



Introduction

Welcome to this New Year Edition of the Buildings Archaeology Group (BAG) Newsletter, and apologies for the slight delay in its circulation. This edition has a theme of military heritage and, due to the number and interest of the contributions, it is slightly longer than normal. We hope you'll forgive us for this and enjoy it all the same.

The topics in our features section range from a First World War POW camp, RADAR, a Royal Navy hospital and an RAF airfield, to the military heritage of Estonia, Ireland and Nazi-occupied Guernsey.

There is also some exciting news from the recent BAG Committee meeting and the prospect of a busy 2013 ahead, which we hope you, as BAG and IfA members, will be an active part of.

From the Editor

Thank you very much to those who have contributed to this edition. The UK and EIRE's military built heritage is wide ranging and fascinating, but often neglected, hidden, difficult to properly assess and difficult to conserve or adapt to new purposes. This newsletter gives just a taste of the interesting sites and engaging research that is being carried out on them. All the contributors have welcomed responses to their articles and I am happy to pass these on or publish them in the next edition if you contact me via the email address below.

Hyperlinks throughout the newsletter will take readers to websites of relevance and/or interest. Details of the next editions can be found at the end of the, and if you think you have something suitable, please do get in touch. It will be published in May 2013, and if you would like to contribute please send items to the Editor via groups@archaeologists.net by 30 April 2013.

Happy New Year!

Edward James—Editor

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Britain's military heritage in Portland stone and red tunics. Photo: Edward James.

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Committee Report

The most recent committee meeting was held on 16 October at Reading University, with Amanda Forster and Lianne Birney from the IfA joining us. The next meeting is on 11 February in Bath.

It has been agreed that the Standards and Guidance for the Recording of Standing Buildings needs to be updated with some urgency, so this will be a priority for the coming year. Our Chairman, Dr Mike Nevell, is over-seeing the process so if you have any queries or comments, please direct them to him.

BAG has also successfully applied to the IfA to run a [session at the 2013 Conference in Birmingham](#), with the working theme of 'The impact of new technologies on buildings archaeology'. This is likely going to run in conjunction with a session by the Graphics Archaeology Group on a similar theme, so watch this space for updates. We are very much looking forward to this and hope to see you there.

Finally, in the next year BAG will be running up to four CPD valid training sessions. At first these will be run as pilot studies to gauge enthusiasm and get feedback. These courses will be aimed at those at the beginning of their career in the study and management of historic buildings, and those already working in the sector who would like to broaden their skills portfolio and work on their CPD. These courses will include introductions to condition surveys, measured surveys, project costing, and the analysis of historic

buildings with reference to the NPPF. The formats will vary from 1 day seminars held at various locations around the country, and 1 or 2 hour long webinars which can be accessed remotely. Please look out for more news about these exciting plans.

Ways to get involved

BAG is keen to offer its services for consultations and book reviews. We always welcome offers of help and assistance and it would be very much appreciated if members of the group who are interested in making themselves available for answering consultations and writing book reviews or articles for this newsletter could please get in contact with the group at groups@archaeologists.net.

other news

English Heritage Angel Awards 2013

Once again two members of the committee attended the [English Heritage Angel Awards](#). The Awards were a great success for the second year running, and all the nominees were of very high quality.

The winners of the 2013 English Heritage Angel Awards were:

- ◆ [Max Sinclair](#) for the restoration of [The Droitwich Canals](#).
- ◆ The [Cockermouth Shopfront Steering Group for Main Street, in Cumbria](#), for their work to restore the town's Main Street following devastating flood damage.
- ◆ [Pauline Burkitt and Simon Pleasley](#), Church Wardens for their conservation and restoration work at St Mary's Church, West Somerton, Norfolk
- ◆ [Station Developments](#), for the magnificent restoration of Tynemouth Station, North Tyneside.
- ◆ And finally, voted for by English Heritage members and readers of the Daily Telegraph, [Russel Savory and the Friends of Stow Maries Aerodrome](#), for [Stow Maries World War I Airfield](#).



The nominees for the award for The Best Rescue of a Historic Industrial Building or Site are introduced by the event's host, Clare Balding. Photo: Edward James.

World Heritage Under Threat—UNESCO

Concern has been expressed that the agendas of individual states is a threat to the protection of world heritage by Professor Lynn Meskell, Director of the Stanford Archaeology Centre, at the 7th Annual World Archaeological Congress in Jordan.

Professor Meskell said “This is the only international instrument we have for safeguarding the world’s heritage. However, the Convention is currently experiencing a crisis on several fronts - financial, organizational and political - that threaten its mission and its effectiveness to protect and preserve.”

For more information, click [HERE](#).

