

CAIRT

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Newsletter of the Scottish Maps Forum

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SCOTTISH MAPS FORUM

The Forum was initiated by the National Library of Scotland in January 2002:

♦ *To stimulate and to encourage multi-disciplinary map use, study and research, particularly relating to Scottish maps and mapmakers*

♦ *To disseminate information on Scottish maps and map collections*

♦ *To record information on maps and mapmaking, particularly in a Scottish context*

♦ *To liaise with other groups and individuals with map related interests*

♦ *To build on, and to continue, the work of Project Pont*

CAIRT

The newsletter is issued twice a year. "Cairt" is Gaelic & 17th century Scots for map.

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Geo-referenced Ordnance Survey Air Photo Mosaics of Scotland, 1944-1950

In September we were pleased to add a full set of the Ordnance Survey Air Photo Mosaics of Scotland to our website. The mosaics complement paper mapping, and represent the first widespread use of aerial survey methods by Ordnance Survey in Scotland. They also provide key information on the landscape of post-war Scotland, including good detail of urban topography and land-use.

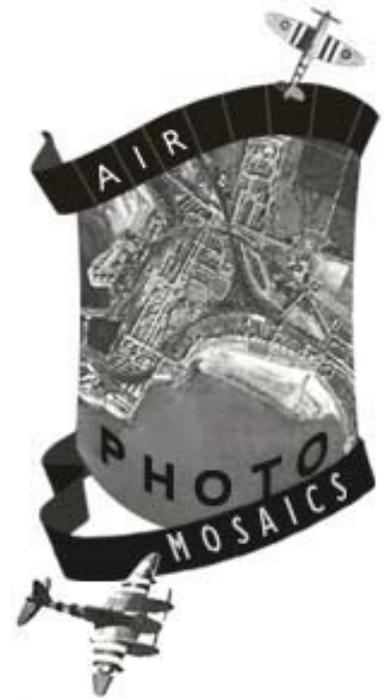
Background

The First World War was an important stimulus to the use of air photography in mapping and survey work, both internationally and for Ordnance Survey. Aerial survey methods were not generally employed by Ordnance Survey in the inter-war period, apart from experimental work in the 1920s. However, during the Second World War, millions of air photos were captured by the Royal Air Force. Their value for military reconnaissance and topographic surveying was proved beyond all doubt.

With rapid improvements to cameras, equipment and techniques, it was also clear by the end of the war that aerial survey methods would have a great value too in peacetime mapping work. In 1945 the Air Photo Division was established in Ordnance Survey, utilising the surplus aircraft and personnel from the RAF.

It was not until the 1950s, that the Ministry of Transport and Civil Aviation increasingly took over aerial survey work from the RAF. From this time, aerial survey has been an essential part of Ordnance Survey's reconnaissance and data capture methods.

The extensive RAF aerial photographic survey of Great Britain (1944-1950), called *Operation Revue*, was also intended to assist town planning and road building. Around 500 sorties were flown in Scotland resulting in the collection of over 280,000 photographs. These are held in the Royal Commission on the Ancient and Historical Monuments for Scotland. They have also just released a new website allowing selected photographs to be viewed (www.aerial.rcahms.gov.uk).



Aircraft and cameras

Due to post-war budgetary constraints, high-speed wartime aeroplanes such as Spitfires and Mosquitos had to be used, rather than the slower Ansons that were more suited to peacetime aerial survey. The aircraft were specially modified to take two cameras – for stereoscopic capture – beneath each wing. During the Second World War, great progress had been made in mounting cameras to avoid aircraft vibration, and ducting hot air from the engine to the cameras to prevent them from freezing up. The F24 and Fairchild K17 cameras were mainly used by the RAF at this time for vertical (i.e. overhead) photography, with a range of lenses from six- to 40-inch focal lengths.

Right: Spitfire showing location of cameras under wings.

Below: F24 cameras typically used by the RAF



From 1950, newly doctored mosaics were re-issued for a few key locations, including airfields and military installations. For these sensitive locations, a false landscape of fields and hedgerows was carefully drawn in, or the site obscured by clouds! Security concerns grew. In March 1951, libraries were warned that the original 'true' mosaics should be withdrawn from public use, and in 1954 the mosaics were withdrawn from sale completely.

