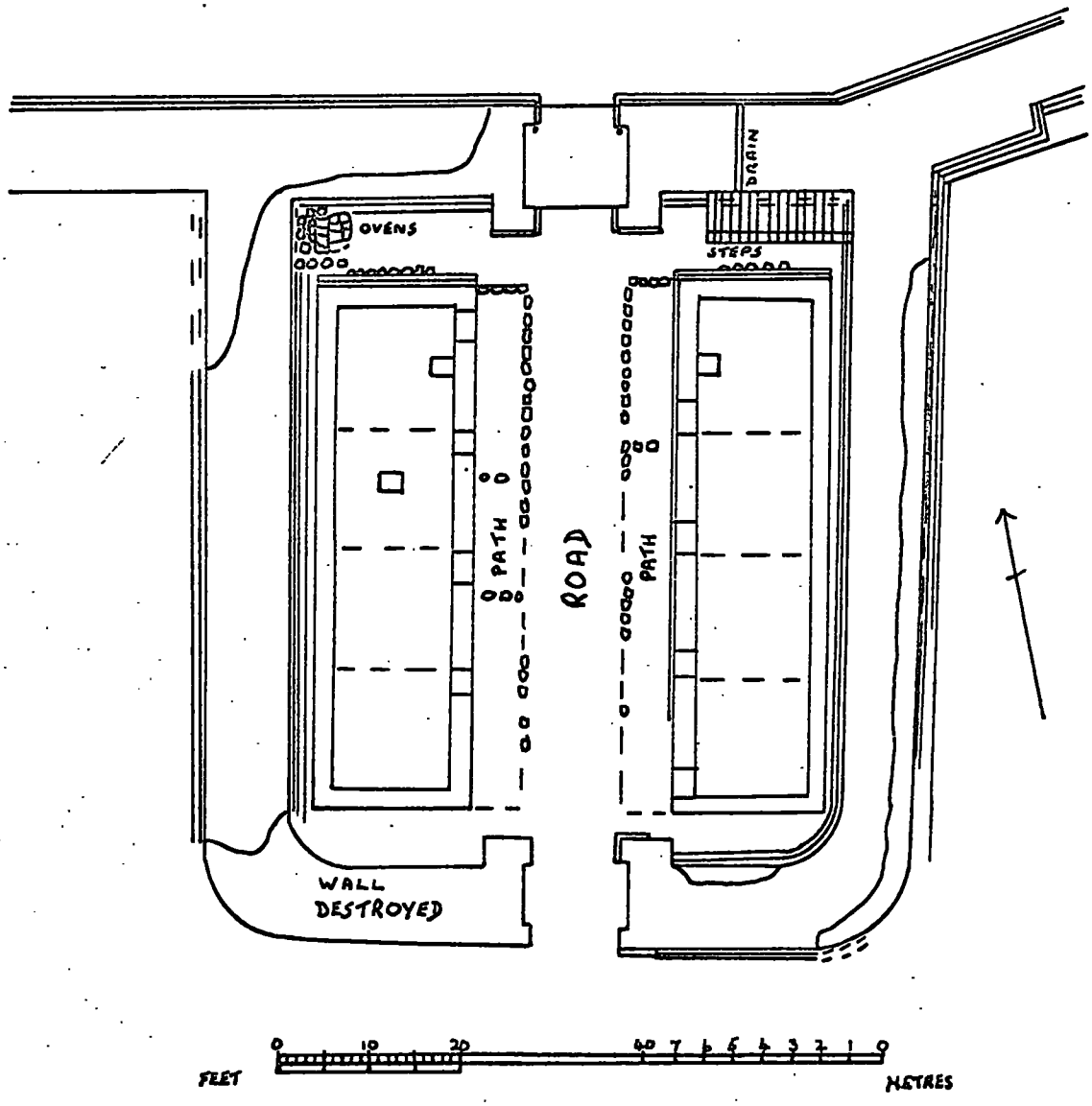


MC 47 CHAPEIHOUSE
(AA4 xiii p.271)



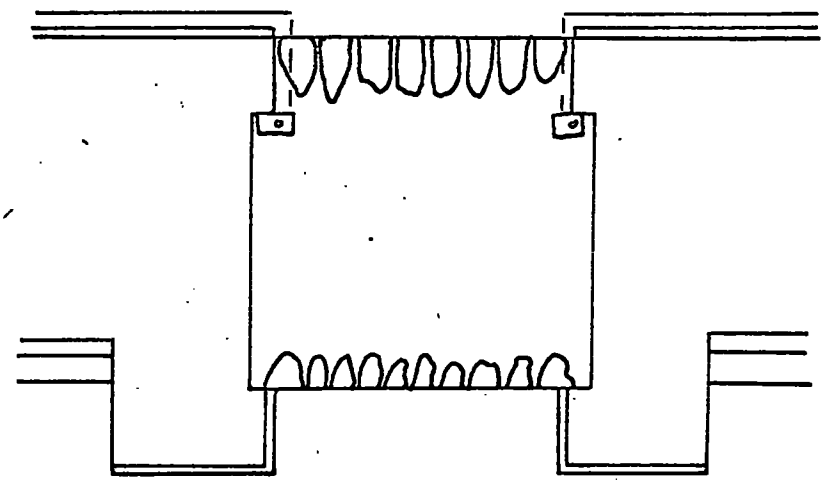
From the plan by I.A.Richmond and F.G.Simpson.

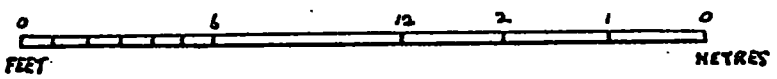
MC 48 POLTROSS BURN
(CW2 xi PL.I opp. p. 424)



From the plan by F.G.Simpson.

MC 48 POLTROSS BURN - NORTH GATE
(CW2 xi PL. ii opp. p 428)

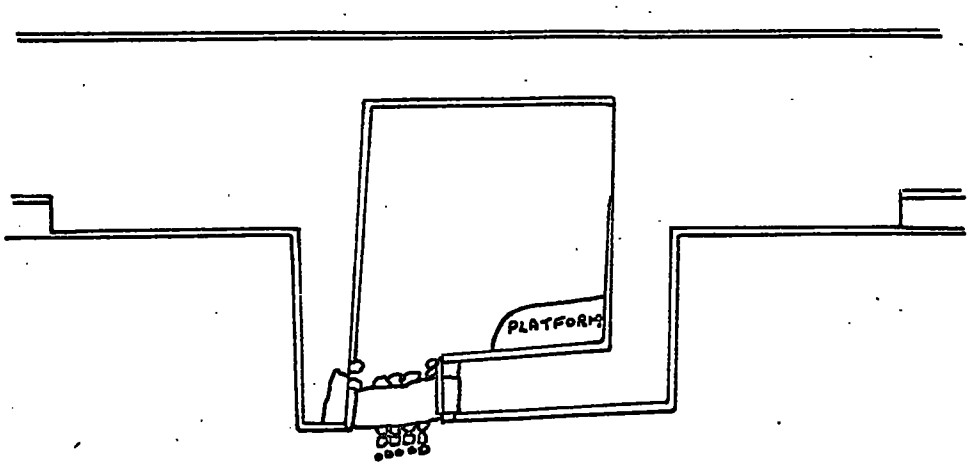




From the plan by F.G.Simpson.

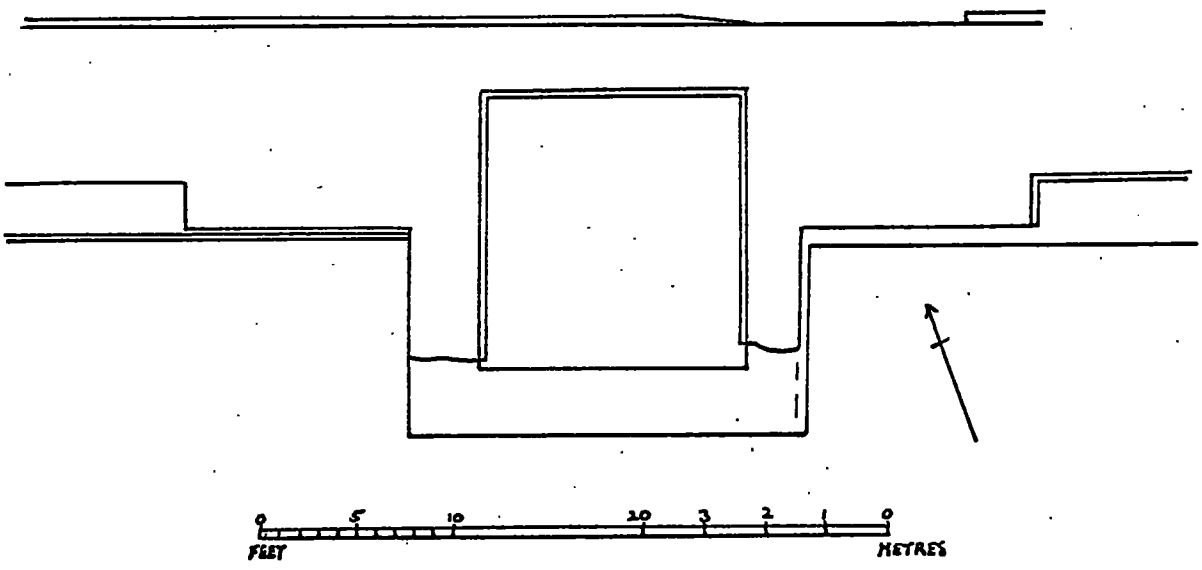
TURRET 48A WILLOWFORD EAST
(CW2 xxvi fig.ii p. 432)

From the plan by R.C.Shaw.



