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ORDNANCE SURVEY CUT BENCHMARKS ON THE WALLS OF DERRY

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INTRODUCTION

The walls of Derry need little introduction. Not long after their construction in the early 17th century they began to prove their worth by providing the local population with vital protection during the sieges of 1641, 1649 and 1688-89, although at times sustaining some damage to their fabric. In more recent times the walls were used by the security forces during The Troubles, and they have also served and continue to serve the artistic community and support various leisure activities. Their importance in both the history of the city and the north of Ireland cannot be doubted. They form a unique component of the local, regional and national built environment and heritage, and are justly within state care.

All this and more can be found in several publications that document the walls. In particular, Doherty & Webster (2016) and Lacey (2016) describe the walls and outline their history and are to be commended and recommended for the detail they give. However, in spite of all the fine accounts that have been consigned to printed works, web sites and museum exhibits, there is one aspect of the walls that has yet to have its story told – the walls are host to a number of Ordnance Survey cut benchmarks.

ORDNANCE SURVEY IN IRELAND

The Ordnance Survey (OS) in Ireland celebrated its bicentenary in 2024, and conferences in Ballykelly (Co. Londonderry), in November 2023, and Dublin, in June 2024, commemorated 200 years of Survey mapping across the island. Focussing on legacies of the past and prospects for the future the conferences successfully brought together members of the public, academic scholars and OS personnel. A variety of topics pertaining to the history of the OS was covered by speakers from home and overseas and provided delegates with a comprehensive overview of how it all began and progressed, along with its significance and relevance in the 21st century.

Many archaeologists will have had contact with the OS either through their maps, which show the location of many archaeological sites, or with personnel in the former archaeological branch.

For almost 100 years the OS functioned as a whole-island body with HQ at Mountjoy House, Phoenix Park, Dublin (Fig 1). With partition of the island in 1921, the OS of Northern Ireland (OSNI) came into being on 1st January 1922 with HQ in Belfast, and on 1st April that same year the OS of the Irish Free State (now known as OS Ireland – OSi) was set up and continued to be based in Dublin¹. Irrespective of the breakup, each body was and continues to be committed to “provide and maintain a network of mapping of the highest possible quality on a national basis”.

When the OS was created in Ireland Lt.-Col Thomas Colby, Director of the OS in Great Britain, was given responsibility for its implementation and progression. For Colby this resulted in a switch of emphasis, mapping in Great Britain was partially curtailed and the Irish survey took precedence. As the survey began, experienced personnel were transferred from England to Ireland to instruct and supervise the measurements being carried out by teams of Sappers and Miners (later to be known as Engineers). To assist with and hopefully ensure consistency in their work, Colby issued a list of 74 instructions to his surveyors. At various places in the list he referred to “levelling marks” or fixed points to which surveyors could return if any re-measurement was necessary. His instructions stated that levelling marks on buildings required no particular markings because they could be re-located by measurement. However, as the OS progressed with their work very distinctive permanent levelling marks (cut benchmarks) were created on a range of structures, and in order to keep pace with urban renewal and expansion new benchmarks were made as earlier ones disappeared and as surveying was extended. Cut benchmarks continued to be added to the network until at least 1991.

CUT BENCHMARKS

Cut benchmarks, known colloquially as ‘crow’s feet’, are one of several types and styles used by the OS over the years. Cut marks were chiselled into the stonework and brickwork of a range of public and non-public buildings, walls, gateposts and bridges along the road network, and were a necessary part of the surveying process (Fig 2). They were usually, but not always, inscribed on vertical surfaces about 0.3-0.7m above the ground and consist of an incised horizontal line below which an incised broad arrow points upwards (an arrow symbol had been

used for several centuries to indicate Government property - prison uniforms of the 19th century being a prime example). The horizontal cut defines the height of the location above the datum used for the survey - originally this was low-water of the spring tide at Poolbeg, Dublin Bay, as recorded on 8th April 1837. Later, mean sea level at Belfast was adopted by OSNI. In 1970 the datum was switched to mean sea level at Malin Head for the whole island.

The inscribed broad arrow, being a more prominent mark than the horizontal line, is usually easier to see and thus draws attention to the position of the line. The term ‘benchmark’ derives from a device called an angle-iron that can be fitted into the horizontal cut giving a ‘bench’ or support for a levelling staff. By this means a levelling staff can be accurately repositioned in subsequent survey work. Over the years benchmarks also became important heighted points for engineers and planners.

DERRY BENCHMARKS

It was while visiting the Tower Museum in 2022 with the express purpose of seeing the display depicting measurement, in 1827-28, of the OS baseline alongside Lough Foyle, that we saw a cut benchmark at the base of the north-side pillar of Magazine Gate as we approached from the Guildhall. The mark is not as clear as some of the others we have since found on the walls; the horizontal incision is deeper and more prominent than the broad arrow, but the mark is sufficiently clear to leave no doubt as to what it is (Fig 3).