The mosaics can be searched by a zoomable map of Scotland, and a gazetteer of place names. They are also available as a Google-maps overlay, allowing direct comparison to present-day air photography and mapping.

Chris Fleet

View the Air Photo Mosaics website at:
www.nls.uk/maps/os/air-photos

Publication

The mosaics were produced as an interim measure by OS, as a quick and cheap expedient before proper paper mapping could be surveyed. In total 221 mosaics were published of Scotland, focusing on the more settled areas that had greatest requirements for reconstruction and development.

Each mosaic was drafted at a scale of six-inch to the mile or 1:10,560, and followed standard National Grid sheet lines. In total some 2,130 square miles, or 5,525 square kilometres in Scotland are covered by the mosaics.

Censorship and security concerns

The mosaics were originally intended for official use only, but were offered for sale to the public from 1945 - 1947 in an effort to recoup costs. Unfortunately, sales were poor and in addition, there were security concerns that the mosaics might fall into the wrong hands.



Above: Original 1946 air photo showing Prestwick airport
Below: Altered 1951 air photo erasing Prestwick airport



Recent Publications on Scottish Maps

Fleet, C. and Withers, C.W.J. (2010) 'Maps and Map History Using the Bartholomew Archive, National Library of Scotland', *Imago Mundi* 62, 92-97

Williams, P. (2009) 'Sketching Scotland', *Navigation News*, Sept/Oct 2009, 18-21

Mapping and antiquities in Scotland: seminar report

The Scottish Map Forum's annual seminar took place in the National Library of Scotland on 27 October. With torrential rain outside, a sell out audience arrived even more eagerly than usual, with time for coffee and buns before the main event.

The morning session was chaired by Professor Charles Withers with a brief introduction to the historical use of maps to study antiquities. Antiquities became of interest in their own right from the 18th century onwards, defining ancient geographies and being used to describe nations, stimulating questions about their origins. There were no uniform maps or a standard cartographic vocabulary to describe these antiquities and their depiction on maps varies hugely right through to the modern day.

Mapping by Pont and Blaeu has formed the basis of the work of Dr. Matthew Shelley, investigating freshwater island settlements, or crannogs. This word, "crannogs" would have been unknown to Pont but he did depict occupied islands, some of which are still easy to identify. Dr. Shelley warned against trying to use early maps such as Pont's as a primitive OS map, but rather that they need to be taken on their own terms. He sees the Pont maps as the cartographic equivalent of Renaissance artists' cartoons, giving glimpses of a work, but in a rough and unfinished state. Case studies such as the Isle of Lundy, Priory Island on Loch Tay, and the islets of Loch Clunie and Loch Beanie, provide clues to the structures and lifestyles of the inhabitants. Over 160 settlements have been identified, which seem to have been used for a number of purposes, from fortification to summer hunting lodges, sometimes with accompanying ports and gardens, with a continuum of settlement through centuries until as late as possibly the 1850s.

Steve Boyle, introduced us to the uses of original estate plans to find archaeological landscapes and settlements, using examples from the banks of Loch Tay, as mapped by John Farquharson in 1769. The estate plans of course mapped the area before it could be considered an "antiquity". Again, there was a caveat about expecting too much from the plans, and using them the way we would a modern map.

However, using digital programs such as *Aerial 5* it is possible to orthorectify the plan and match common points to modern mapping. The purpose is not to "correct" the plan but rather to extract additional data from Farquharson's survey. Dykes in particular could then be traced in the modern landscape, showing the areas of "improvement" as well as significant movements of settlements between the making of the plan and the early 19th century. Such treatment of estate plans may help trace the ever-elusive medieval rural site, leading to new research and improved understanding of our rural history.

Yo Hodson has been known to say that if she had only been born two centuries earlier she would have happily married William Roy. Her enthusiasm for her subject shone in her talk about his *Military antiquities of the Romans in North Britain*. The book was published in 1793, twenty years after he completed it, and indeed three after his death. It reflects his abiding interest in antiquities, with sketches and plans made and collected during his time working upon the Military Survey, as well as subsequent visits in the 1760's and 1770's. There are three sets of Roy's plans: the sketches undertaken by Roy during the Military Survey, the fair copies made throughout his studies and presented in a volume to King George III (now in the British Library) and a set copied by Thomas Chamberlain, in the Society of Antiquaries. This latter set formed the basis of the Society's facsimile volume. It was a costly undertaking for the Society, with about 750 copies being made; surviving copies remain a testament to Roy's passion and map making abilities¹.