English Heritage seek to catalogue Grade II Buildings at Risk

English Heritage have started an ambitious project to catalogue the over 345,000 Grade II buildings in England in an effort to assess their level of risk from neglect, damage, and decay. In order to do this, 15 pilot projects have been put out to tender with a budget of £20,000 each, in order to assess the best way forward. Simon Thurley, Chief Executive of English Heritage, said:

"345,000 is not a large number in relation to all the buildings in England but it is too many for English Heritage to survey on its own. We need help and are prepared to fund nine to 15 pilot surveys around the country with local authorities, national parks, heritage and community groups as partners. For local authorities hard-pressed by cuts or other groups who come forward this means the chance to find out which buildings most need their scarce resources. And the results will help all parties involved, including the Heritage Lottery Fund and other grant-givers, to get rescues underway where nothing has been happening for years.

"It isn't just bean-counting. It really works. In London, Grade II buildings have been included on the Heritage at Risk Register since 1991 and 96% of them have been saved since then."

More [HERE](#)

Two Cold War Thor Missile Silos Listed on Anniversary of Cuban Missile Crisis

On the 50th Anniversary of the Cuban Missile Crisis (16-28 October 1962), the Department of Media Culture and Sport, on the advice of English Heritage, gave listed status to two American built Thor missile sites. The missile site at the former RAF North Luffenham in Rutland was listed Grade II*, and a similar site at the former RAF Harrington listed Grade II. The Thor missiles were an Intermediate Range Ballistic Missile, designed and constructed in the U.S.A but installed in Britain under a joint operation with the RAF codenamed 'Project Emily' between 1959-1968.

The listing of Cold War era structures is to be welcomed. This period of Britain's built heritage is often highly significant but can receive less attention due to its original 'Top Secret' nature or the location of sites on existing MOD property. Continuing declassification may change this in the future. More [HERE](#), and [HERE](#).



A Thor IRBM missile. Photo: Wikimedia commons.

Grade II* Listed Second World War Hangar to be Demolished

The hangar, at RAF Yatesbury in Wiltshire, was due to be restored as part of a regeneration project, but its condition deteriorated and part of the structure collapsed, with the remainder described by English Heritage to be in ‘very poor condition’ and its restoration now ‘unlikely to be achievable whilst retaining its significance’.

More [HERE](#)

A £160m ‘makeover’ for Smithfield Quarter in London

A project has been unveiled by Henderson Global Investors for the regeneration of the former General Market, Fish Market and Red House buildings in Smithfield Quarter, London.

Henderson is working with English Heritage and aims to “preserve the historic identity of the market buildings through the “retention, restoration and reuse of the most significant parts of the historic buildings while bringing much-needed new investment and active, informal uses to West Smithfield and the Farringdon area in the City of London”.

This is the most recent of a number of regenerations attempts, some of which [SAVE Britain’s Heritage](#) has campaigned against in order to save the nationally significant market buildings.

More [HERE](#), and the latest publication from SAVE, [HERE](#)



Smithfield Market building. Photo: Wikimedia Commons. 6

The Latest on Listed Building Consent Reform

Last August, the Department for Media, Culture and Sport (DCMS) consulted on a number of proposed changes to the way that Listed Building Consent operates within the English planning system, as part of the Government's response to the Penfold Review of Non-Planning Consent.

The premise was that DCMS was considering ways in which the 'burden' on developers and owners could be reduced, whilst simultaneously allowing local authority planning departments to "*focus upon the highest risk areas and to deliver a more efficient service*". In practice they were aiming to minimise the number of different circumstances in which Listed Building Consent was required, and reduce the information requirement with regards to applications.

The consultation asked for responses on four potential options for change. These, briefly, were:

- **Option 1:** A system of prior notification leading to deemed LBC i.e. notification of the intention to carry out works to a listed building, which would be deemed granted unless the local council requests the submission of a full LBC application within a specified time period.
- **Option 2:** A system of local and national class consents granting deemed LBC for defined works to defined heritage assets.
- **Option 3:** A "Certificate of Lawful Works to Listed Buildings" which could be introduced alongside option one or two, is to introduce a certificate of lawful works to listed buildings that do not have an impact on special interest. This would allow formal clarification for developers on whether LBC is required, and, if not, could avoid the submission of a full LBC application.
- **Option 4:** Replacing local authority conservation officer recommendations for LBC by those made by independent accredited agents, if applicants wish to do so. The government says it is keen to expand the range of expertise involved in decision-making on LBC cases so that decisions can be reached more quickly, while standards of protection are maintained.

The consultation period was short, at 30 days, and was timed to coincide with the third and final reading of the Regulatory Reform Bill. The length of the consultation period was criticised by a number of [organisations](#), including the Royal Town Planning Institute, the Institute for Historic Building Conservation, the Heritage Alliance, The Law Society, the Planning Officers Society and the Town & Country Planning Association.

The consultation elicited a broad range of responses, with the IfA's own detailed response available on PDF [HERE](#). Some other 'quotable quotes' ([via the IHBC](#)) are:

Joint Committee of National Amenity Societies

'We continue to feel that the most objective source of advice to a local planning authority is that given by an 'in-house' Conservation Officer. Many of these will have been in post for years and possess an intimate knowledge of their local area and buildings. Conservation Officers also have a vital role in many other ways – offering advice to owners, preparing Conservation Area Appraisals, drawing up Supplementary Guidance. Limiting their role in Development Control, as this proposal would do, would further discourage local planning authorities from employing such officers at a time when they are already under threat as a result of public spending cuts. The third of local planning authorities who do not have any 'in-house' conservation expertise would have even less reason to remedy that serious failing.'