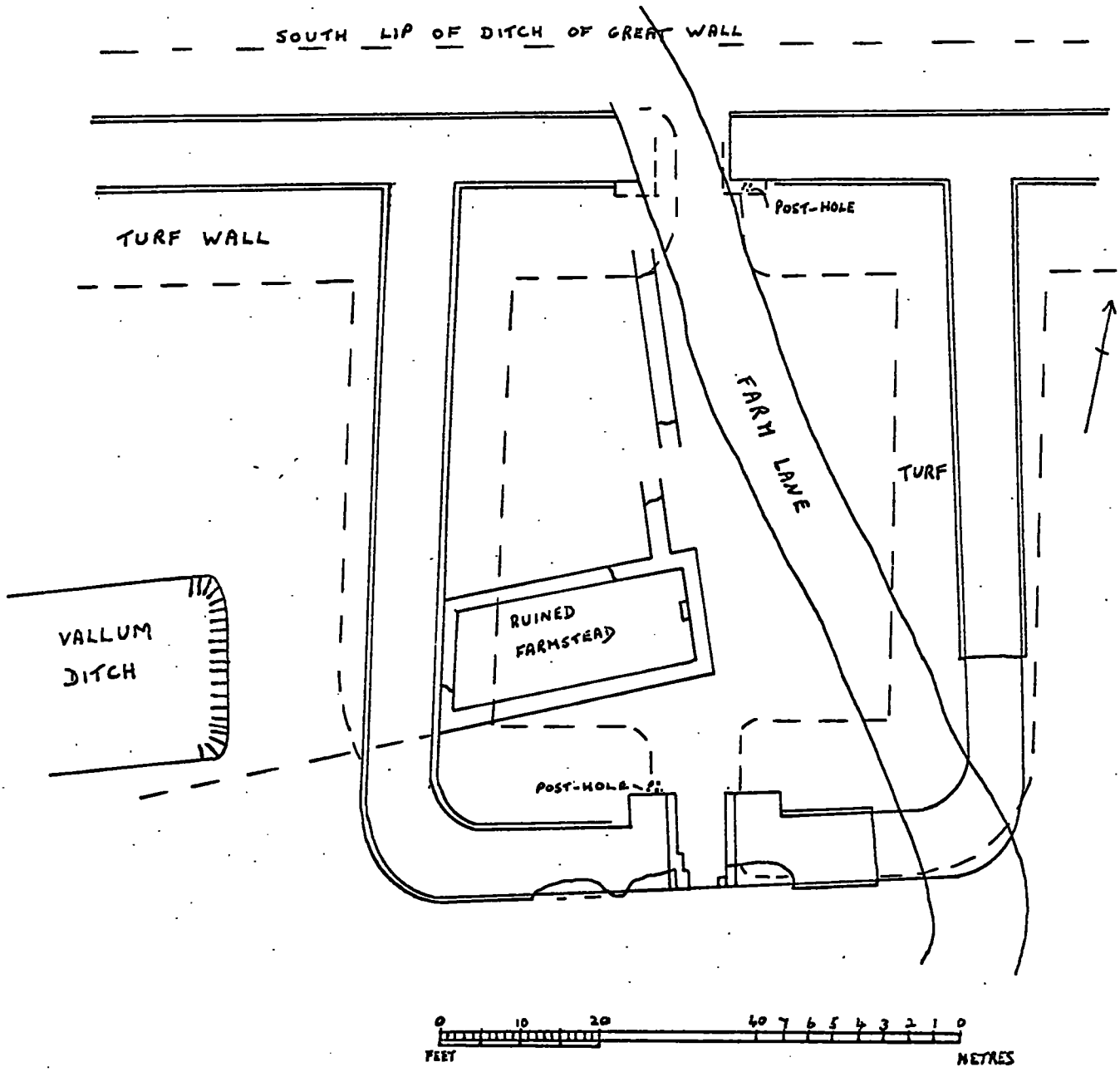
TURRET 48B WILLOWFORD WEST
(CW2 xxvii p. 236)

From the plan by F.G.Simpson.



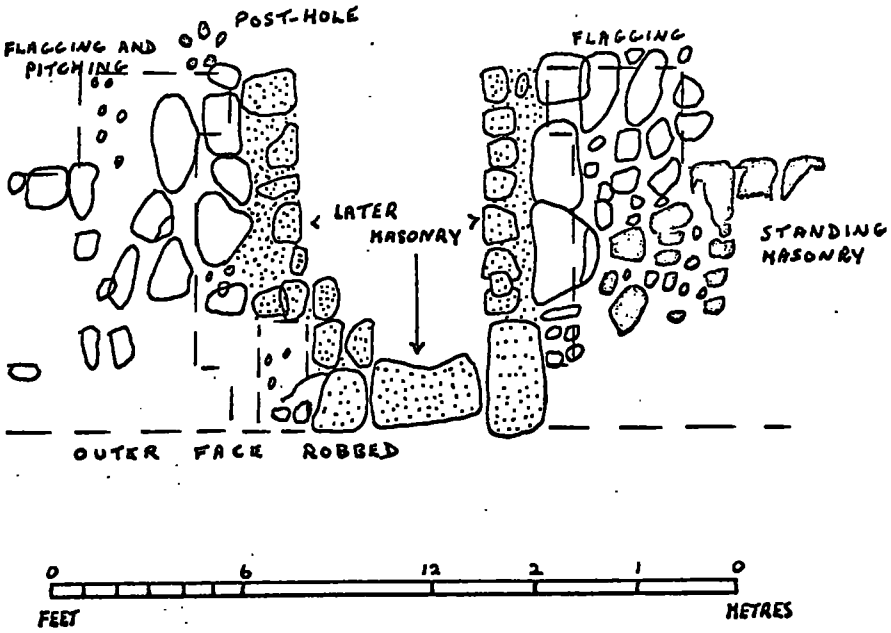
MC 49 HARROW'S SCAR
(CW2 lvi p. 20)

From the plan by I.A.Richmond.

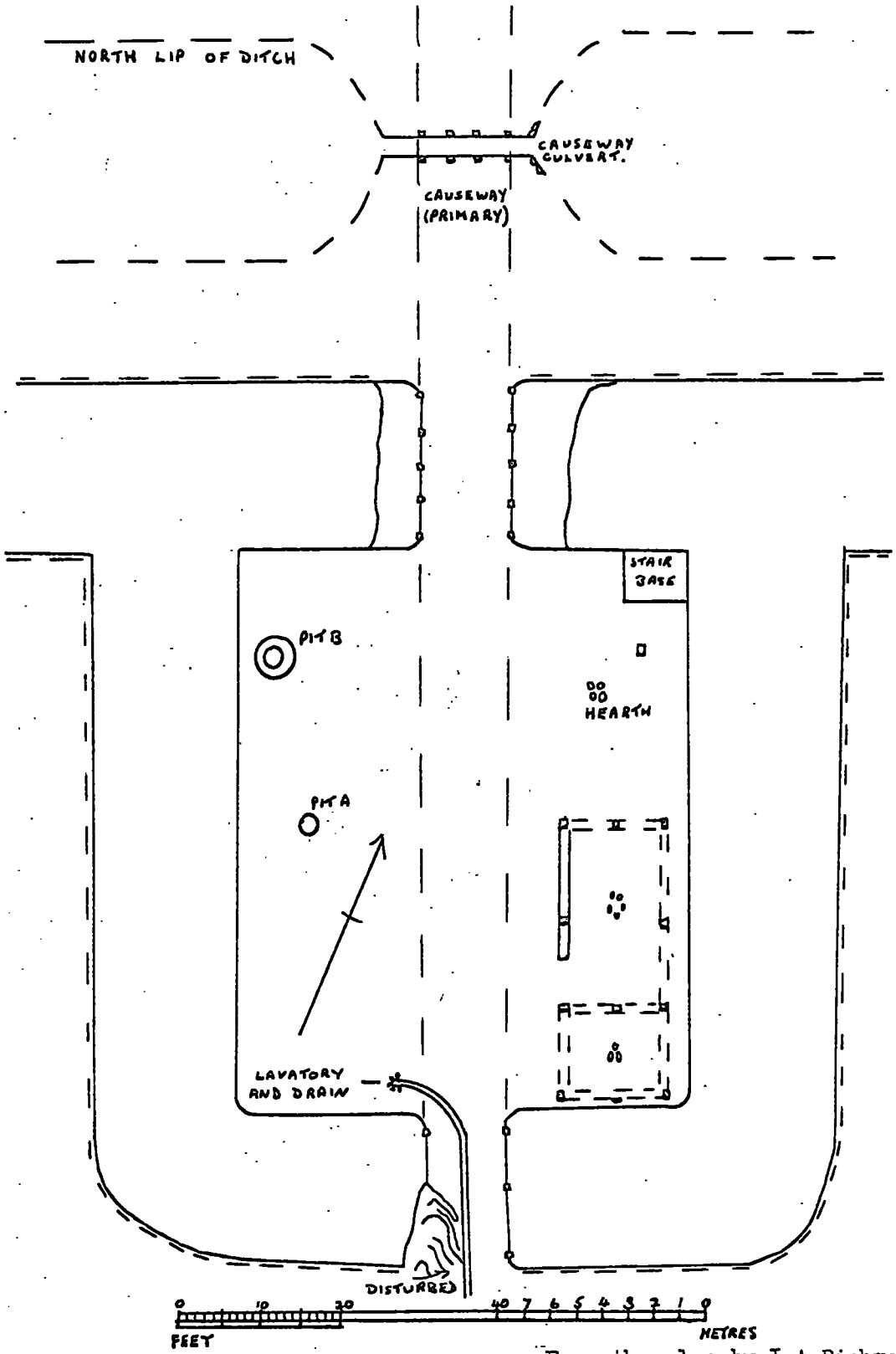


MC 49 HARROW'S SCAR - SOUTH GATE
(CW2 lvi p.22)

From the plan by I.A.Richmond.