After a light but tasty lunch, and an exhibition of antiquities on maps, the delegates returned, refreshed, to the main hall, to be greeted by Professor David Breeze who introduced the afternoon's theme of the Antonine Wall. He explained the mechanics of achieving world heritage site status for the wall, particularly the creation of the 45,000 word case, with 59 maps and a further 25,000 word management plan.

Continued overleaf



Extract from William Roy's Military Survey (1747-55) showing section of the Antonine Wall (original map held by British Library)

The techniques employed by the Romans in the original surveying of the route of the wall formed the basis of John Poulter's talk. Rather than beginning at one end of the wall and working along it as may have been supposed, or even building the Wall to join up frontier forts as previously thought, Poulter studied the directions and lines of site from hilltops and signal towers. The methodology, which depends upon accurate contemporary mapping, can be used to determine the directions in which Roman surveyors were likely to have been working when laying out the course of the Wall.

The earliest mapping of the Wall, or at least the Forth-Clyde isthmus, must also have been by the Romans, although none survives. It was the work of later mapmakers that was highlighted by Professor Lawrence Keppie. He demonstrated how the Wall was depicted upon the maps of Matthew Paris from the 13th century, before moving on through the maps of Pont, Blaeu, Sibbald, and Adair, to conclude with the antiquarians of the early 18th century, Alexander Gordon and John Horsley. The archaeological and antiquarian value of these map-makers can be best assessed with a knowledge of their purpose, methods and background.



Above: Extract showing the Hadrianic and Antonine Walls from a map of the British Isles by Matthew Paris, ca.1250 (original map held by British Library)

The final talk of the day was by Dr Rebecca Jones, speaking also on behalf of Peter McKeague. Their work in compiling the new map of the Antonine Wall² provided an interesting insight into the modern cartographers art, with a description of recent surveys of the wall from the 1931 survey by George Macdonald, to the comprehensive re-survey by the OS in 1980. The production of the modern map however was very much driven by the necessity of showing for the World Heritage Site application exactly how much of the Wall survives. This meant improving some of the positional accuracy of the old surveys, removing translation errors which crept in, with the move to National Grid mapping and rectification using air photographs. 39 maps at 1:5,000 scale were produced, using a stylised depiction as they were intended for an audience unfamiliar with British mapping conventions. These then formed the basis of the new publicly available maps of the Wall.

The day was rounded off with a few questions from the audience. The depiction of antiquities on maps and indeed the mapping of antiquities so ably described by our speakers, made for a fascinating and varied day. There are plans to publish several of the papers in a forthcoming issue of the *Scottish Geographical Journal*. Further details on this, and of the next Scottish Maps Forum seminar, to be held this autumn, will be publicised in the summer.

Paula Williams

¹ A full facsimile can be viewed at: www.nls.uk/maps/roy/antiquities

² See *The Antonine Wall : nomination for extension of the world heritage site*. [Edinburgh : Historic Scotland, 2007] and *The Antonine Wall : World Heritage site*. 1:25,000. Edinburgh: RCAHMS, 2008

New websites

Roy's Roads

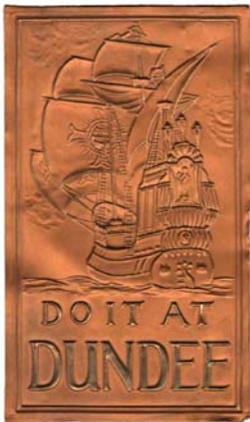
This new website by David Simpson shows all of the roads depicted on the Highland section of the Roy Military Survey of Scotland map (1747-55). This is particularly useful for anyone interested in the routes of the Wade and Caulfeild military roads, the latter under active construction at this time. The Roy roads are presented as a coloured network on top of modern base mapping from Ordnance Survey. There are useful notes on the Military Survey, military roads, how the routes were traced for the website, links and a bibliography.

