

## The fortifications and siege of Leith: a further study of the map of the siege in 1560

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### ABSTRACT

*The paper presents a review of our understanding of the siege and fortifications of Leith in light of study of the 1560 map of the siege.*

The contemporary map of the siege of Leith in 1560, kept in the archives of Petworth House in Sussex,<sup>1</sup> was exhibited in Edinburgh in 1987,<sup>2</sup> more than twenty years after it had been introduced to the Scottish public in papers by Francis W Steer and Gordon Donaldson.<sup>3</sup> Nevertheless it seems to have been largely neglected as a historical record of the siege, and a hint by Mr Steer that it might repay study in relation to the military operations does not appear to have been followed up.<sup>4</sup>

Yet the map must be ranked among the most immediate of all records of the siege. Although not itself dated, it purports to show the siege works and the deployment of heavy artillery as they were on the day of the surrender, 7 July 1560, and considering that (according to Pitscottie) both the French and the English armies were gone by 16 July, there can be no doubt that the information it records so precisely and in such detail must have been gathered by 7 July or within days thereafter.

Besides being immediate, this information is clearly expert. The map notes three 'approches', corresponding to the three phases of the siege, in which the main thrust of attack moved from the east to the south and the west. The artillery is portrayed with evident care, and the impression of accuracy is deepened by the fact that the 27 guns shown on the 'English' side<sup>5</sup> correspond with a note in the *Diurnal of Occurents* (p 275) that the siege train landed at Figgate from the English fleet comprised 'twelve great singill and doubill cannonis and fyftene small pieces'.<sup>6</sup> The same eye for military detail marks the drawing of the great bastion of the French 'Citadel' at Leith Mount, in which six 'round holes' are shown sunk in the floor of the ditch, and noted as 'sounds'<sup>7</sup> or listening points for monitoring the approach of the English mine, and where the drawing also shows an outwork and what appears to be a 'covert way' along the outer edge of the ditch, protected by a glacis.<sup>8</sup>

Obviously such expert observation enhances the value of the map as a primary source: but besides being important it is unique among these sources, for it shows graphically what the others (with varying precision) describe in words. Although these written records undoubtedly assist the interpretation of the map, they themselves also need to be examined with its help. Indeed, the comparatively late discovery of this map means that all conclusions previously drawn from written or traditional sources must be reviewed in the light of it.

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But first of all it is necessary to understand the structure of the map, for this is not altogether simple. At first glance, it reads as a wide-angled perspective of the five-mile stretch of country from Restalrig to Muirhouse, rendered with spirit and (but for some misplacement of Kirk Restalrig) with notable accuracy of a pictorial sort;<sup>9</sup> but while this is true of the background, a question arises in the foreground, where the title reads:

*The plat of Lythe w<sup>t</sup> th'aproche of the Trenches therevnto And also the great Ordyn'nce there in placed as it was at The daye of the Surrender thereof being the 7 day of Ivlie 1560.*

and the significant note follows:

*The Scale of this Plat is eightye paces to ane ynch. Every pace conteyning 5 foote geometricall.*<sup>10</sup>