RTPI

'Those responsible for this consultation should understand that, in noting that 95% of English Heritage sampled applications were approved, it is not implied that these applications were pointless or timewasting; it more likely indicates that the LBC system is well understood, that local authority expert advice is well-directed and positive, and that the public interest is well served by the process that encourages sound proposals...'

'It is to be regretted that within the outlining of these proposals it is implied that the services provided by conservation professionals within LPAs might readily and beneficially be replaced by accredited experts funded by applicants. It is inevitable that many independent experts (including English Heritage) will rely on and have good reason to trust the local knowledge

and understanding of context that will rest with the LPA staff...'

Civic Voice

'Most local authority planning departments employ at least one full time conservation officer, and some larger authorities employ several. These officers have built up an extensive knowledge of the listed buildings and conservation areas in their district, and their experience is valuable and hard to replace. Smaller authorities that do not employ a full time conservation officer and rely on part time outside assistants should be required to comply with the requirements of the Planning Act by considering employing full time staff but by sharing employees with an adjoining authority. It would continue to ensure that these officers are recognised by the general public as, in the main, being independent and not influenced by external factors...'

'... We should be investing in conservation departments, not looking for further ways to decrease the capacity and knowledge. If in the long term, councils pursue this approach and in doing so reduce the number of conservation area officers, there could be an unintended consequence that the default position would be to require 'expert' input for all apps, which could actually disincentive building owners to pursue expert advice due to costs involved, which is contrary to the aim of the proposed bill.'

Planning Officers Society

'It is important that any change does not undermine the integration that already exists in LPAs. All too often planning officers, ecological specialists and listed building specialist officers work very closely together and this unified approach benefits both the applicant and the buildings integrity. There appears in both the Consultation and Penfold Review acknowledgement of the importance of this joint working and it is difficult to see how the introduction of accredited agents would produce any advantage to the applicant in instances where planning permission is also required...'

'Given the responsibility for consulting on the application and making the decision will remain with the LPA there is every likelihood that a non-binding recommendation from the applicants

agent would still need the same scrutiny as they would if they were submitted by a professional agent under current arrangements. There is potential for additional financial burdens being placed on applicants as well as raised expectations. It is considered that greater certainty would be achieved through effective pre-application engagement with the LPA, this accords with the approach prompted in the National Planning policy Framework...'

'The submission of well researched reports that assess the impact of the proposals on the special interest of the listed building benefits all parties. This is already part of best practice regarding listed buildings and other heritage assets. Every applicant should in any event submit sufficient information and reports to allow the LPA to assess the development proposals. If this option were to progress it should be amended to make it clear that this process should be an iterative one where the LPA has the opportunity if it wishes to be involved in setting the brief for the agents reports that will be submitted with the application, to be involved in agreeing that the evidence base used is suitable and that the scope of the impacts considered are agreed. This open process is much more likely to lead to a mutually acceptable result and avoiding abortive applications...'

English Heritage

'... judgement as to the nature of impact and whether it is genuinely positive or justified can be exacting. It may require expert input from consultees such as local amenity societies, English Heritage and the National Amenity Societies. It may be something that is sufficiently concerning for the Secretary of State to wish to consider...'

'Determining the optimum viable use of a listed building can require a thorough consideration of the impact of alternative uses on long-term conservation. It is something that could require substantial evidence and would benefit often from the input of consultees and the public. If the choice of use is wrong the long-term impacts on conservation could be serious and irreversible...'

Option 4, in particular, was [singled out for criticism](#), it being suggested that far from streamlining the system, it would only introduce more regulation and create the potential for clear [conflict of interests within the system](#). Options 1-3 were met with less forthright

criticism, but reservations were expressed about the introduction of 'deemed consent', and the system of 'class consents' outlined in Option 2. A more effective system of enforcement was also supported, in order to make it easier for councils to take action.

The government has now issued its response to the consultation responses, the full document of which can be found as a PDF [HERE](#). The responses, briefly, are:

- Option 1, introducing a system of deemed consent. We do not plan to take this proposal forward at this time.
- Option 2, introducing a system of local and national class consents. We will take this option forward and introduce the necessary legislation required to achieve this.
- Option 3, introducing a Certificate of Lawful Works. We will take this option forward in relation to proposed works, and introduce the necessary legislation required to achieve this.
- Option 4, introducing a system of accredited agents. We will take this option forward, but seek a non-statutory route, working with industry to realise the most appropriate way to introduce a light-touch system.
- And finally, to investigate the reasons authorities are unwilling to exercise their statutory powers of enforcement.

These responses were welcomed by the [Institute for Historic Building Conservation](#) although reservations about the ambiguity of Option 4 were expressed by several heritage professionals on Twitter. The process continues.