www.roysroads.co.uk

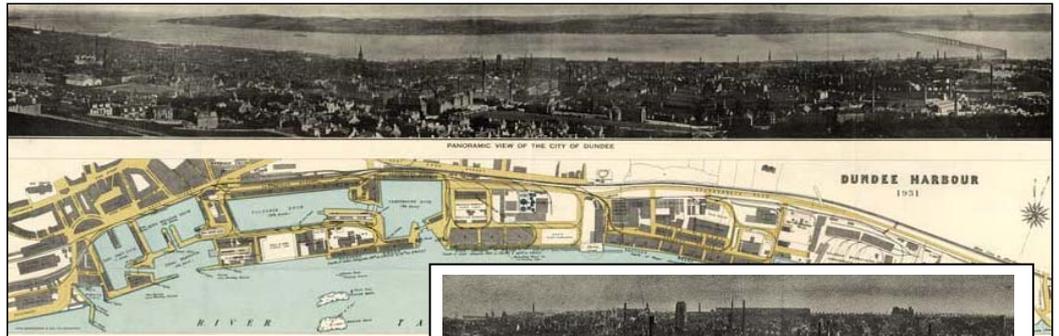
James Collie Plans of Dundee (1851)

Although some of these plans were made available in 2005, the full set of 80 plans were put online in December. The Aberdonian architect and civil engineer, James Collie (ca. 1810-1881), surveyed Dundee at 1:2,500, 7 years before Ordnance Survey's large scale town plan. Collie's plans are also of particular interest in showing contours and the positions of sewers and drains. Zoomable, high-resolution images can be viewed of each sheet.

www.dundecity.gov.uk/collie



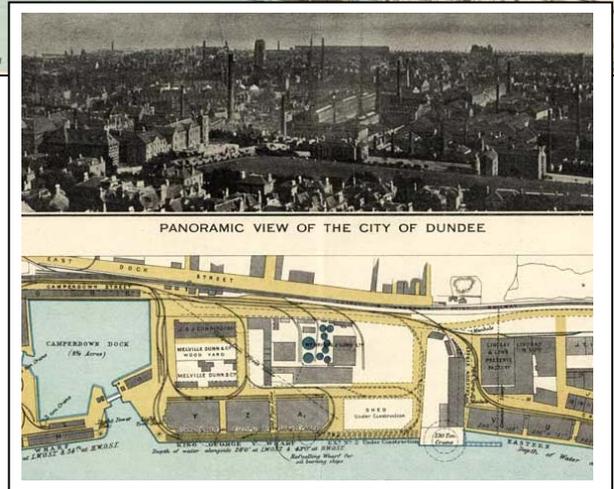
Do It At Dundee



This spectacular panoramic photograph and map of Dundee harbour (**above right, and enlarged section, right**) caught our attention during recent conservation. The John R. Murray funded preservation work on the Bartholomew Archive Printing Record has now reached the late 1930s. 86 volumes, comprising everything Bartholomew printed from 1877 to 1937, have been taken down and are now stored as flat sheets in acid-free boxes.

Merely one of the thousands of publications by Bartholomew, each with unique historical value, this particular item encapsulates many aspects of 1930s Dundee. The worldwide recession in the interwar years hit Dundee hard, with a major slump in textiles and related industries, and over a third of the labour force unemployed. Amongst the various attempts to encourage new work and employment was a publication by the City of Dundee Development Corporation¹, accompanied by its inviting *Do it in Dundee* gold plaque. This was a carefully written propaganda exercise, promoting executives and industrialists to move to the city, with pictures of its parks, golf courses, and state of the art port facilities. It included a striking panoramic view from Dundee Law looking south by Valentines, the famous Dundee photographic and postcard company, along with a detailed plan of *Dundee Harbour 1931* by John Bartholomew & Son Ltd.

Bartholomew had been producing plans for Dundee Harbour Trust for at least two decades, and this map was reduced from a larger scale plan of the harbour they published in the same year at 1:2,500. Although the Ordnance Survey revision of 1921 would have provided basic cartography, there is much updated and additional information: company names and street names, depths of water on the wharves, loading capacities of cranes, harbour lights, and even underground sewers. 7,208 copies were printed on 10 December 1931, with water coloured blue, roads in sienna, and buildings in grey².