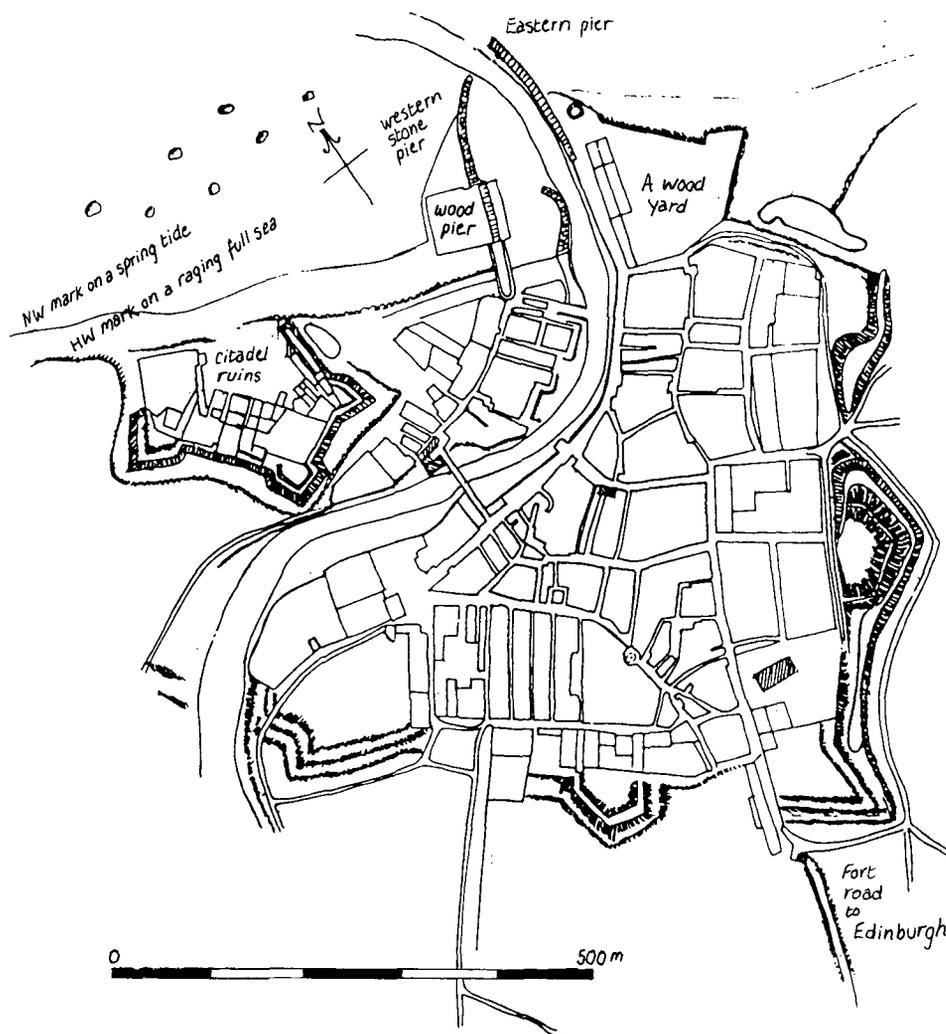
In other words, although the background is certainly pictorial, the foreground (or parts of it) has evidently been set out from measured survey and drawn to a scale of 400 feet to the inch; and in view of this it will be merely a technical matter (including due allowance for discrepancies arising from the improvement of surveying practice over the centuries) to relate these parts of the map to the detail shown on any other map.

The first step is to check the Petworth map against other maps which show some vestiges of the fortifications. There are at least half a dozen such maps, ranging from a small sketch on a chart of the Forth published by Capt. Greenville Collins in 1693, to Kirkwood's map of Edinburgh and Leith in 1817. As might be expected, as time went on there was progressively less to show; and the best map for the purpose is that made by John Naish in 1709,<sup>11</sup> the earliest known detailed survey of Leith, which shows remains of the northern and eastern ramparts almost as fully preserved as they appear on Collins, as well as vestiges of those on the south and west, which are quite missing from Collins but tally with traces shown on later maps (*see* *illus* 1).

What is at once apparent from the maps is that the fortification begun by the French in August 1548 was not of medieval wall-and-tower type but a fully fledged example of the radically different defensive system which had been only recently evolved in Italy in response to the development of artillery.<sup>12</sup> It was indeed the earliest use of this system to fortify a town in Britain, by 10 years;<sup>13</sup> and its masterly style is the mark of its designer, the renowned fortress engineer Piero di Strozzi,<sup>14</sup> who may also have been responsible for the later features (of kinds only invented in the 1550s) which were probably added in the course of the further fortification works recorded in late 1559.