Community Right to Bid introduced by Communities Minister

The Community Right to Bid, part of the Localism Act, came into force on 21 September 2012, and gives communities the power to 'stop the clock' for six months in order to organise their own bids to save local heritage and amenity assets like post offices, pubs or village shops.

More information can be found [HERE](#).

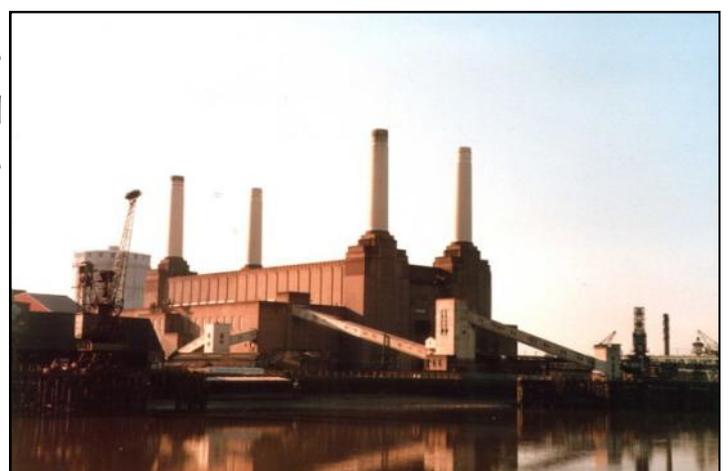
Battersea Power Station Plans Submitted, Approved, and Sold

An £8billion redevelopment plan, by Ian Simpson and [dRMM](#), was submitted in October 2012, and was granted planning permission in December 2012. The iconic Grade II* listed power station, designed by Sir Giles Gilbert Scott in the 1920s, enlarged immediately post-Second World War, and eventually shut down in October 1983, will form the central focus of the plan which will encompass 102,200sqm and contain 800 apartments. It will also require a £500m extension to the Northern Line.

The Twentieth Century Society expressed concerns, saying it remained “concerned about the height of the proposed building to west of the power station which rises to 17 storeys. It will obscure cherished views of the power station from Chelsea Bridge Road, and other long distance views.’ It added: “in terms of works to the power station building, we see the four chimneys as absolutely fundamental to the building’s historic importance and iconic status”. Other criticisms, by architect Keith Garner, noted the fact that the first phase of the reconstruction was not to include the renovation of the power station itself.

In January 2013, the sale of the planned apartments went ahead, and demand was reported to be extremely high, with the majority sold within a short period of time. Construction work is due to begin in later 2013.

Photographs and more information about the development can be found [HERE](#), [HERE](#) and [HERE](#) and also on the architect’s website above.



Battersea Power Station just after its closure. Source: Wikimedia Commons, photographer [Keith Evans](#).

policy and standards

Contracts. Who's the boss? - Bob Hill, Historic Building Advisory Service

Contracts, in one shape or form, are the basis of all the work that archaeologists, whether they are buildings specialists or generalists, undertake for their clients. Similarly it is of little difference whether the contract is a simple letter, a contract under hand or sealed, or even a verbal one.

It does not matter whether the client is an internal or an external one, the same basic rules apply as to who you are responsible to and what you need to do and what you do not.

In legal phraseology the client is deemed the master and the person carrying out the contract is the servant, and that is the role that each has to fulfil for the other. These are amorphous terms with no form of gender bias construed in the title, and it is of no concern in legal terms if either body is an individual or corporate entity.

The master is the body that contracts to buy something for an agreed price and the servant contracts to deliver the counterpart of the agreement for the agreed price. That, in basic terms, sets out the relationship between how the two parties work, where one issues instructions and the other carries them out. Those roles are fixed and each must play their part without imposing on the other.

As such the servant does the amount of work or service that was contracted for and no more. Similarly the master cannot ask for more work to be done beyond the initially agreed amount without paying for it. On the other hand, if the amount of service that was contracted for is reduced by the master, then the amount that is paid is similarly reduced, although in some circumstances the servant may be entitled to a degree of loss of the profit that they may have otherwise expected.

In practice one of the main aspects of working on a contract that affects archaeologists is who they take instructions from during the works. As they are servants they can only take instructions from their master, because that is the person they have a contract with. If anybody else wants them to do anything then they must refuse and direct them to the client (master) who will give them appropriate instruction.

Where that can become difficult for many contracting archaeologists is if a curatorial archaeologist or planning officer wants additional work undertaken. This can include work such as further survey work or additional opening-up or excavation than was included in the initial contract. Strictly speaking, and unless there is specific allowance made within the contract or working agreement with the client, the servant archaeologist should not even be talking to anybody who is an outsider to the contract.

Unless there is specific provision within the contract or the specification upon which the contract was negotiated everything that the contracting archaeologist does must be agreed in advance with the client. Therefore if it is necessary to discuss anything to do with the job /

site with the curatorial side then it should either be in conjunction with the client or with their agreement.

Contract case law requires imposes a rule of confidentiality on the servant so that it is not permissible to discuss the client's work with anybody outside the contract without that client's consent. The professional rules of the IFA or any other institution do not overrule such a requirement of confidentiality. A breach of this rule can result in a termination of a contract and even possible claim for damages against the servant.