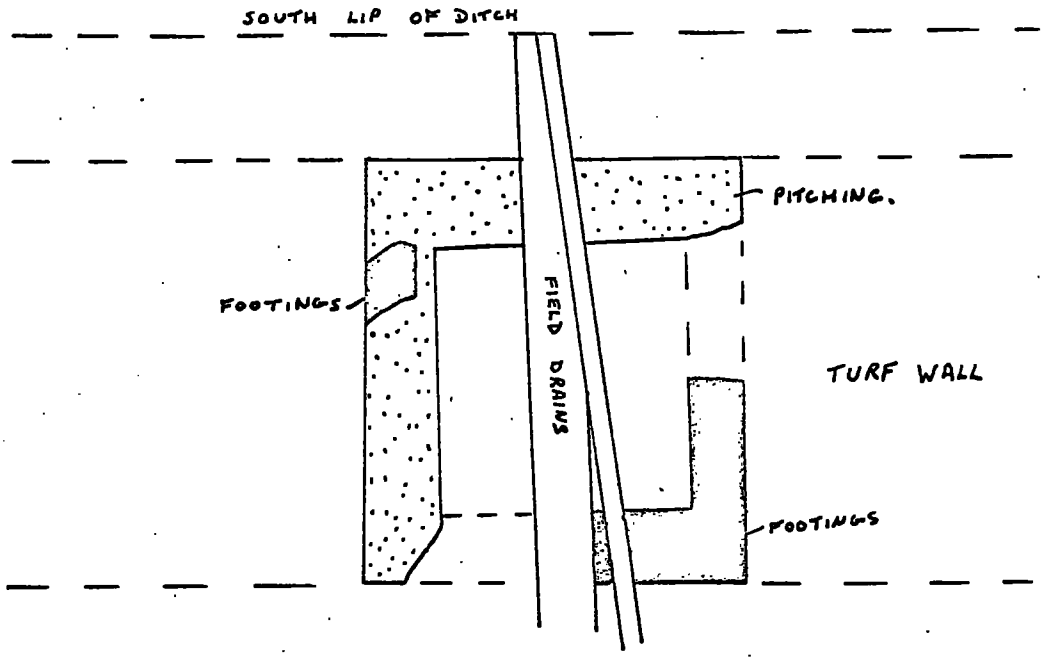


MC 50 TW HIGH HOUSE
(CW2 xxxv fig. ii p. 22I)

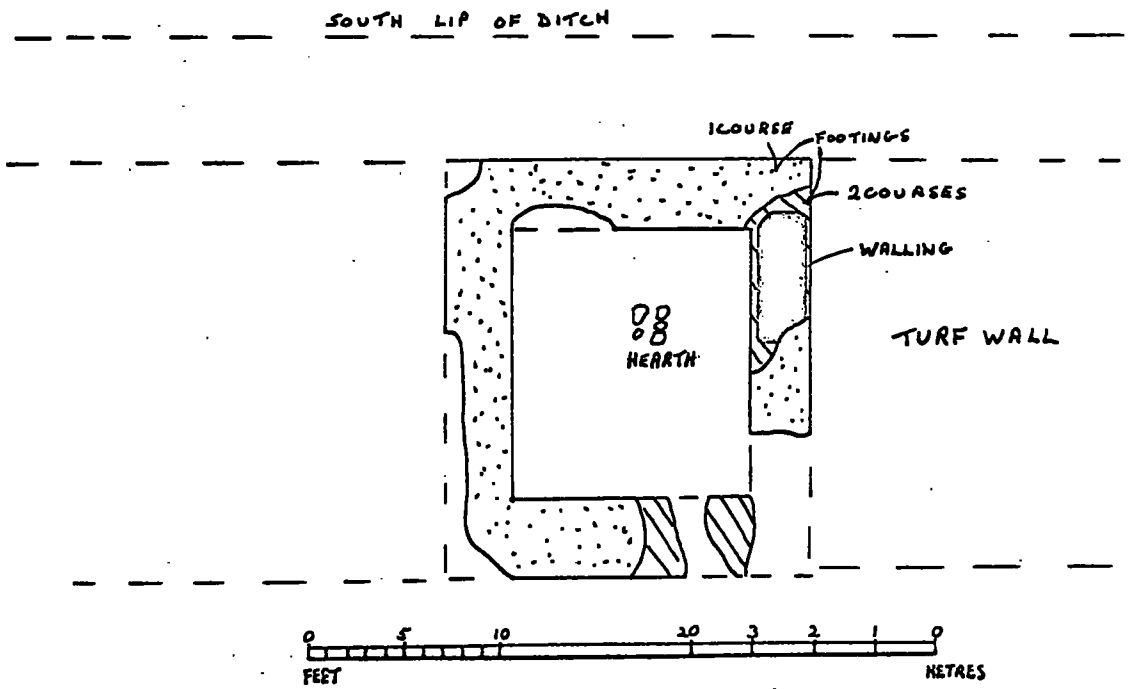


From the plan by I.A.Richmond.

TURRET 50A TW HIGH HOUSE
(CW2 xxxv fig. I3 p. 235)



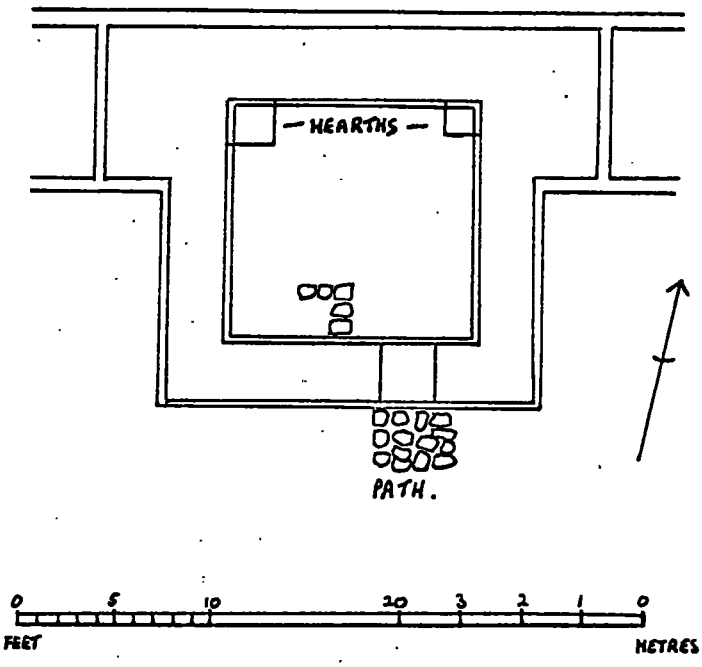
TURRET 50B TW APPLETREE
(CW2 xxxv fig. I3 p. 235)