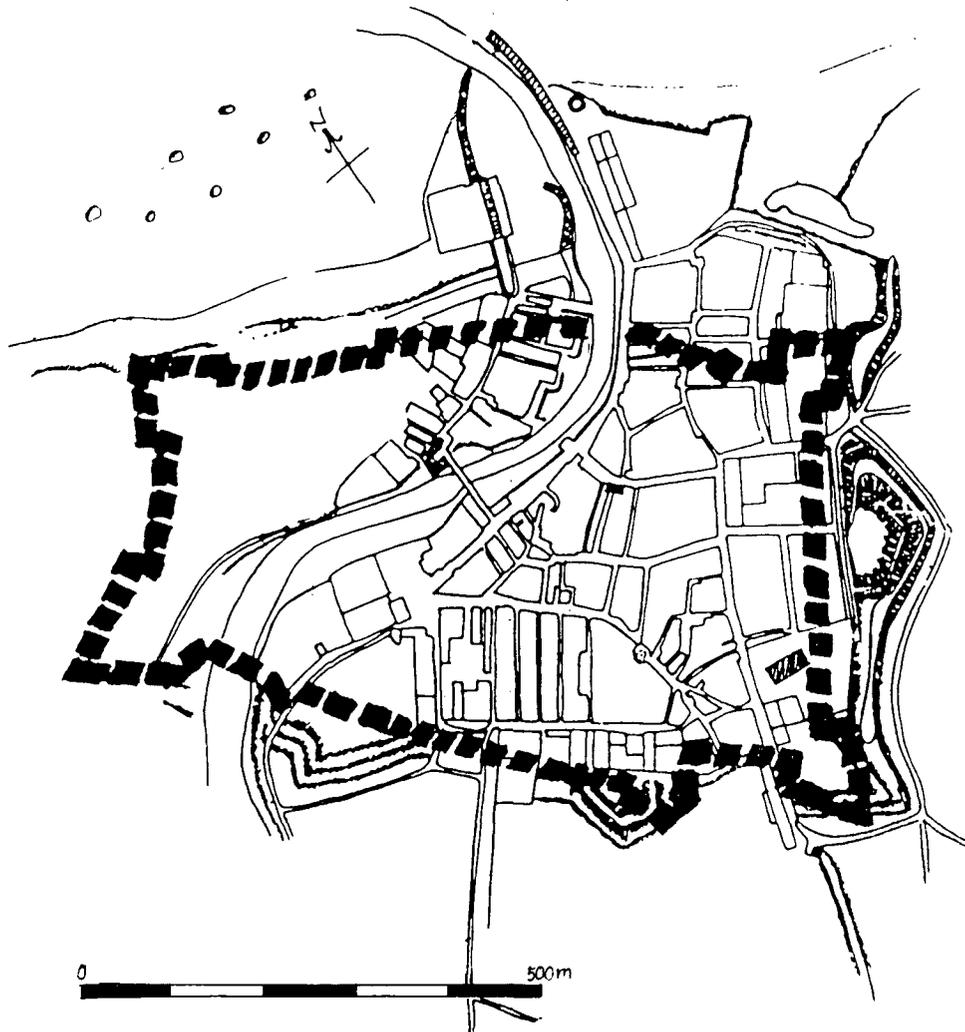
In place of high masonry walls, the new style employed relatively low earthen ramparts, deep enough to provide a roomy platform for heavy guns, with their outer faces (usually in stone, but sometimes, for the sake of speed or economy, in timber) steep enough to repel infantry attack but sloped backwards in order to deflect cannon shot; and the power of the defence was enormously increased by organising these ramparts in a system of angular bastions, each a salient platform for guns to deliver not only frontal fire but an intense flank fire that supported the neighbouring bastions on either side and swept the stretches of ditch in between.<sup>15</sup> In Leith, as it happened, the stonework did not last very long, for in the south and western ramparts it was deliberately slighted as soon as the siege of 1560 was over, while the rest became a quarry for building stone in about 1700: but the huge earthworks of ditch and rampart took over two centuries to disappear, and indeed they left open tracts of uneven ground that eventually provided sites for the great bypass roads of Constitution Street and Great Junction Street.