Three broader points are nicely illustrated by this map. First, primarily due to its publication within another volume, this map has not been hitherto recorded in library catalogues, and hence the cataloguing of the Bartholomew Printing Record is revealing new maps for the researcher. Second, it illustrates the diverse range of urban mapping by commercial mapmakers such as Bartholomew. These included Post Office Directory Plans, railway and tramway publications, maps for exhibitions and company advertisements, maps for planning water, gas and electric utilities, as well as the distinctive *Survey Atlas of Scotland* town plans of 1895 and 1912. Third, it serves as a useful reminder that for the history of towns from Victorian times into the post-War period in Scotland, some of the most useful, regularly updated maps were drawn and published, not by Ordnance Survey, but by Bartholomew.

Chris Fleet

¹ *Dundee and its encouragement of new industries to establish themselves within its borders* / (compiled ... by Edward R. Cross). Manchester, (1932?)

² Further details and a zoomable version of this item can be found at: www.nls.uk/blogs/bartholomew

Bartholomew Archive Project News

The Bartholomew Printing Record has now been catalogued to 1900 and conserved to 1937. In September, we were pleased to welcome two new AHRC-funded Ph.D researchers, Amy Prior and Julie McDougall, who are examining themes connected to the British Empire and printing and publishing networks. An exhibition is planned for Autumn 2010 in George IV Bridge, accompanied by a facsimile edition of the *Survey Atlas of Scotland* (1895/1912). View the website and regularly updated curators' blog at: www.nls.uk/bartholomew

For Fortifying to Prevent an Insult: Board of Ordnance Military Maps and Plans of Edinburgh Castle, 1708–1710

In November 2009 I submitted my thesis on *Constructing the Military Landscape: the Board of Ordnance Maps and Plans of Scotland, 1689–1815*, a PhD research project at the Institute of Geography, University of Edinburgh, in association with the National Library of Scotland Map Library through an AHRC collaborative award.¹ The thesis provides an in-depth study of the maps and plans produced by the military engineers and draughtsmen of the Board of Ordnance and several associated surveyors.²

The extant archive is substantial, numbering 940 manuscript maps, plans, and views of the military landscapes of Scotland compiled between 1689 and 1815. The archive is today divided among several repositories: the National Library of Scotland with 402 maps, the British Library (288 divided between the map library (219) and manuscripts (69)), the (British) National Archives at Kew (177), the Royal Library at Windsor Castle (40), the Admiralty Library at Portsmouth (19), and the National Archives of Scotland (14). The manuscript maps and associated material relating to their production are a legacy of state activities in Scotland, when map makers were charged with planning, constructing, and recording landscapes of and for military action. The maps particularly represent the British state's endeavours to control internal unrest, to defend against external attack, and to plan for a future Scotland.

The Jacobite risings of 1689 and 1719, the rebellions of 1715 and 1745, and the abortive invasions of 1708 and 1744 heightened the government's anxiety over Scotland and led to a renewal of the Board of Ordnance's mission to map the military landscape. This article demonstrates one particular concern, that of fortifying Edinburgh Castle to contend with 'modern' warfare methods. Maps of Scotland's forts in the formative years of the 1707 Union of England and Scotland were surveyed and compiled by engineers in the former Scottish Ordnance Office — by John Sleszer and Theodore Dury³ — who, the Board 'humbly conceive[d]', could 'in less time, and at less charge' appraise what was needed to be done 'to put those Castles in a posture of Defence'.⁴ Many of the initial proposals 'for fortifying [...] to resist an Attack in form with Great Artillery' proved to be too expensive and proposals were resubmitted 'for Fortifying [...] for preventing an insult'.⁵ Maps of the medieval castles comprised large-scale plans and sections, centred on the fortresses themselves, parts of their defences, and their buildings for the purpose of augmenting the capacity of each to accommodate troops and stores by enlarging the barracks, storehouses and powder magazines.