An architect would never commit his client to planning constraints without getting approval to do so and similarly a building contractor would not do extra work that may be required by a planner or building control without approval in advance by the client. A contracting archaeologist is no different and is not considered to have any preferential arrangement with local authority or similar staff in the contract.

It is argued by many contracting archaeologists that they are allowed to discuss, or even negotiate, with the curatorial side as they wish as well as discuss their findings or results – generally they cannot. In their defence they say that a planning condition or works specification frequently implies that they need to do so. Unless that is specifically allowed for in the contract documents then such action is not permitted. Any planning condition or other such specification is between a local authority or similar and the client, there is no connection with the contractor.

Should the contracting archaeologist consider that they are being restricted to such an unprofessional level by the client in not being able to talk to the curatorial staff then all they can do is terminate the contract. It is the same for any professional who is being asked to work in a manner contrary to their professional rules.

Even after they have finished working for their former client things do not improve much as they will still be bound by general rules of confidentiality. The only way they can escape that is to argue that to remain silent would be against the public interest in some way.

For the servant archaeologist to go ahead and carry out any extra work or instruction issued by the curatorial staff without client agreement because they consider this as an acceptable professional element can result in a breach of contract. It is also very unlikely that that they will be entitled to be reimbursed for the extra costs because it was their decision and not that of the client. However, if all such instructions come from the client then that forms a proper extension of the contract and therefore should be paid for in full by the client.

Contracting archaeologists are frequently heard complaining about doing extra work for no extra pay. They need to seriously consider how they work and what their working relationships are with their clients. Every other professional or contractor in the property and development industry that we are all members of knows how to work in a way so that they get paid for what they do. Archaeologists need to accept they are just another contractor and follow the rules on how they work with their clients and ensure they follow the correct contractual procedures so as to recover all monies they are entitled to.

Response welcomed.

features

For this edition of the newsletter we have a number of excellent features, all of which have at their heart a military theme. First, an example of some up-to-date research in the field in the form of **Dr Peter Buxton's** contribution looking at the spatial analysis of the now disused Royal Naval Hospital at Haslar. This is followed by an introduction to the archaeology of Irish military buildings from **Damien Shiels** of Rubicon Heritage. We then have an interesting report from the **Surrey Archaeological Society** on their investigations into a First World War P.O.W camp at Felday. More modern military structures are covered too, first by **Andrew Passmore** who introduces us to the archaeology of early radar, and secondly by **Paul Francis**, whose contribution looks at the recording of RAF Alconbury. Finally overseas, first via Guernsey where **Christopher Mauger** introduces to his research on the archaeology of Second World War German fortifications, and secondly to the Estonian capital Tallinn, where **Paul Belford** investigates the complex and interesting history of Paterai Prison.

Thank you to all the contributors to this edition of the newsletter for all your time and effort.

Edward James.

The influence of military threats on the design and use of the Royal Naval Hospital Haslar—Dr Peter Buxton, Surgeon Cdr, Royal Navy

Introduction

"We shape our buildings, and afterwards our buildings shape us."

Winston Churchill, 28 October 1943

The Royal Naval Hospital Haslar, now known as the Royal Hospital Haslar, is one of the best preserved Georgian hospitals and grounds in the country. Its simple appearance, now much loved, arose not primarily from an aesthetic desire but for pragmatic military and fiscal reasons. The aim of this paper is to show that the original design and subsequent modifications to the Royal Naval Hospital Haslar were influenced by the contemporary military threat; that this design had a direct effect on mitigating this threat; and that the changes in the type of threat over time led to identifiable changes in the extant fabric of the buildings and grounds.

A 'military threat' should not be limited to physical attacks on people or units (kinetic effects) but should include all events that adversely affect an organisation's ability to carry out its functions. The loss of manpower from desertion in the eighteenth century, an example of a non-kinetic threat, was significantly undermining operational capability. This paper will show how the buildings at Haslar were used to counter both kinetic and non-kinetic threats.

The typically simple Georgian facade of the main hospital building conceals a complex building layout with numerous lobbies and access routes to the wards and outdoor exercise areas. In order to compare this

building with other contemporary institutional buildings, such as hospitals and prisons, techniques must be used to discern the underlying structure of these buildings. Spatial analysis seeks to understand a building by reducing it to a series of interconnected nodes and identifying which of the different classes of occupants have access to them. Justified access graphs, developed by Hillier and Hanson [1], are a way of simplifying a building to better understand its layout and to determine its permeability - that is the ease with which people can enter it or move around within it. They can be used to compare widely different structures in order to identify underlying patterns.

In a private building, such as a house, the deepest spaces are normally the private ones such as the bedrooms; it is these spaces that are exclusively occupied by those who 'control' the building i.e. the owners. In these buildings visitors are confined to the shallow spaces, although honoured guests may be permitted to enter the deeper spaces. By contrast the shallower spaces of institutional buildings, such as prisons or workhouses, are occupied by those who 'control' the building, such as warders, whilst the deep spaces i.e. the cells are occupied by the 'visitor' such as the inmate. A deep space could be seen as either a private space, and therefore desirable, or as a maximally controlled space, and therefore undesirable. How the space is perceived will depend entirely on the context of the building.