When the ramparts shown on the Petworth map are plotted to scale along with the



ILLUS 1 Survey of the Town of Leith by John Naish, 1709 (after original in Public Record Office)

remains shown by Naish (illus 2) it is immediately obvious that the 1560 drawing cannot be a measured plan of Leith, for even although the overall span of the ramparts from east to west is almost correct, the drawing has been so drastically foreshortened in the north/south direction that it can be read only as a picture. Yet much of the detail is manifestly authentic. If the bastion of *Ramsay's fort* east of the harbour has been almost suppressed by the foreshortening, the detailed forms of its seaward frontage correspond closely with those shown on Collins and Naish. The effect of the foreshortening is less in the drawing of North Leith, and since this map is in fact the only extant portrayal of its defences, it is fortunate indeed that they are shown in such convincing detail. As for those of South Leith, the *Castellan* bastion at St Anthony's is shown somewhat out of position, but the most striking thing is that two of the bastions (at John's Lane and the Bowling Green) are altogether missing. These bastions certainly existed (witness Naish and others) and the only explanation of their omission from the Petworth map



ILLUS 2 Outline of ramparts as shown on Petworth map, superimposed on Naish's survey of 1709.

seems to be that it plays down other important features as well. The town gates are shown in scant detail,<sup>16</sup> and surprisingly there is not the slightest trace of the substantial breach in the southern ramparts which was stormed unsuccessfully on 7 May 1560. It is hard to believe that it could have been made good under fire in the ensuing eight weeks of siege. The inference is surely that the mapmaker was not concerned to show all the features of the town and that he probably worked from a limited set of notes.

Nevertheless, by taking all the maps together, and having some regard for the principles of the bastion defence system, it is possible to 'stretch' the foreshortened picture and to arrive at a reasonable reconstruction of 'Fortress Leith' (illus 3). *Ramsay's fort* was reclaimed from the sea, and since the tide came up to it, it had no ditch. It is clear from Collins and Naish (who shows the Signal Tower within it) that it extended over the whole area of the Timber Bush, between Bernard Street and Tower Street, and it is recorded in 1578 as having been adapted as