Edinburgh Castle, although strategically situated on a volcanic outcrop, was vulnerable to attack by way of its entrance:

'The Hill going up Westwardly from the Town seeing by the Draughts, the most likely place for an Attacque against the Castle, the Dispute as I have before Observed to your Honours, is how the same should be fortify'd for better securing the Entrance. *The main skill then in all Military Architecture is fitting a Design to the Situation*, with regard also to all such works as may be already built and that the Stronge part be made to oppose where there is most danger, else a place may be little better for what is done'.⁶

A drawing of a fortress, one based on survey and measurement, could thus resolve in advance a problem implicit in a design and permit the possibility of planning and executing fortifications on any site.

From 1708, Theodore Dury, chief engineer in Scotland, submitted to the Board plans for improving the strength and security of the Castle's entrance, proposing a hornwork 'which is a Figure most of the considerable places in Europe are fortify'd with being neither over large for taking up many men, nor so little but to contain a sufficient Number to make a good Resistance'.⁷ (see **Fig 1**, below)

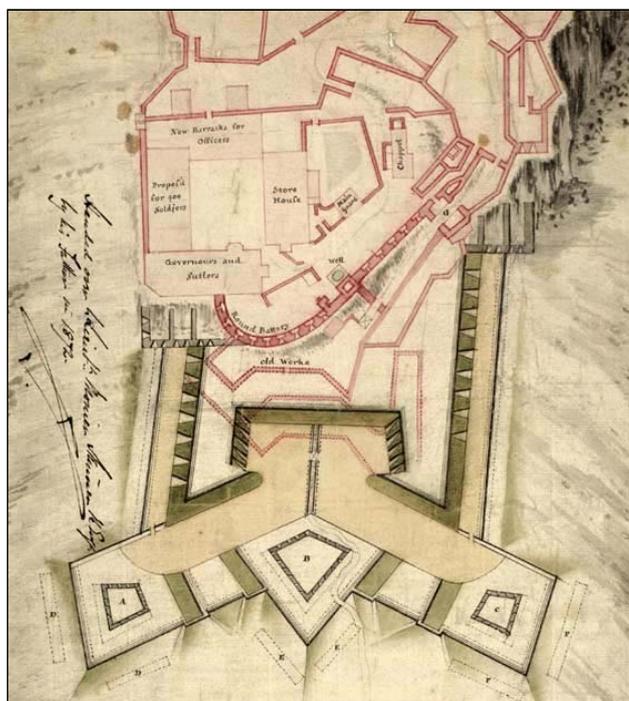


Figure 1 *Plan of the Works proposed to be made at the Castle of Edinburgh, by Theodore Dury, 1709.* MS 1649 Z.03/58b

The expense of Dury's scheme—£10,431 2s 8d—concerned the Board who proceeded to order a further examination of the fortifications. John O'Bryan, an Ordnance Engineer, was sent to Scotland. On surveying the Castle, O'Bryan raised objections to Dury's proposed works on the basis that the 'designe was found too broad for the Hill intended to be built upon, and too Short to leave roome for standing of the old Countergarde to the Castle gate'.⁸

When the Duke of Marlborough, Master-General of the Ordnance received Dury and O'Bryan's conflicting plans and reports, he referred the matter of Edinburgh Castle's defences to Talbot Edwards, 'whom We humbly conceive to be the ablest Engineer We have'.⁹ Edwards saw merit in both engineers' schemes but proposed combining and modifying them (see Fig 2, right). He ordered the rocks on the north and south sides of Castle Hill to be cut away, considering this 'to be a greater strengthening to the place, than a Moat, and Cover'd way [...] Experience shewing, it is easier passing over such Barriers than High Rocks and precipices'. By narrowing the access to the castle from the direction of town, by keeping some form of extended horn work—'min'd within and without'—with some retrenchments, and a 40 foot wide moat, Edwards believed 'these advantages will much Lengthen time, and cost an Enemy dear, before they can come to the main Gate of the Castle where is the Last Retreat as my Designe shewes'.¹⁰

Work already started—part of 'Dury's scheme' to the north of the entrance—was incorporated into the modified design, 'to save pulling down what was built by Capt'n Dury (though with some difficulty)'.¹¹ Later plans, for example William Skinner's 1750 *Plan of Edinburgh Castle*, continued to show the ruins of 'Dury's Grand Scheme' and 'Dury's Battery'.¹² They form one of the many legacies left by the Board of Ordnance military engineers, skilled in the arts of fortification and map making, who played key roles in the defence of the British realm during the eighteenth century.