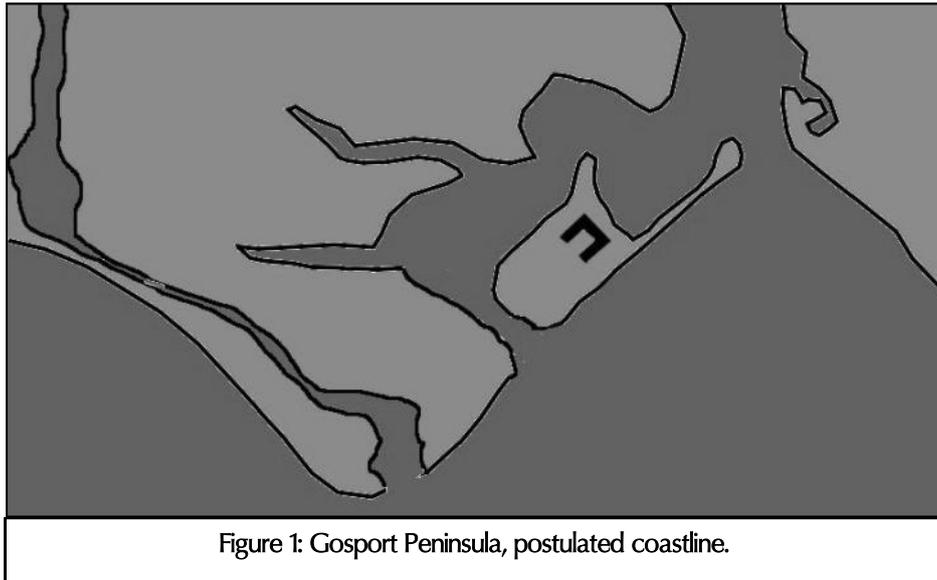
Historical Background

In common with the civilian practice of the time, naval patients in the early eighteenth century were normally treated in private houses and lodgings or, if sufficiently well, were sent to decommissioned warship hulks that served as hospital ships. Such practices were far from ideal and on the 15th September 1744 the Navy Board petitioned the King to authorise the building of hospitals for seamen at Portsmouth, Plymouth and Chatham and cited as their main reason that "the want of such hospitals is so sensibly felt, and Your Majesty's service suffers so greatly from the loss of seamen, either by death or desertion, who are sent on shore for the cure of their distempers" [2]. The dual requirements for the hospital, as a place of healing and incarceration, are evident therefore at its inception and would require compromises in its design to accommodate this duality. Preventing desertion was not the only security consideration as there was also concern that the seamen's recovery was hampered by drunkenness. The hospital's design would have to impede, therefore, the smuggling of intoxicating liquor. The Navy Board stated that, if it was not possible for all three hospitals to be built, the one at Portsmouth was the most urgent and estimated that a hospital to house 1,500 patients could be constructed for £38,000. This request coincided with an energetic period of civilian hospital building [3] such that, by this time, there was a hospital in most towns in Britain.

Significant amounts of land reclamation and alterations in the outfall of the local rivers have occurred since the hospital's construction and by combining evidence from early maps and existing topographical features it is possible to reconstruct how the coastline may have looked when the hospital was built (Figure 1). This would suggest that the hospital would have been significantly more isolated than its present appearance would indicate.

The original plans were for four ranges completely enclosing a central courtyard which was at variance to the more common 'U' or 'H' shaped civilian hospitals being constructed at the time. For example the London Hospital (1740) was built as a 'U' and the conversion of a London mansion, Lanesborough House, to form St

George's Hospital, London (1733-39) resulted in an 'H' shape. This variation from the civilian norm was presumably to provide more secure accommodation for the military patients. Building started on the North-East range in 1746 and patients were moved into it in 1754; work then continued on the two side ranges which were completed by 1762. The fourth range was never built and this is usually attributed to a lack of funds as the cost of the building had by then climbed to £100,000. The final form of the hospital therefore took a conventional 'U' form and Tait [2] considered that this had 'much advantage, as it allows free access of both sun and air'; which would not have been the case had the building been completed to the original plan.



The hospital was not, however, particularly secure, Admiral Keppel, in a letter from HMS Victory in 1778 [4], to the First Lord of the Admiralty wrote that "The insufficiency of the invalid guard at the hospital [Haslar] has allowed of more desertion from it than before" In 1796, to improve security, railings were installed to complete the square and close off the inner quadrangle. Although the use of impressment declined at the end of the Napoleonic wars the railings were not removed until 1906. An outer perimeter wall was constructed in the mid eighteenth century and was extended to encompass the paddock, to the south-west of the site, in 1857. Although there was significant military activity in the nineteenth and early twentieth centuries there was no direct threat to the hospital. The changes on the site during this time, such as the building of the Zymotic Block (for infectious cases) and the Sick Officers Block were all, therefore, medically related. Separate staff accommodation was also built so that they no longer needed to live within the main hospital building.