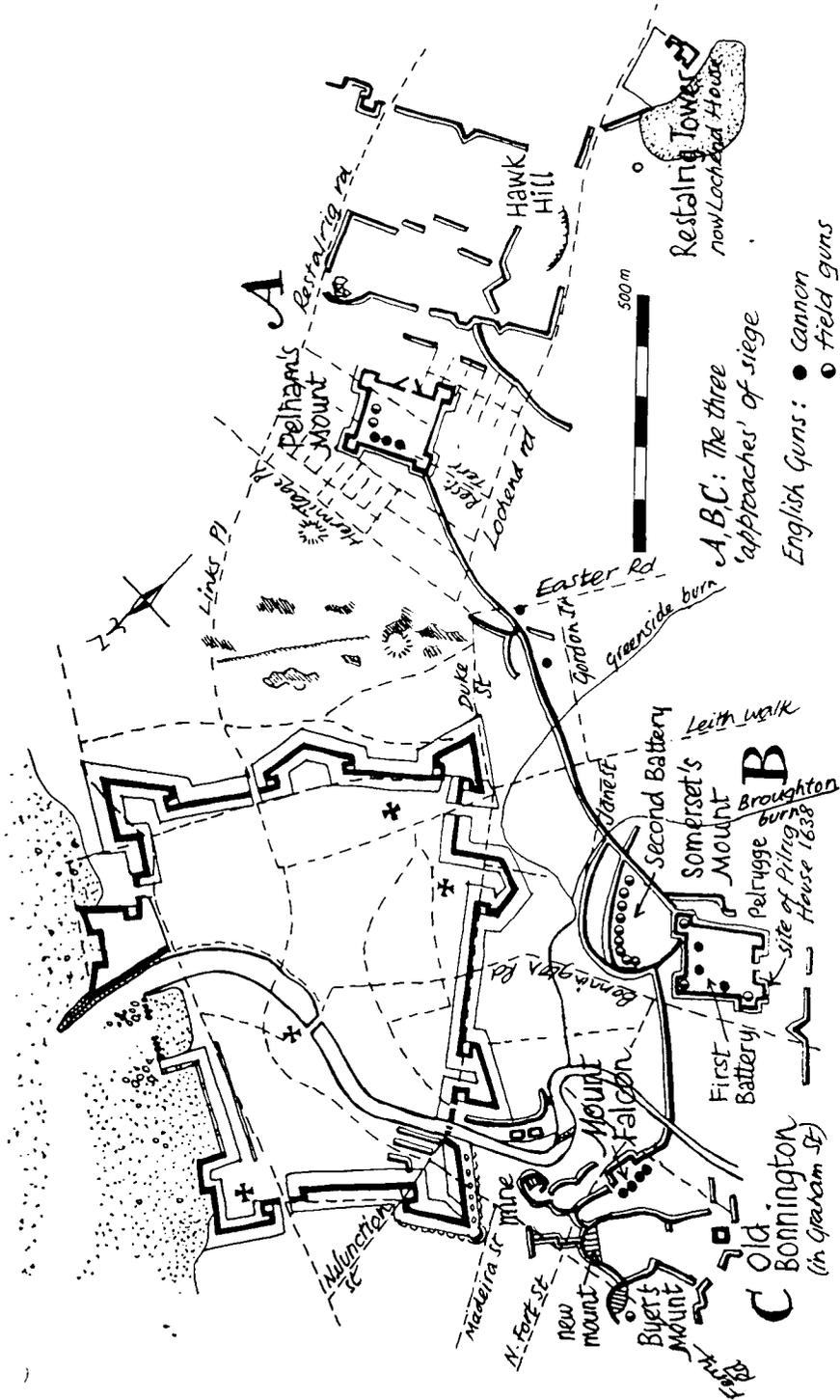


communal timber yards and a ‘burs’ or exchange. On the other side of the harbour, the Sandport,<sup>17</sup> shown as a haven protected by great palisades of vertical timbers, supplies an identifiable general line for the rest of the seaward defence of North Leith, which is also clearly shown as a wooden construction, with huge balks of timber placed horizontally and pegged to a supporting structure, probably tying it to a rear wall of timber, with an earthen rampart packed in between.<sup>18</sup> At the other end of the North Leith defences, resting on the north bank of the river, the Petworth map shows the French *Citadel* bastion. Here the drawing has a distinct air of being to scale, which is not unlikely, considering that as the target of attack by underground mine, the bastion must have been thoroughly reconnoitred in order to establish its position and the features of its defences; and if this is accepted the plan fits in very well not only with the slight traces shown on Naish (the only other direct record we have of the western defence) but also with the skew boundaries of the old property of Leith Mount, still visible today west and north of Leith Town Hall and Library: the huge arrow-head shape of the bastion is still outlined by modern boundaries, but is even more apparent on the Ordnance Survey map of 1852. Taking bearings from this bastion and the Sandport, the St Nicholas kirk and the corner bastion surrounding it are placed on ground which became part of the Cromwellian *Citadel* a century later but was soon thereafter eroded by the sea and eventually became the western part of the East Old Dock in 1802. In South Leith, the obtuse-angled middle bastion in the eastern defence is shown clearly on Naish, and in the sett of later streets, notably John’s Lane. At the Bowling Green (a feature formed on the apex of the bastion at some time after 1777) the shape of the defence is somewhat obscure. In 1560 it is described as ‘the little bulwark’, and the maps seem to agree that it was asymmetrical – no doubt because it had to cover the *Pale* or timber barricade across the river, as well as Leith mills and an outshot trench guarding them and a postern giving access to them from the town.

In the light of all this it becomes clear that when the title speaks of features drawn to scale it must mean chiefly the siege works. This being so, it is possible (subject to the surveying discrepancies already mentioned, which can be minimised by comparing maps in relatively small sections) to plot these entrenchments directly on the modern map. Combining this with illus 3, the outcome is illus 4, a modern map of the siege, certainly not precise, but probably a fair approximation to reality.

What is immediately obvious is the scale of the operation. The entrenched front was eventually about a mile long, with open flanks beyond Restalrig Road and Ferry Road covered by field guns at the extremes of the line and by cavalry squadrons based on Restalrig and Newhaven. Among the six *mounts* or gun sites shown, Mounts *Pelham* and *Somerset*<sup>19</sup> were large temporary forts, each upwards of 3 acres in area; and their guns, with an advantage in height of at least 13 feet over the base of the ramparts, were firing at ranges upwards of 500 yards.<sup>20</sup>