Carolyn Anderson

'The art of depicting with a soldier's eye': Paul Sandby and the Military Mapping of Eighteenth-Century Scotland

A talk by Carolyn Anderson

Tuesday 19 January 2010, 12.45-1.30pm
Hawthornden Lecture Theatre, National Gallery Complex, The Mound, Edinburgh.

Free (no booking required)

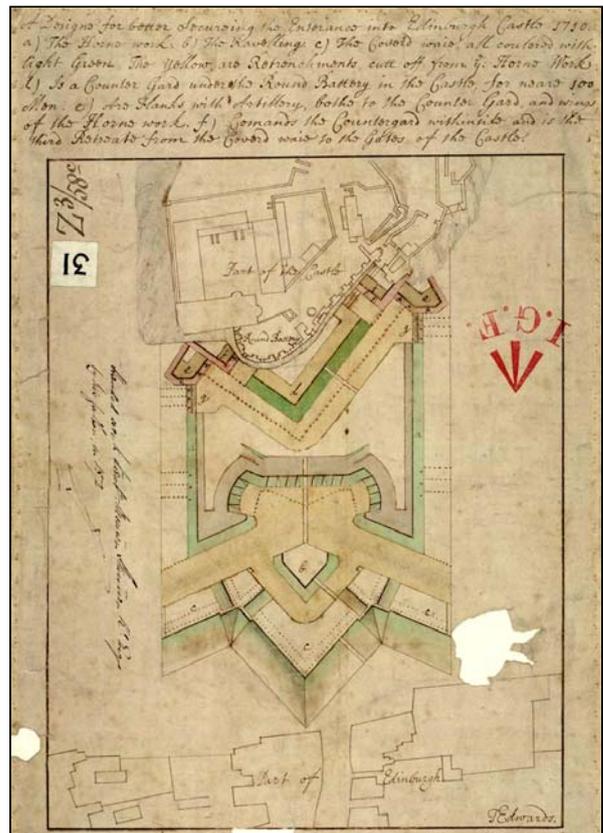


Figure 2 A Designe for better Securing the Entrance into Edinburgh Castle 1710, by Talbot Edwards. MS 1649 Z.03/58c

¹ I would like to thank Charles Withers and Chris Fleet for their unstinting support and skilful guidance during the three years of my research, and acknowledge the kind assistance of Peter Barber and the librarians of the British Library (henceforth BL), Rose Mitchell of the (British) National Archives at Kew (TNA), Kate Heard of the Royal Library at Windsor Castle (RLW), Jenny Wraight of the Admiralty Library (AL) and, not least, the map library staff of the National Library of Scotland (NLS).

² The Board of Ordnance was constituted in 1597 as a ministry of defence responsible for supplying the Army and Navy with armaments and munitions and the maintenance of sovereign forts and castles.

³ The Board chose to ignore Slezer and Dury's status as 'Their Majesties Chief Ingeneer[s] in Scotland (BL Maps K.Top.50.40 *Plan of Fort William in Lochquaber*, 1696, signed thus by Dury). Dury was further discriminated against in rank and pay after the Union. In 1727, he was finally awarded the rank of 'Engineer' and an annual allowance of £77 15s, still less than those of equivalent rank who received £100 (TNA WO 55/349, pp. 74–75, warrants for North Britain; WO 54/200, pp. 13–14, *Establishment Books*).

⁴ TNA WO 55/344, pp. 266–267, 15 April 1708, warrants for North Britain.

⁵ TNA WO 55/346, pp. 74–77. The estimates, provided by Dury in 1714, relate to Edinburgh, Stirling, and Dumbarton castles, and Fort William.

⁶ Second Engineer Talbot Edwards' *Report concerning the Fortifying Edinburgh Castle*, 1710, sent to the Board of Ordnance: TNA WO 55/319 p. 122, emphasis added.

⁷ NLS MS 1649 Z.03/58a *A Plan of Edinburgh Castle*, by Talbot Edwards, 1710.

⁸ TNA WO 55/319 pp. 122–126 [1710]; WO 55/344 pp. 292–296, 1708; WO 55/345 pp. 113–116, 1710, warrants for North Britain.