From the plans by F.G.Simpson and
I.A.Richmond

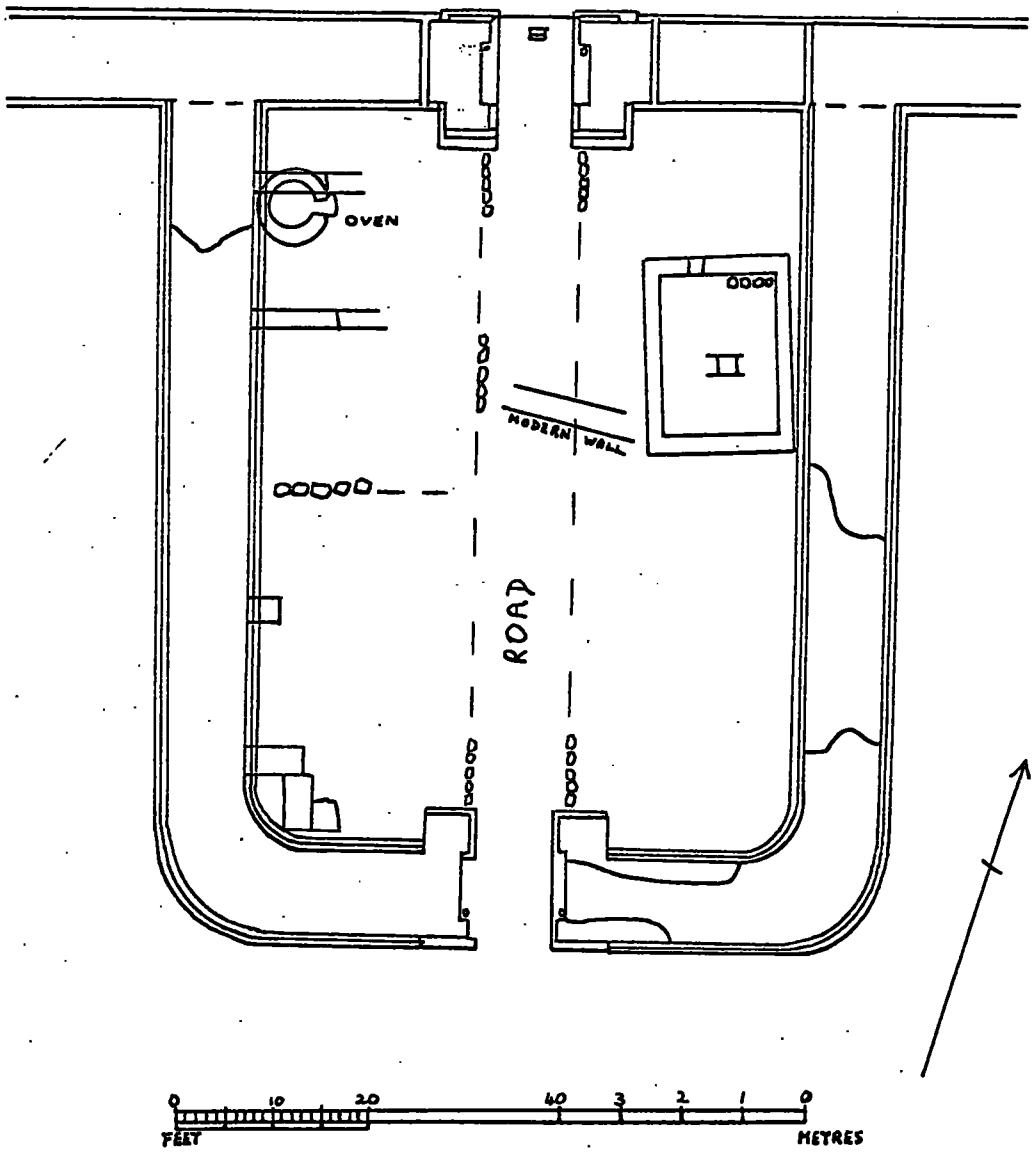
TURRET 49B SW BIRDOSWALD
(CW2 xiii PL.vii opp. p. 310)

From the plan by F.G.Simpson.



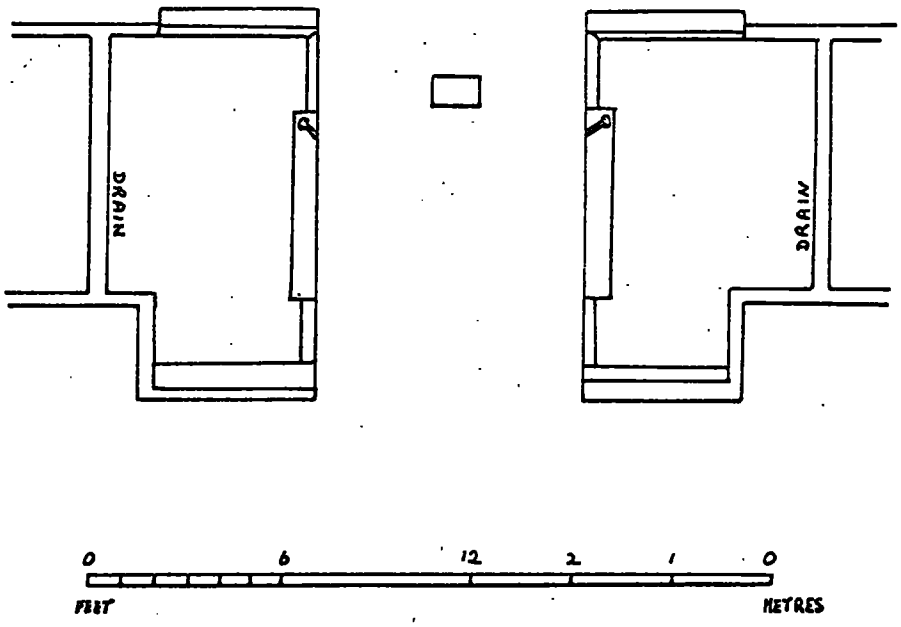
MC 50 SW HIGH HOUSE
(CW2 xiii PL. xv opp. p. 338)

From the plan by F.G.Simpson.

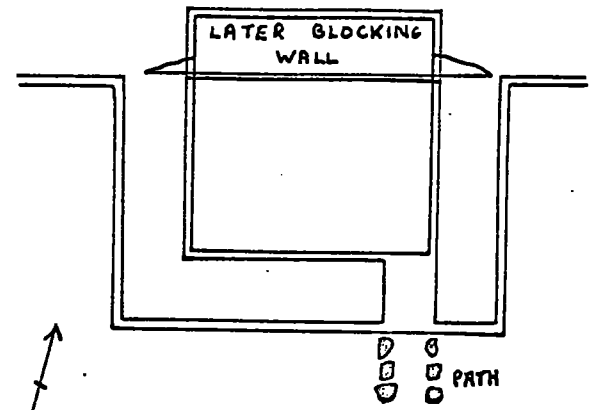


MC 50 SW HIGH HOUSE - NORTH GATE
(CW2 xiii PL. xiii opp. p.330)

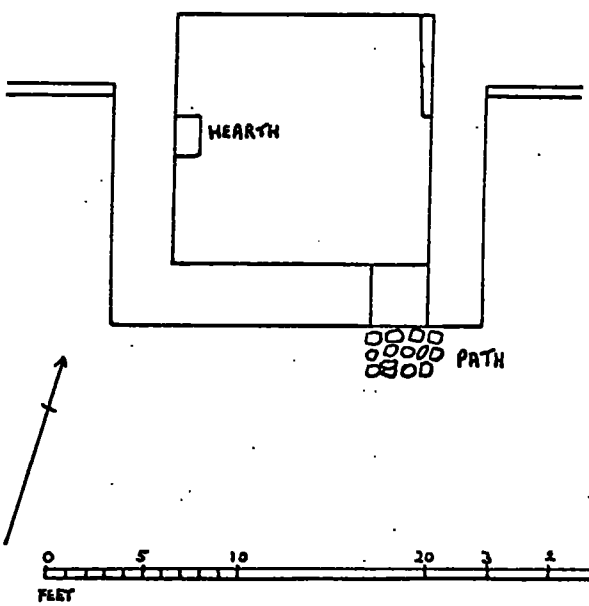
From the plan by F.G.Simpson.



TURRET 50A SW HIGH HOUSE
(CW2 xiii PL.vii opp. p. 310)



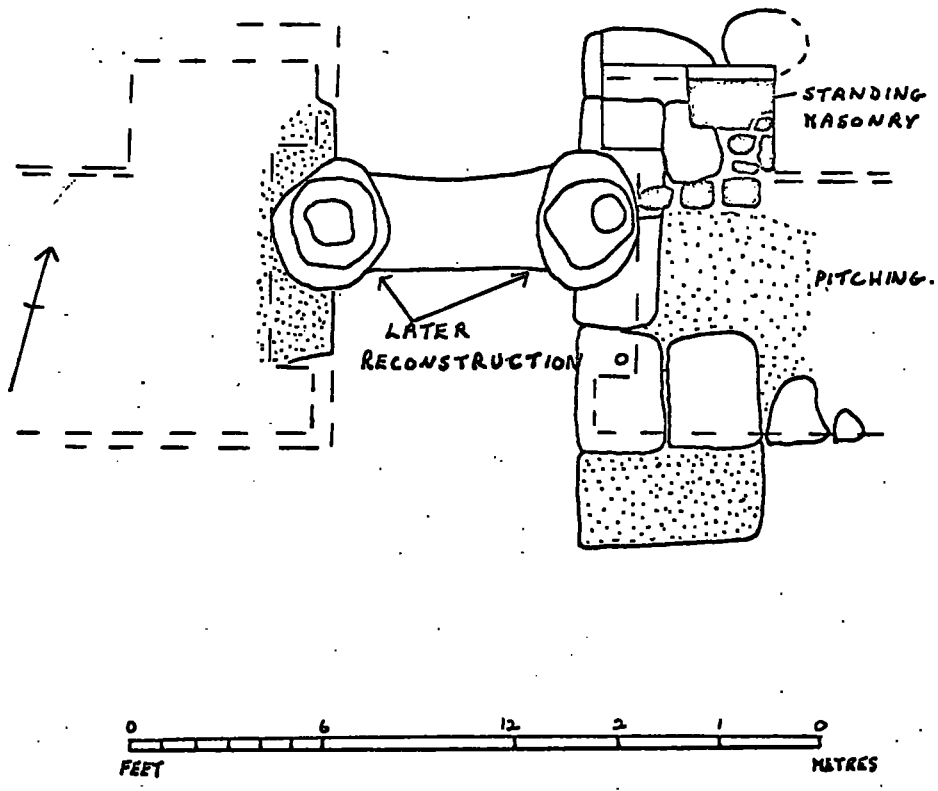
TURRET 50B SW APPLETREE
(CW2 xiii PL. vii opp. p. 310)



From the plans by F.G.Simpson.