The ‘first approach’ was made from the south-east in the second week of April 1560, when the English spent several days digging in on the slope below Hawkhill, planting their guns in Mount Pelham, which was evidently sited so as to take advantage of the sharp rise of ground above Primrose Street and Hermitage Terrace.<sup>21</sup> The ‘second approach’, beginning at the end of April, included extension of the trenches westwards towards the river and the establishment of a second large fort, Mount Somerset, on the broad ridge between the Broughton burn and the river. The name *Pelrygge* is figured immediately east of the fort, but no building is shown, and the future site of Kirkwood’s Pilrig House (built 78 years later) appears to be at the fort’s south-west corner.<sup>22</sup> In the first week of May a second battery was mounted in advance of the fort, in order to intensify the bombardment, with a trench for a



ILLUS 4 Plan of the Siege Works transcribed from the Petworth map and related to the modern street plan. The position of Restalrig Tower, evidently not fixed by measured survey and merely sketched on the original map, has been corrected.

screen of 'shot' or harquebusiers still further forward. The trenches of the 'third approach' were evidently pushed forward by means of saps from the old centre of Bonnington, near the east end of Graham Street. The original aim may have been to outflank the salient that the French had established east of the river, to protect the mills; but once that salient was destroyed, the attack continued as an assault on the French *Citadel* by underground mine, starting in the vicinity of Keddie Gardens.

Since the map expressly shows the guns as they were deployed when the siege ended, it gives no indication of their earlier positions. No doubt they were originally massed in Mount Pelham, but the map shows its armament reduced to three cannon aimed at the town and two field guns covering the seaward flank. An unnamed battery of two heavy guns, shown in the vicinity of Ferrier Street, seems to have been placed to threaten the dangerous flank batteries in the bastions.<sup>23</sup> Within Mount Somerset, the 'first battery' of three cannon and as many field guns has one of each deployed to defend the flank or rear, while the other four, like the 'second battery' of nine field guns (in about Tennant Street) are bearing on the town. Further west, the powerful battery of four cannon labelled 'at the Pale' was evidently the *Mount Falcon* set up (on the west side of the southern part of South Fort Street) in order to harass the Shore, after the assault on the breaches had failed on 7 May.<sup>24</sup> The single field gun of *Byer's Mount* (on the future line of Ferry Road, near Dudley Avenue South) commanded the St Nicholas port and the coast road to Newhaven. The 'new mount' (in the vicinity of the east end of Trafalgar Lane) may have been planned to support an assault on the *Citadel* bastion after the mine had been sprung; but since it is shown without guns, it may have been still under construction when operations were overtaken by the cease-fire.

More could be said: but, as remarked earlier, the proper place for a full discussion of the Petworth map is within a general re-examination of all contemporary records of fortifications and siege. Such a review is beyond the scope of this paper, but it is hoped that it has demonstrated the need for it.

## APPENDIX 1

The following notes amplify or comment on notes attached to named features on the map in *Proc Soc Antiq Scot* vol 45 (reproduced also in *OEC* vol 32) and use the same reference numbers.

- 13 The *Common Mills* were the mills belonging to Edinburgh in the Water of Leith village (now called 'Dean Village').
- 14 The *Dean* (or *Dean Village* properly so called) stood at the head of *Dean Path*. Its site is now represented by *Belgrave Mews*.
- 15 Evidently *Muirhouse*, which is often 'Murrays' in Scots.
- 19 'Bulwark' was an alternative term for 'bastion'.
- 31 The present *Pilrig House* (built in 1638) appears to be on or near the south-west corner of the site of *Mount Somerset*.
- 35 'Bonneton' refers, not to *Bonnyhaugh* (which is east of the river) but to the historic *Bonnington House*, which stood at the east end of *Graham Street*.
- 40 More likely 'Edenbrogh gate'.
- 41 Perhaps 'The Castilian', a 16th-century variant of 'castellan'.
- 51 Certainly not *St Ninian's*, which is in north Leith.
- 53 'Mownte Slygo'?
- 56 Read 'soundes' or sounding-holes for detection of the approaching mine by the sound of picks.
- 59 'Little London' is shown here and also referred to in *Hayward's Annals* as though it were a place immediately outwith the ramparts; but in 1578 the name is used for some meadow land within the town (bounded by *Maritime Street* and *Lane*, *Constitution Street* and *Bernard Street*) and in 1636 it

is further extended to include the nearby bastion (on the site of Assembly Street). The name is probably Celtic *lunndan*, green or marshy spot, akin to that of Lundin which occurs twice in Fife, also in seaside locations.