⁹ TNA WO 55/345, p. 113. Talbot Edwards became William Skinner's stepfather (Skinner became Chief Engineer in Scotland following the 1745 Rebellion and principal engineer of Fort George at Ardersier). Edwards, related by marriage to Sir Martin Beckman, Chief Engineer and Master Gunner of England, bequeathed his large collection of maps and plans, many of which had been Beckman's, to Skinner who, from a young age, was exposed to a culture of military engineering.

¹⁰ TNA WO 55/319, pp. 123–125, 1710.

¹¹ NLS MS 1649 Z.03/58a.

¹² NLS MS 1645 Z.02/08a *Plan of Edinburgh Castle*, 1750, by William Skinner, copied by Stephen Fane.

Alfred Lancefield (1811-1873)

Alfred Lancefield was the surveyor responsible for the excellent *Johnston's plan of Edinburgh & Leith* published in 1851 and updated in 1861. It is a fine, clear map; arguably one of the best produced of the city during the 19th century. Little however was known about Lancefield himself, or his other work, beyond a farm plan held in the National Archives of Scotland¹.

Thanks however to a recent serendipitous correspondence, we are now indebted to Dr. Mike Lancefeld for sharing with us information about his ancestor.

Alfred Lancefield was born in 1811, and baptised in Clerkenwell. His father Thomas Courtney Lancefield was a surveyor and builder, and an associate of John Nash the architect, who laid out much of Regency London.

Little is known about Alfred until he was married in Islington in 1838. His new wife, Ann Brown was daughter of the late Professor James Brown who taught at Glasgow and St. Andrews universities. Her mother Anne Roger was then resident in Edinburgh. On the marriage certificate Alfred is described as a surveyor.

Ann and Alfred's first son Thomas, named after his paternal grandfather, was born in 1839. Although still based in Islington much of Alfred's time was spent on the Isle of Wight at this period. The family moved to Edinburgh by 1843, probably to be near Ann's widowed mother with whom they lived at 7 Buccleuch Place. Alfred appears to have had offices variously around Buccleuch Place and South Bridge Street working as a surveyor and civil engineer, although a later entry of the Edinburgh Directory also has him engineering drawing and as a teacher of fortifications. Merchiston Castle Academy lists him among their staff, teaching architectural, military & engineering drawing, surveying, fortifications &c.

We are still in the dark about why Alfred undertook the survey which underpinned Johnston's excellent map. However his paper presented to the Architectural Institute of Edinburgh "On the drainage of Edinburgh" may provide a clue as to his employment at the time.

The family, swollen by this time by a further eight children, moved to Aberdeen circa 1855. Later, about 1864, it seems possible from family evidence that Alfred may have been employed by and lived on the Balmoral estate working on the roads and bridges being built around this time. By the time of their deaths however Alfred and Ann were back living in London. Ann passed away in 1869, to be followed four years later by Alfred himself. The symptoms described on his death certificate are suggestive of cholera. It also records that he was then working as a clerk with the Inland Revenue, perhaps a less physically demanding job than surveying. He was survived by only four of his children, and indeed was outlived by his mother who looked after his children.

Paula Williams

¹ This is a reduced from a survey by Blackadder for Cockburn in Berwickshire (RHP2587), dated 1849.



Above: Extract from *Johnston's Plan of Edinburgh & Leith* by Lancefield. 1851 (EMS.b.2.45)

View full map at: www.nls.uk/maps/joins/422.html

Using our maps in your publications



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Maps are requested for a wide range of uses including book illustrations, journal articles, leaflets, television, exhibitions and websites. Requests cover such diverse subjects as gun-making, archaeology and railways, to art exhibitions on Turner and books on Charles Darwin. Increasing use is also being made of our digital maps in a range of websites (eg *Wikipedia* and *Am Baile*). Our dynamic geo-referenced mapping can also now be used in other websites with ease (eg *Gazetteer for Scotland* and *Who Owns Scotland*).

For non-commercial purposes there is often no charge – eg maps for use in free exhibitions, or for scholarly journal articles (although we usually request a copy of publications if not held by NLS). For commercial purposes, there may be a fee – please contact the Map Library in advance and we can confirm details.

Andrea Massey