When we checked the online benchmarks database (www.bench-marks.org.uk) the Magazine Gate cut mark was not listed. In fact no cut benchmarks had been recorded for the Derry walls. Therefore it was time to walk the walls and take a very careful look. Potentially, we might have discovered a use of the walls that had been overlooked by historians.

Benchmarks can be found by simply looking in appropriate locations or by studying 1:10,560 and 1:10,000² scale maps – on which they are indicated by a tiny arrow symbol. A quicker and easier way to find out where and how many benchmarks exist in an area is to use the **Search** tab of the benchmark database referred to above. By entering a postcode for Northern Ireland or an Eircode for the Republic and a radius distance around that location the site will generate a list of all known benchmarks of all ages within that radius. By registering as a user of the site it is possible to log bench marks that you have found, whether they have been reported previously or not. The site also allows the user to search for benchmarks along lines surveyed as part of the 1st Primary Levelling of Ireland (1839-43) by selecting the **Lines**

tab and then choosing the specific Levelling scheme from the drop-down menu. All the surveyed lines are listed for the selected scheme. The line required is then chosen and all benchmarks that were made along it are listed.

However, there are many extant benchmarks that have not been recorded in the database, and there are others that are listed but can no longer be found, having been destroyed as a consequence of structural changes to the masonry on which they were incised. Therefore the database must be regarded as a starting point for locating benchmarks, it is not definitive, merely a work in progress.

We made several circuits of the walls – inside, outside and along the pedestrian walkway on top of the walls in our search for cut benchmarks. Short lengths of the walls are inaccessible due to the placement of more modern buildings or shrubbery against them and therefore it is possible that more benchmarks exist than the 18 examples we have found to-date. The 18 benchmarks are listed in Table 1 and some examples are shown in Figs 3 and 4. Three benchmarks are on the outside of the walls, five on the inside, nine on the parapets of the walkway and one on a stone pillar alongside the walkway by the lower entrance to the Millennium Forum. Sixteen of the marks are regarded as authentic but the legitimacy of the other two is questionable.

Sixteen of the benchmarks are on sandstone blocks. This rock type was used in the construction of gate archways, for wall capstones, for the surrounds of embrasures (gunholes) and for the stone pillar outside the Millennium Forum. Both red/brown and pale yellow/buff varieties of sandstone were used. These are of a uniform composition and allowed sharp incisions to be made. The other two benchmarks, those on the outer wall of Grand Parade and The Platform, were cut onto a granite block and a basalt block respectively. Interestingly, no benchmark has yet been found cut into a schist block. This rock type forms the bulk of the blocks that make up the walls but it has a tendency to split and shatter when worked. It would have proved less easy to cut a benchmark on schist blocks.

The only gate in the walls that lacks a benchmark is Castle Gate. Two gates (Magazine Gate and Bishop's Gate) have one benchmark each, both located low on gate-side pillars (Fig 3A) and four gates (Shipquay Gate, Ferryquay Gate, New Gate and Butcher Gate) have two benchmarks each – in these cases one benchmark is low down on a gate-side pillar (Figs 4A, 4B) and another is on the walkway above (Figs 4C, 4D). The other benchmarks are either on the outside of the walls between gates (e.g. The Platform; Figs 4E, 4F) or on the walkway

between gates (e.g. Double Bastion) (Table 1). The benchmark at the base of the stone pillar outside the Millennium Forum (Fig 4G) and that on the wall at Grand Parade (Fig 4H) are currently very close to the ground surface and could easily be obscured if future works were to raise the surface levels.

Of the two dubious benchmarks, one is on the walkway parapet between Magazine Gate and Shipquay Gate, closer to the latter than the former. It is on the bevelled edge of the sandstone capstone and overlooks the Guildhall (Figs 5A, 5B). The horizontal incision is directly below the flat upper surface of the stone and is 1.40m above the walkway surface. There are three reasons why this may not be an authentic benchmark. First, its height above the ground surface would mean that a surveyor standing on the walkway would have to hold the levelling staff on top of the wall, or would have to stand on the wall in order to steady the staff. Second, a genuine benchmark in such a position would be more likely to have a circular or rectangular recess chiselled into the top of the wall – a so-called pivot benchmark – on to which the levelling staff would be placed, but even so the problem of stability alluded to above would still have applied. Third, the sandstone capstones of the wall being of a softer rock type than used for the body of the walls are easier to chisel and a variety of initials, names and symbols have been carved adjacent to the mark. Therefore this mark may be the work of a graffiti artist, rather than an OS surveyor. But if that is so then he or she has done a pretty good job of replication.