## APPENDIX 2

The authorship of the Petworth map is obscure. Any speculation about it must take account of four salient facts: (1) that the map includes an expert measured survey; (2) that it shows expert observation of the military dispositions, not only as they stood at the end of the siege, but in relation to the three phases of the operation in the course of three months; (3) that it shows accurate local knowledge of the country for three miles around; and (4) that patently its information was recorded on 7 July 1560 or very shortly afterwards.

On the first two of these points, it is to be noted that Sir Richard Lee, England's chief military engineer, was present during the siege, and that on 15 May he sent 'a platt of Leith' to London, urgently requesting the Queen's decision on 'works' shown on it (*Calendar of Scottish Papers* 1545–1603, No 792). There is nothing to indicate what these 'works' were. Possibly they were proposals for the saps and mine on the 'third approach' which was to be made in June; but be that as it may, it is at least certain that an expert plan of part or all of the field of operations was in being at this point, midway through the siege.

Although Lee's 'platt' might have been specially made for his immediate purpose, it would be reasonable to assume that it was based upon a working plan maintained throughout the siege. Lee's duty as engineer was to collaborate with the field commander in planning the encampment of troops and the development of siege works, and for these purposes the first essential was a reasonably accurate map of the whole position. How such maps were made and used is spelt out in detail in a treatise by the Marshal de Vauban, Louis XIV's chief engineer (Sebastien de Vauban, *A Manual of Siegecraft & Fortifications* (Tr) G A Rotherick, University of Michigan 1968, 25–7). Admittedly this was written a hundred years later, but it is unlikely that Lee's practice would have been greatly different; and it is a point of special relevance to the criterion (3) set out above, that besides describing the surveyor's method of plotting a map by means of transit lines, the *Manual* recommends that the engineer should take along with him someone who knows the place well and can point out and name the various features and landmarks.

Such a working plan, drawn up by a skilled military engineer with the help of a good local guide, would be marked by accuracy of survey and competent portrayal of both military and local detail; and since it would be kept up to date as the siege went on, it would record its various phases and almost automatically show the position on the final day. In a word, it would be very like the Petworth map in respect of all four of the main characteristics outlined above. While further evidence might be needed to complete the proof, there would seem to be a fair probability that the Petworth map was based upon one prepared for working purposes by Sir Richard Lee and his staff engineers, with the help of local advice; and it may well be that it was one of them who made this fair copy of the position on 7 July 1560 as a record of the siege.

## NOTES

- 1 The Keeper is the County Archivist, County Records Office, Chichester, West Sussex PO19 1RN.
- 2 In the exhibition *Mary Queen of Scots* in the Scottish National Portrait Gallery. The Leith Museum Trust and South Leith Parish Kirk have acquired full-sized copies for permanent exhibition in Leith.
- 3 In *Proc Soc Antiq Scot* vol 45: Francis W Steer: *A Map illustrating the Siege of Leith 1560*; and in OEC vol 32: Gordon Donaldson: *Map of the Siege of Leith 1560*.
- 4 Prof. Donaldson *op cit* unfortunately misled himself by giving undue credence to *Ye Fortifications of Leith* published by D H Robertson: *Sculptured Stones of Leith*, 1851. This resulted in the impression that the Petworth map was less reliable than Robertson's; whereas in fact the latter is so erroneous as to be quite worthless and grossly misleading.
- 5 The besiegers were of course an alliance of Scots levies under the Lords of the Congregation with an English army under Lord Grey. If they are referred to in this paper as 'the English', it is partly for brevity but also because the English supplied the guns, the main assault forces and the overall command.
- 6 Guns were beginning to be standardized in this period. The *great* or siege guns were probably 8-in calibre *double* or *full cannon* and 6½-in *single* or *demi-cannon*, while the heavier field pieces would be 5½-in *culverins* and 4-in *demi-culverins*. In 1530 the duc de Guise was already advising that two batteries of great guns (24 in all) were needed in order to reduce a bastioned fortress, and Grey's dispatches show that by mid-April 1560 he had come to see that he had only half the guns he required.