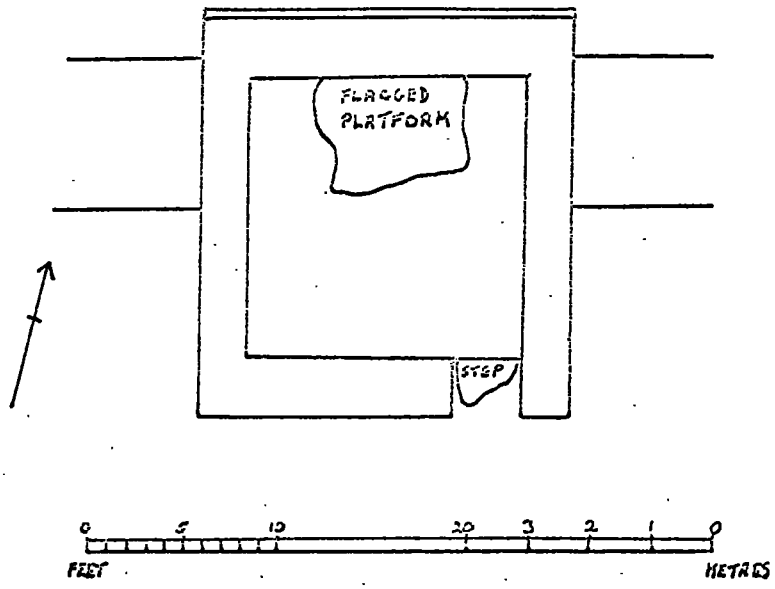
MC 51 WALLBOWERS - SOUTH GATE
(CW2 xxxv fig. 23 p. 251)

From the plan byI.A.Richmond.

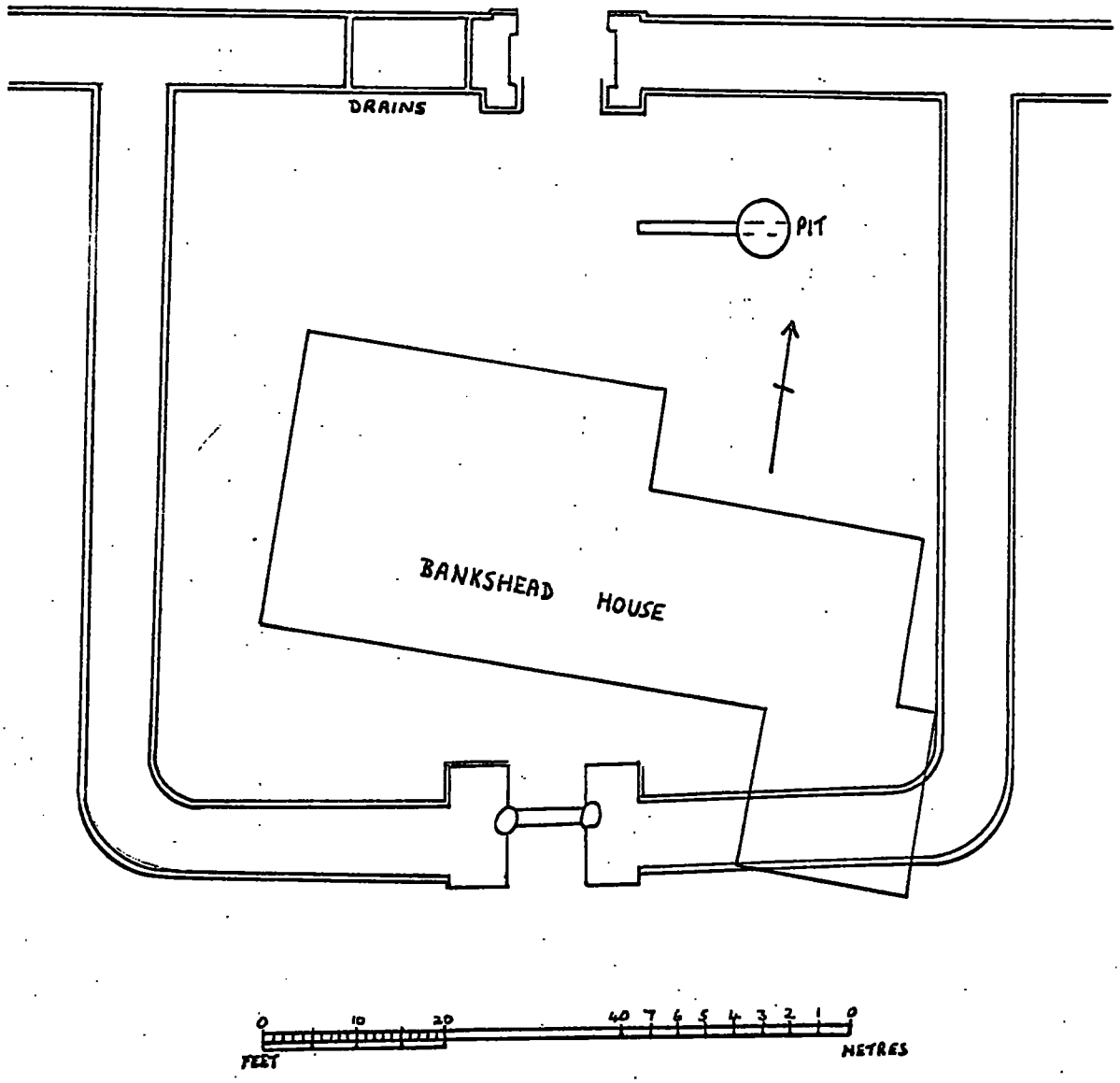


TURRET 51B LEA HILL
(AA4 xliii p. 186)

From the plan by Charmian Woodfield.

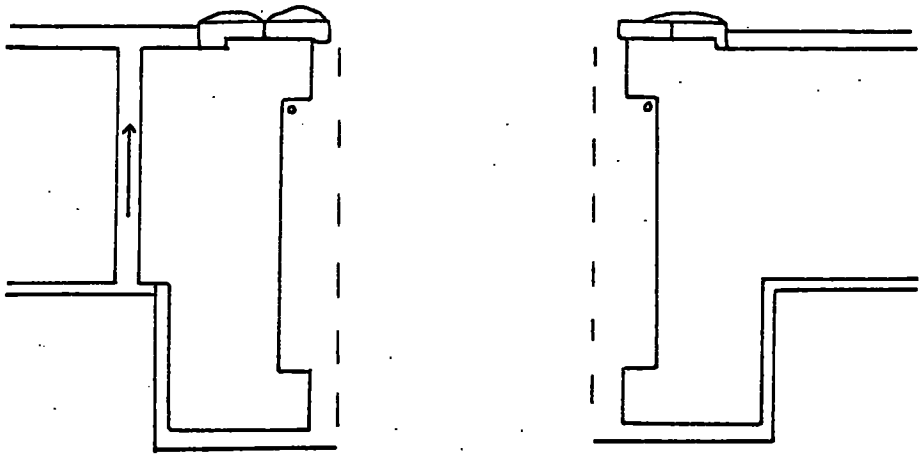


MC 52 BANKSHEAD
(CW2 xxxv fig. 2I p. 249)

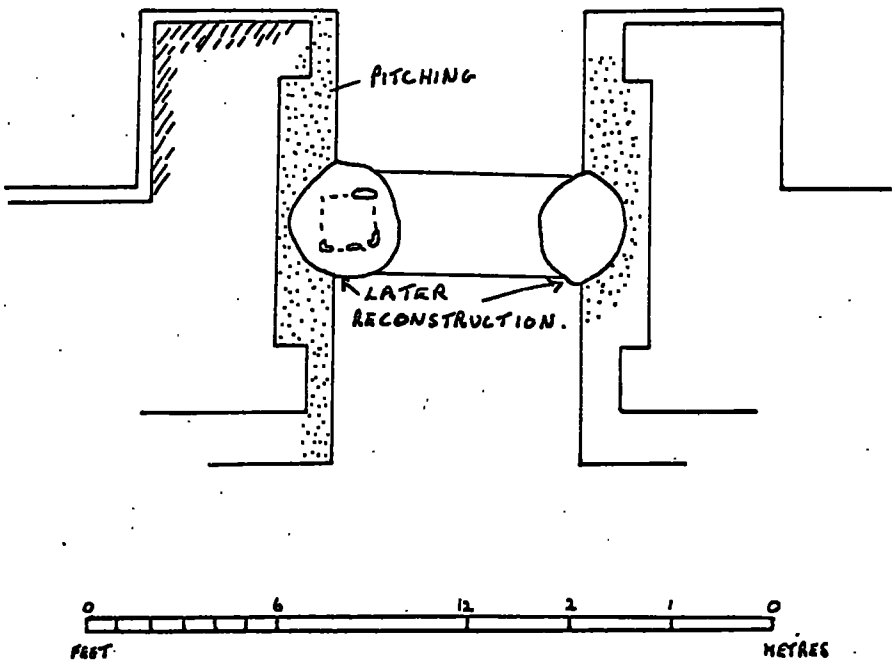


From the plan by F.G.Simpson and I.A.Richmond.