The second dubious benchmark is on the sandstone capstone of the wall opposite the lower entrance to the Millennium Forum. An arrow, lacking an accompanying horizontal incision, has been cut immediately below the bevelled part of the capstone 1.15m above the surface of the walkway (Fig 5C). Our doubts about this one stem from the fact that the bevelled edge of the capstone could not possibly provide support for a levelling staff. Furthermore, the style of the arrow is somewhat different to that of other benchmarks in that the tang of the arrow is substantially longer than the barbs, and the barbs meet at the apex. With most other benchmarks the tang is not significantly longer than the barbs and there is usually clear separation of barbs and tang at the apex. Having made a case for it not being a benchmark we have to report that there is no graffiti adjacent to the mark, therefore its attribution to a graffiti artist must also be in doubt. So, what purpose did/does it serve?

AGE AND SIGNIFICANCE OF THE BENCHMARKS

We have not attempted to establish the age of any of the benchmarks. A broad indication of age may be possible by reference to the 1:10,560 scale maps. The first edition map (1833) did not show the locations of benchmarks. It was on the second and subsequent editions that their positions, with their heights above sea level alongside, were given. However, these maps were sometimes published a few decades after the survey work had taken place and that work itself was spread over several years. Hence the date on the map is not the date when the benchmark was cut, it is invariably later.

Although they are small-scale features that often go unnoticed, cut benchmarks have significance that extends beyond their size. Irrespective of their location they are important physical and temporal markers of the desire and ambition to produce accurate maps. Over the years numerous benchmarks have been lost as a consequence of re-development and for the last 30+ years no new ones have been cut. Surveying and map making have gone digital. Elevation data can be obtained via satellite ground receivers, and computers can do in seconds what previously took several man/woman days to achieve. Slowly but surely the population of benchmarks is in decline. They have no legal status unless the structures on which they were cut happen to be listed buildings or have other forms of protection. The benchmarks on the Derry walls may seem safe in this respect given that the walls are a protected historic monument in the care of the state, but the replacement of deteriorating stonework may result in a benchmark being removed without knowledge of its presence or significance. It is possible that some benchmarks have already been lost from the walls as a consequence of past restoration work. Highlighting the presence of the extant benchmarks may go some way in helping to conserve them.

END PIECE

It is not just at the present-day that benchmarks are being lost. Apparently some were erased by local people in certain parts of the country shortly after they were inscribed by the surveyors. The following story related by Riddihough (1998) is probably just one example of several.

“Some years previous, OS surveyors searching for a benchmark in part of Co. Mayo showed a sketch of a cut mark to an old woman, “*Ah, you mean the Devil’s Mark*” she replied and went on to explain how the surveyors who had inscribed benchmarks in the area were considered to have been sent by the Devil. So, when the OS had completed their work, the locals smashed the stones onto which the marks had been engraved – in the belief that this action would prevent the Devil from returning.”

Maybe not all lost benchmarks can be explained in this way but whether destroyed deliberately or inadvertently we are inexorably losing a simple feature that played a key role in mapping the island of Ireland. Given that the bicentenary of the OS occurred last year (2024), is it not time that benchmarks were given legal protection?

Endnote: Some of the more general information given above about the Ordnance Survey and benchmarks was previously published by the authors in *Archaeology Ireland* 2023.

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Notes

¹OSi has recently been merged with other government agencies and is now known as Tailte Éireann (meaning Irish Lands).

²The benchmark symbol is no longer used on the most recent editions of 1:10,000 scale maps.

Figure captions:

Fig 1 Mountjoy House, Phoenix Park, Dublin – HQ of the Ordnance Survey 1824-1921 and Ordnance Survey Ireland (OSi) 1922-present¹.

Fig 2 Example of a cut benchmark showing horizontal incision with broad upwards pointing arrow beneath.

Fig 3 **A**: Magazine Gate (outside). Circle indicates position of the cut benchmark. **B**: Close-up of the Magazine Gate benchmark.

Fig 4 Selection of other cut benchmarks on the walls of Derry. **A**: Ferryquay Gate (inside) – benchmark is circled. **B**: Close-up of benchmark shown in A. **C**: Shipquay Gate parapet – benchmark is circled. **D**: Close-up of benchmark shown in C. **E**: The Platform (outside) – benchmark is circled. **F**: Close-up of the benchmark shown in E. **G**: Benchmark at base of stone pillar outside Millennium Forum lower entrance. **H**: Benchmark at base of wall at Grand Parade. In both **G** and **H** the marks are in danger of being obscured should the adjacent ground surfaces be raised in the future.

Fig 5 Dubious benchmarks. **A:** Walkway parapet near to Shipquay Gate – benchmark is circled. **B:** Close-up of benchmark shown in A. **C:** Arrow symbol pointing to bevelled edge of capstone, opposite lower entrance to Millennium Forum.

Tables:

Table 1 Location details of cut benchmarks on the walls of Derry. The dubious two are indicated with a ?

If needed?

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