Military Threat Analysis

Desertion was clearly a problem in the early history of the hospital; the Hospital Instructions for Haslar and Plymouth state [5] "Centinels [sic] are to be sited around the hospital to prevent desertion or damage to walls". Even though impressment was effectively discontinued in 1815 this much criticised practice was still an option for the naval authorities; the last parliamentary impressment bill was passed in 1835. Loss of personnel from the Royal Navy must have remained a problem as the 1854 hospital police instructions [6]

instructed that “the utmost diligence is to be used to prevent the Desertion of Patients”.

Hospitals are, by tradition and latterly by international treaty, protected from direct military attack. Haslar occupies land which, together with the adjacent Fort Blockhouse site, commands the narrow entrance to Portsmouth harbour. Therefore, whilst it would have been unlikely that the hospital would have been attacked during the nineteenth century for its own sake, it could have been threatened because of its strategic position. As the effective range of artillery increased the defensive value of the forts and land close to the harbour became ineffective and, in 1859, a Royal Commission advocated the construction of an outer defensive ring of forts around the harbour. As Haslar lay within this defensive ring it was thus protected from military attack.

With the development of aerial bombardment in the Second World War however the hospital was no longer safe. Although the hospital was never targeted directly its proximity to the military dockyard made it vulnerable. Several bombs dropped on the site, one of which destroyed the pavilion between ‘E’ and ‘F’ Block - this housed the museum and resulted in the loss of the botanic and other specimens collected during the voyages of, amongst others, HMS Beagle.

The possibility of an attack continued into the Cold War where again the proximity of Haslar to Portsmouth Naval dockyard, a prime target for a nuclear or conventional bomb, made it liable to collateral damage. In reality, had the former been used, the hospital would have been within the zone of complete destruction. The Cold War also saw the possible use of attack from biological and chemical weapons - had these been used on the adjacent Naval base Haslar would have been affected.

The possibility of a direct terrorist attack on the hospital developed from the early 1970s to the present - initially from the Irish Republican threat and latterly from other international terrorists. The attack on the military wing of Musgrave Park Hospital, Belfast in November 1991, which killed 2 members of the Royal Army Medical Corps and injured 7 others, showed that this was a very real threat. Although it was assumed that any such attack would be against the military living accommodation rather than the clinical areas their close proximity at Haslar meant that the whole site had to be protected.

Over the life of the hospital therefore the predominant military threat has changed from a largely ‘internal’ one requiring control of the patients to one that required the patients and staff to be protected from an ‘external’ threat. The following sections will show how the hospital was built or altered to counter these threats.

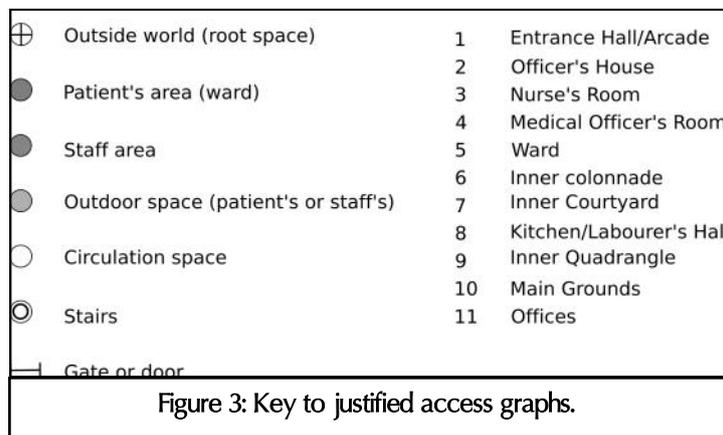
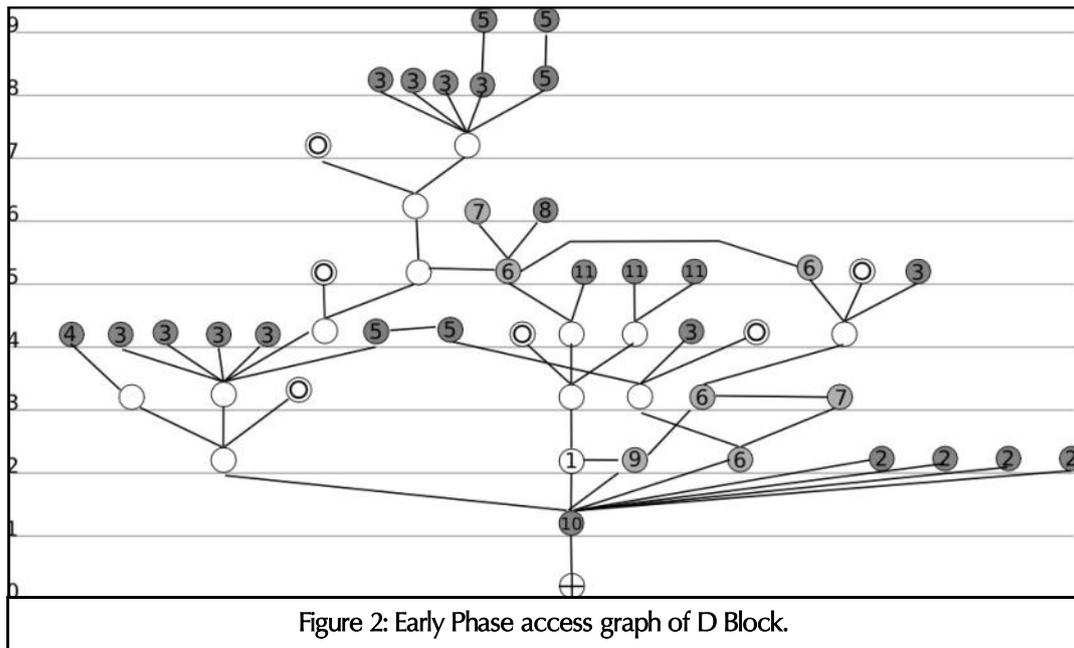
Influence of desertion