MC 52 BANKSHEAD - NORTH GATE
(CW2 xxxv fig. 23 p. 251)



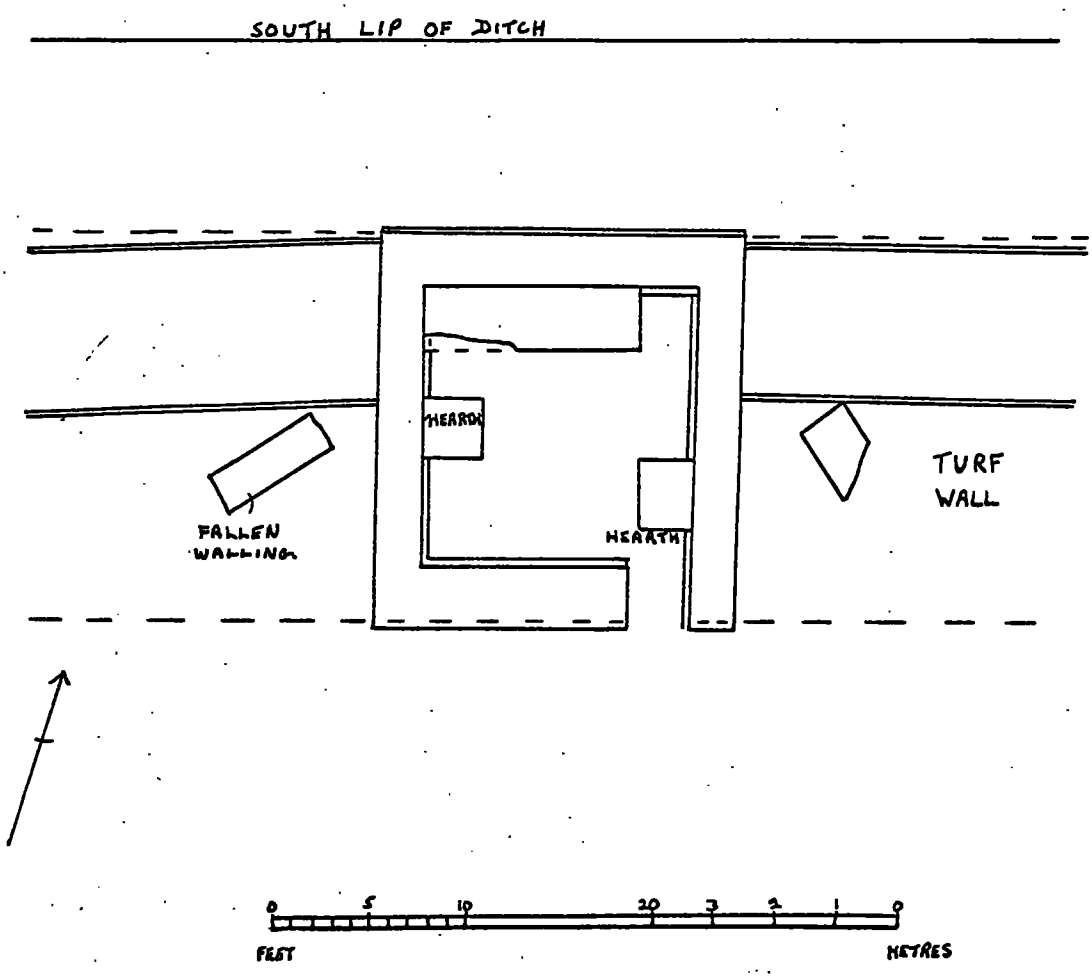
MC 52 BANKSHEAD - SOUTH GATE
(CW2 xxxv fig. 23 p. 251)



From the plans by I.A.Richmond.

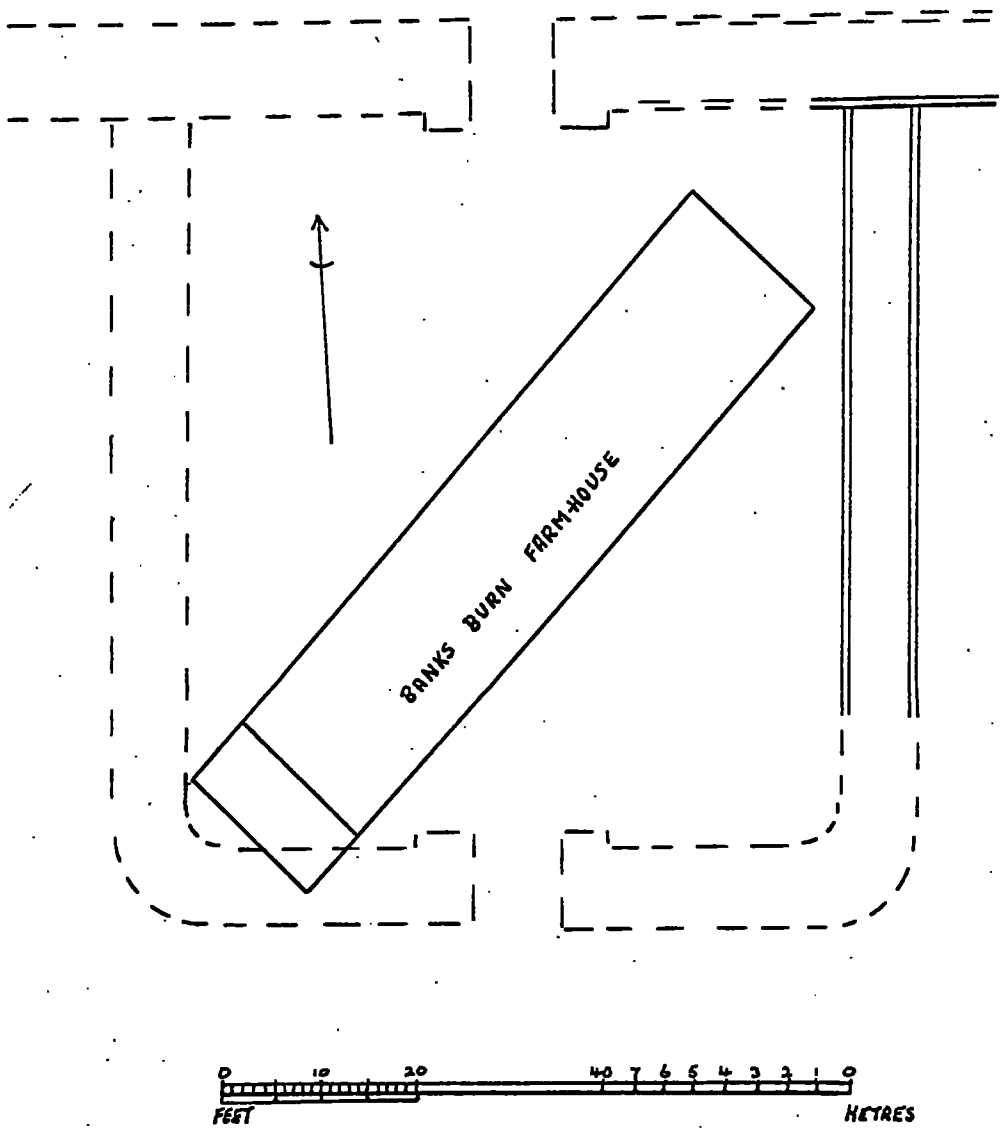
TURRET 52A BANKS EAST
(CW2 xxxiv fig. I2 p. I49)

From the plan by F.G.Simpson and
I.A.Richmond.



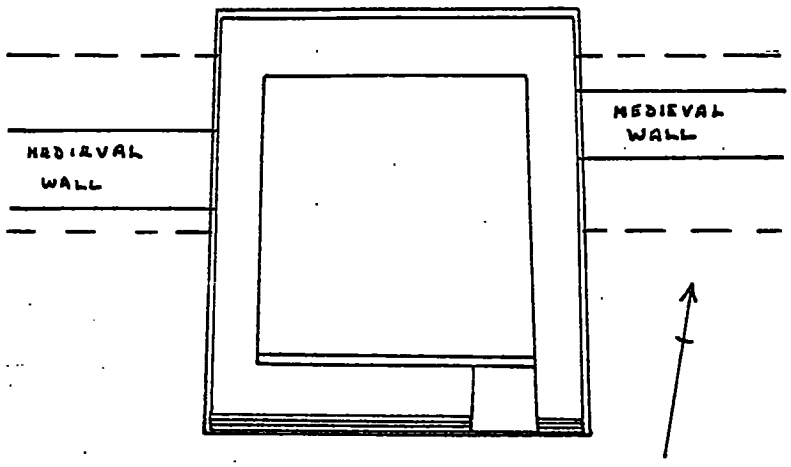
MC 53 BANKS BURN
(CW2 xxxiii fig. 20 p. 268)

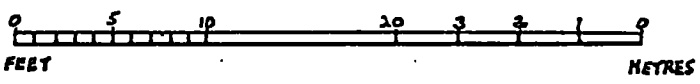
From the plan by F.G.Simpson.