- 7 Steer *op cit* reads 'foundes', but the *long s* is clear.
- 8 The *via coperta* and the *glacis* (a sloping bank in front of it) were invented in the 1550s and were probably added to the Leith defences in the late summer and autumn of 1559. The 'green bulwark close to the walls', mentioned in Hayward's *Annals* p 60, may have been this glacis in front of the ditch of the citadel bastion.
- 9 For example, it shows the dam or lade serving the lower group of the town's mills in the Water of Leith (now the Dean) village and continuing through the gorge (presumably in a wooden aqueduct, as it did in later times) to serve Silvermills and Canonmills. Also at Greenside (the town's field for tourneys and plays) the map shows a square structure which might conceivably be an open-air stage.
- 10 The 'geometrical pace' is the distance (standardized as 5 ft) travelled by the back foot in the course of a full forward stride.
- 11 *Town of Leith* by John Naish 1709: Public Record Office, MPH 32.
- 12 The first town to be given a bastioned defence was Verona in 1530.
- 13 While a plan for a bastioned fort at Tynemouth in 1545 came to nothing, another was constructed at Eyemouth in 1547 (H M Colvin: *The History of the King's Works* vol IV (HMSO 1982) 683-4 and 713-7) but the first bastioned defence of a town in England was planned and begun in 1558 at Berwick (*ibid* 642-3). Although somewhat smaller in scale, these bastions at Berwick give some impression of what those at Leith were like.
- 14 A dispatch dated 10 August 1548 (*Calendar of Scottish Papers* 1547-1603 no 313) refers to Strozzi as the designer, and reports that, recovering from wounds, he was supervising the works from a chair carried by four men.
- 15 The vivid account in Hayward's *Annals* bears witness to the novelty of this devastating flank fire, describing the assault on the breached ramparts as over 90 minutes in 'a very hell' of fire and smoke and roaring shot.
- 16 For example, the Edinburgh Gate is shown as a simple arched opening in the rear of the rampart, while all that is shown of the Musselburgh Gate is an open passage (so narrow that it suggests that the gate was but a postern) leading through the back of the rampart.
- 17 The name uses 'port' in its sense of 'harbour', in which the sloping beach assisted repair of ships. If it was considered vulnerable at low water, it was doubtless because the entrance between the palisades dried out. The harbour continued in use until the late 19th century, latterly as a basin in Leith Docks, as shown on the Ordnance Survey 1852.
- 18 A report of April 1560 (*Calendar of Scottish Papers* 1547-1603 no 749) describes the shore defence as 'but bourdes with sand cast against it'.
- 19 'Mr Pelham' and 'Capt. Somerset' were both mentioned in dispatches on 28 April 1560 (*ibid* no 759). Pelham was captain of the pioneers; Somerset was one of Grey's leading field commanders.
- 20 In a report of 22 April (*ibid* no 746) Grey gives the range of the town from Mount Somerset as 'within 30 skore (?yards)'.
- 21 The spurious 'tradition' that Lady Fife's Brae and Giants Brae were gunsites during the siege seems not to go further back than Campbell's *History of Leith* 1827. Lent authority by D H Robertson in 1850 and the Ordnance Survey 1852, it led to them being spared when the rest of the numerous hillocks in the Links were levelled in the 1880s. The Petworth map shows some features in the Links about 120 yards in front of the eastern ramparts. One reads as a long straight ditch, perhaps the remains of an entrenchment by Somerset in 1547, while the others, irregular in shape and tinted in exactly the same manner as Lochend loch, appear to be ponds. Possibly they were noted on the map because they impeded a frontal attack on the ramparts.
- 22 Some stonework in the basement of Pilrig house has been taken to suggest an earlier structure, but not conclusively.
- 23 The Petworth map shows many of the flank batteries 'retired' or so set back that they were shielded from frontal fire by the 'ear' of the bastion and could not be bombarded except by guns firing along the face of the defences at a very narrow angle.
- 24 Considering that several written accounts say that Mount Falcon was west of the river (as it would have to be, if its fire were to rake the Shore) it is hard to understand why Robertson and others should attach the name to the mound at the Bowling Green, which was actually part of the town's ramparts east of the river.

*This paper is published with the aid of a grant from City of Edinburgh District Council*