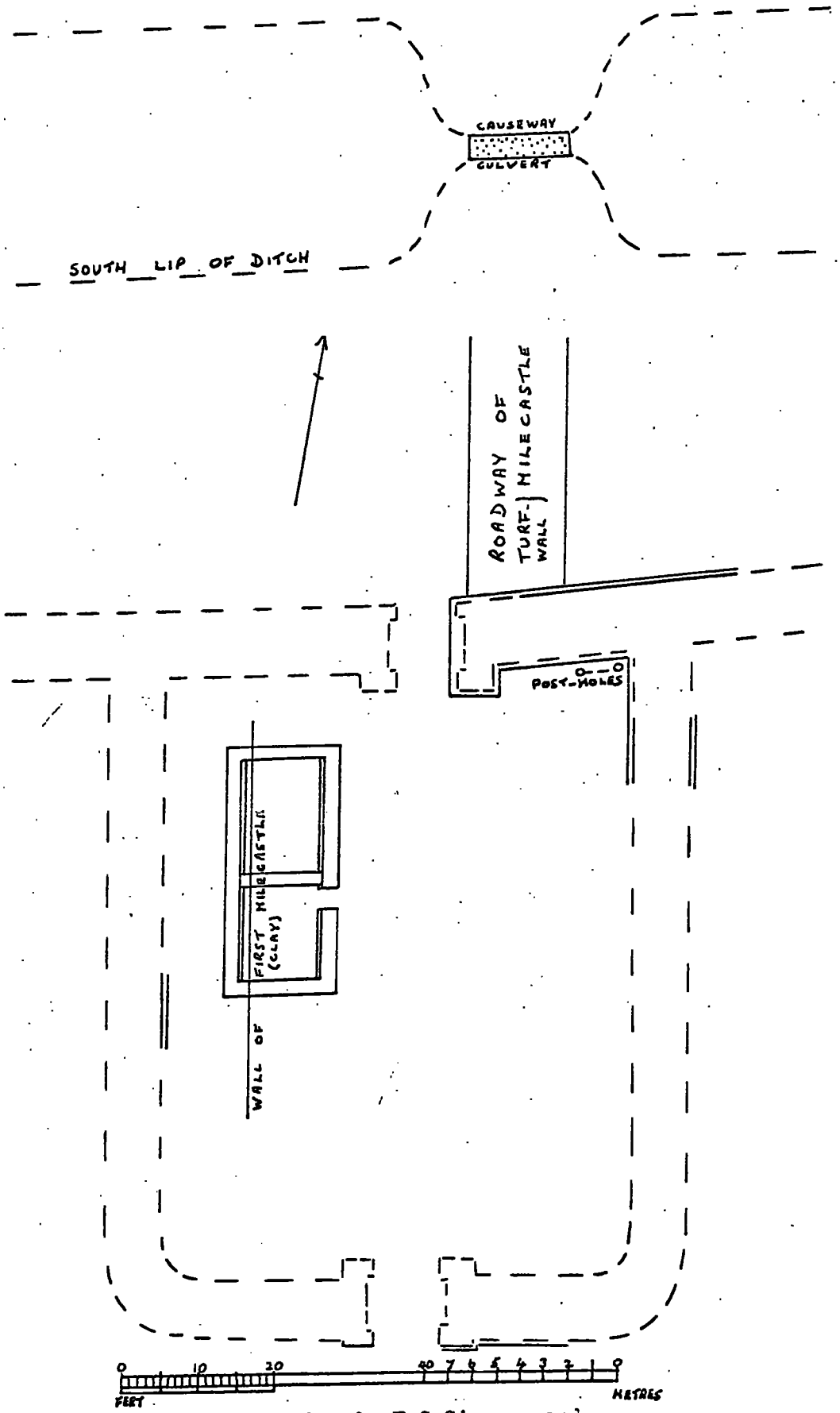


TURRET 53A HARE HILL
(CW2 xxxiii fig. I7 p. 264)

From the plan by F.G.Simpson.



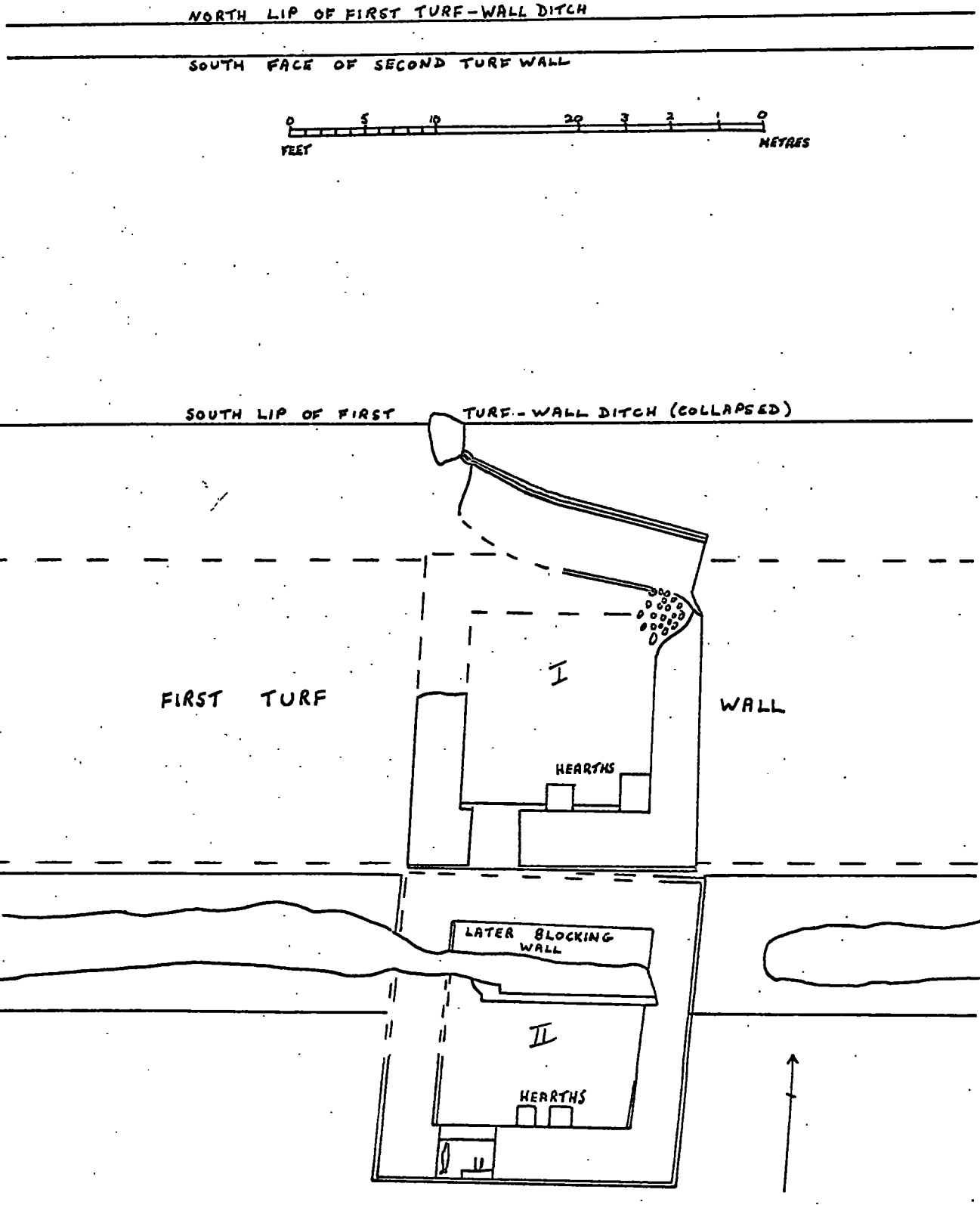




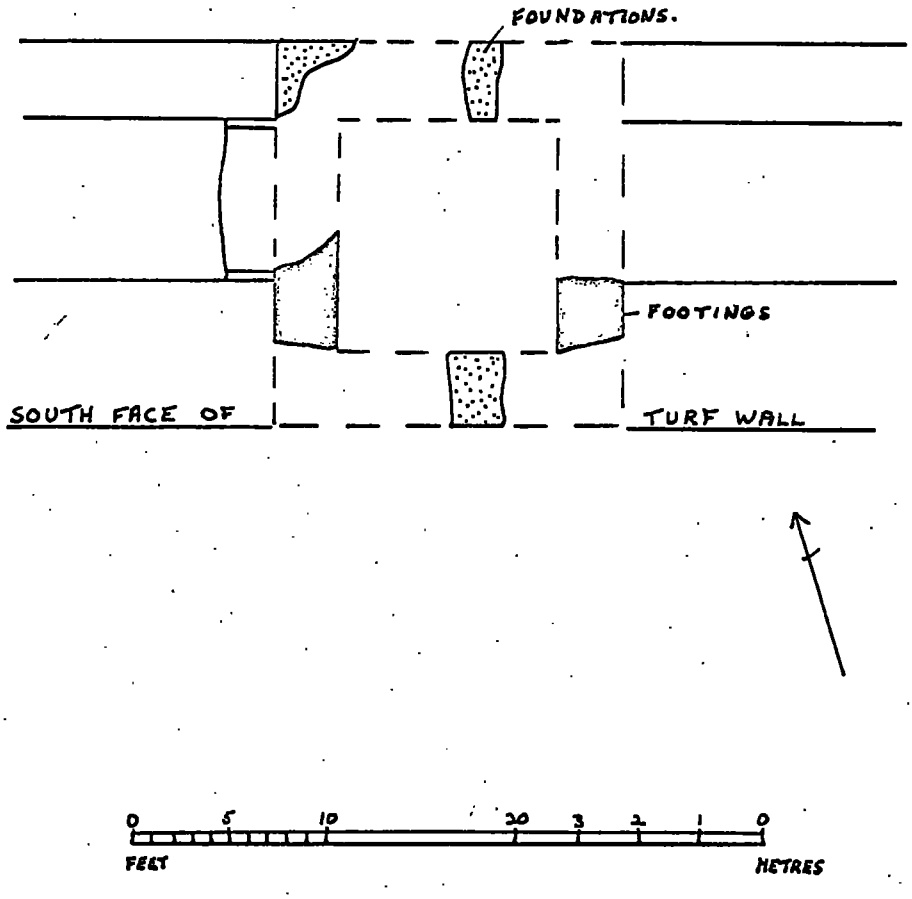
From the plan by F.G.Simpson and I.A.Richmond.

TURRET 54A GARTHSIDE
(CW2 xxxiv fig. 6 p. I39)

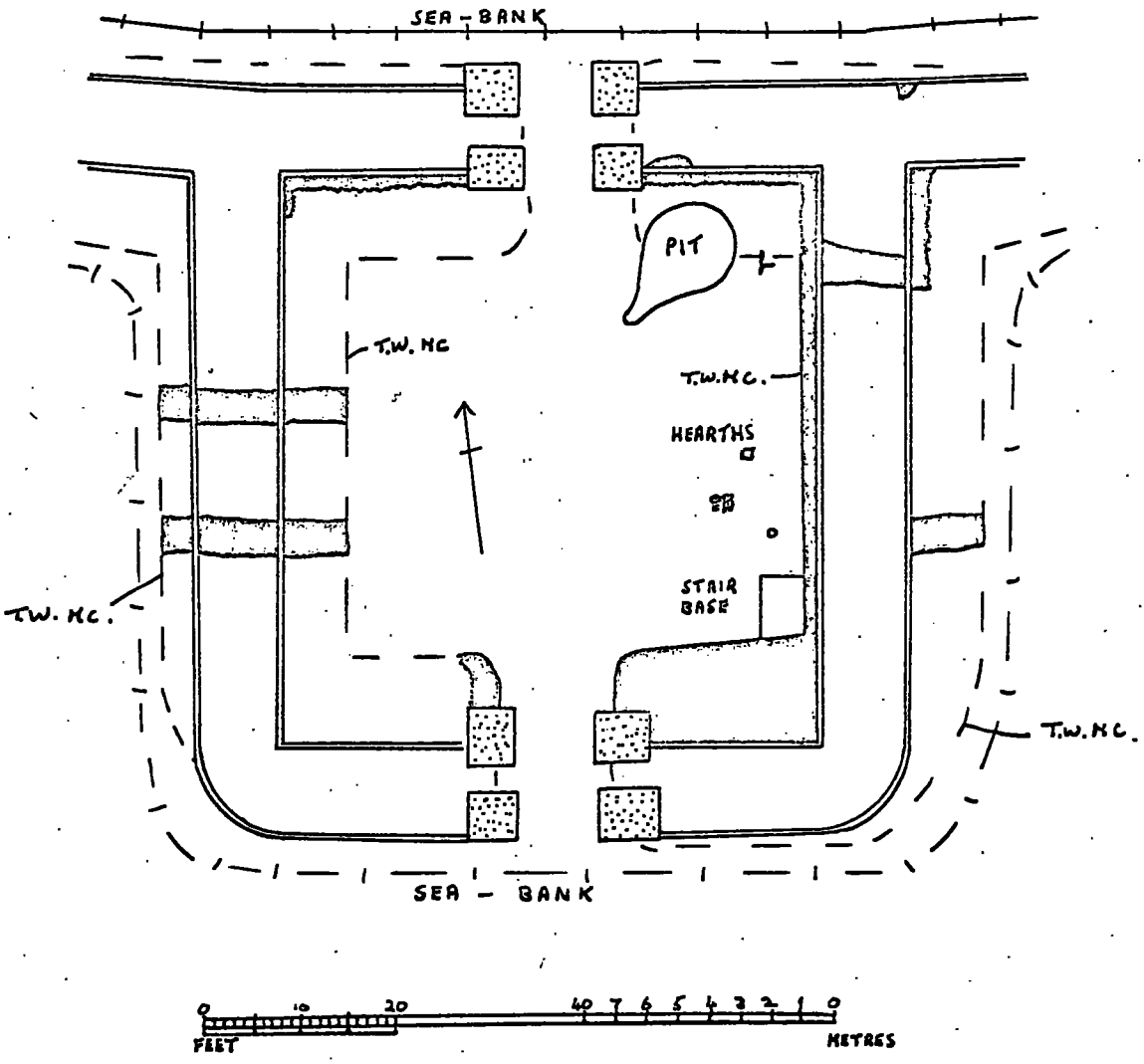
From the plan by F.G.Simpson and
I.A.Richmond.



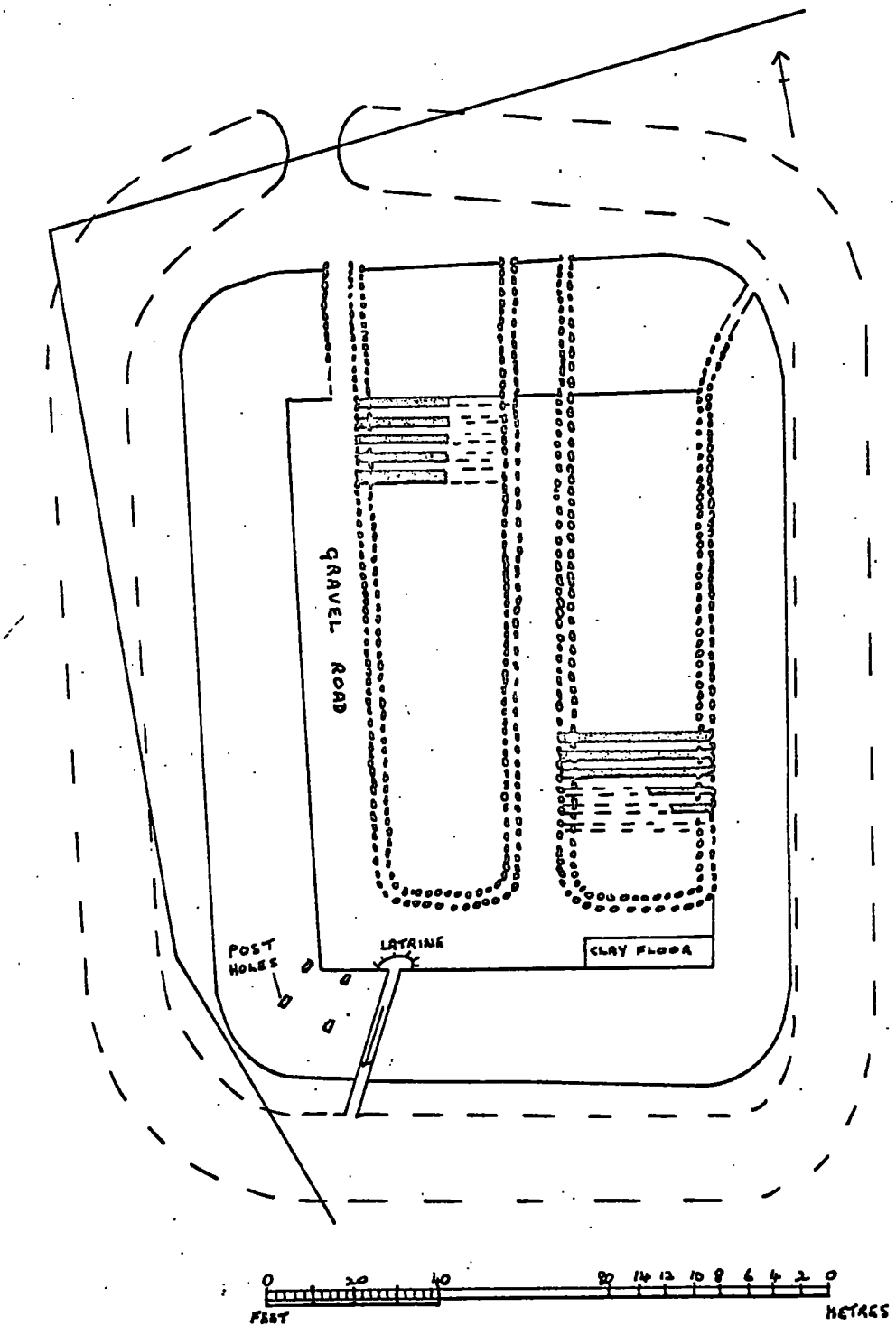
TURRET 72B RINDLE HOUSE
(CW2 lii fig. ii p. I5)



MC 79 SOLWAY HOUSE
(CW2 lii fig. 3 p. I8)



MF 5 CARDURNOCK
(CW2 xlvii fig. 3 p. 86)



TOWER I6B MAWBRAY SANDPIT
(CW2 liv fig. 4 p. 43)

From the Plan by R.L.Bellhouse.