In their petition to the King the Navy Board clearly recognised the need to treat sailors in a secure location. In building Haslar the threat of desertion was countered in three ways: its location, the design of the building itself and the perimeter wall.

The location for Haslar was chosen to offer a significant degree of isolation. An original plan shows that the hospital would have been surrounded on three sides by water. The only land connection, to the south-west of the site, was an area of creeks and ponds which would have been difficult to cross and would have further isolated the site and impeded escape. Physical isolation of hospitals of this period was not unique to

Haslar. Most hospitals of the period were built in the fields surrounding the conurbation they served. Such isolation was seen as an important protection from the dangerous miasma that emanated from the sick and was believed to cause disease. The physical isolation at Haslar therefore served both a military and a medical purpose.

The initial phase of building was of the main, north-east frontage (Blocks C & D) and patients were moved in as soon as it was completed. Figure 2 shows this initial building phase as a justified access analysis graph with the key shown in Figure 3. This shows that the spaces occupied by the patients are at the deepest ie the most secure or private part of the building and that the more senior staff occupy the shallowest, or controlling, spaces.



Two problems can be identified from these graphs, firstly many of the wards are parts of circulation spaces i.e. they could be used as a corridor; secondly the wards are not very deep within the structure i.e. it would be relatively easy to escape from the wards. The subsequent addition of the two side wings, whilst increasing the capacity of the hospital, did not affect its permeability or the spatial relationships between the staff and patients.

As discussed above, desertion remained a problem and a fence was built in 1796 to enclose the inner quadrangle with the intent of improving security. This fence on its own would have been insufficient as

the patients would have direct access to the main hospital grounds through the arcades adjacent to the pavilions situated between 'A' & 'B' and 'E' & 'F' blocks. There is good photographic and documentary evidence for the construction of the fence but there is no documentary or historic photographic evidence of any changes to the area between the pavilions.

Examination of the walls around the pavilions however, strongly suggests that changes were made to block off these passages. The walls of the arches between 'A' & 'B' blocks (Figure 4) clearly shows evidence of scarring on the brickwork suggestive of a metal grill in the upper portion, and stone inserts in the base (not shown) could indicate a repair of the plinth following the later removal of a solid wall. There remains, between the inner and outer ranges of 'F' Block, a wall and upper grill whose dimensions match the scars on the wall between 'A' & 'B' block (Figure 5). In addition there is a hole in the stone work at the apex of the arch in the 'F' Block range. This is interpreted as the site of a bolt hole that would have secured a central gate.



Figure 4: Scars on brickwork between A and B Block.



Figure 5: Extant grill and wall in F Block.

The overall interpretation therefore is that, at the time the fence across the fourth side of the quadrangle was built, the connections between inner courtyards and the main hospital grounds were secured with a stone wall and upper grill with a central gate at at least one site. This would increase the depth of the inner courtyards and quadrangle compared to Figure 2 but would have only a slight effect on the depth of the wards.

As discussed above, in an institutional building such as Haslar the deeper spaces are associated with increasing security. As the fence and other building works described above did not markedly increase the security (depth) of the wards it would seem unlikely that such extensive work would be done for such a minimal gain in security without additional measures being taken. If, however, the doors at the ends of the blocks were locked the depth of the wards increases significantly and the majority of the wards also cease to be on a circulation route (Figure 6).

If the arcades between the pavilions were blocked off as postulated above, then the inner courtyards between the blocks (Figure 7) would be within the space occupied by the patients and could have been used as an outdoor exercise area, in addition to the inner quadrangle and arcades. On original plans the small projecting wings are described as 'water-closets'. Access to the inner ones on the ground floor would

have been from the inner courtyard doorway which can be seen as a bricked up doorway; examination of the brickwork on all other sides shows no other entrances. This finding adds weight to the suggestion that the inner courtyards were used by the patients as part of their outdoor exercise area.

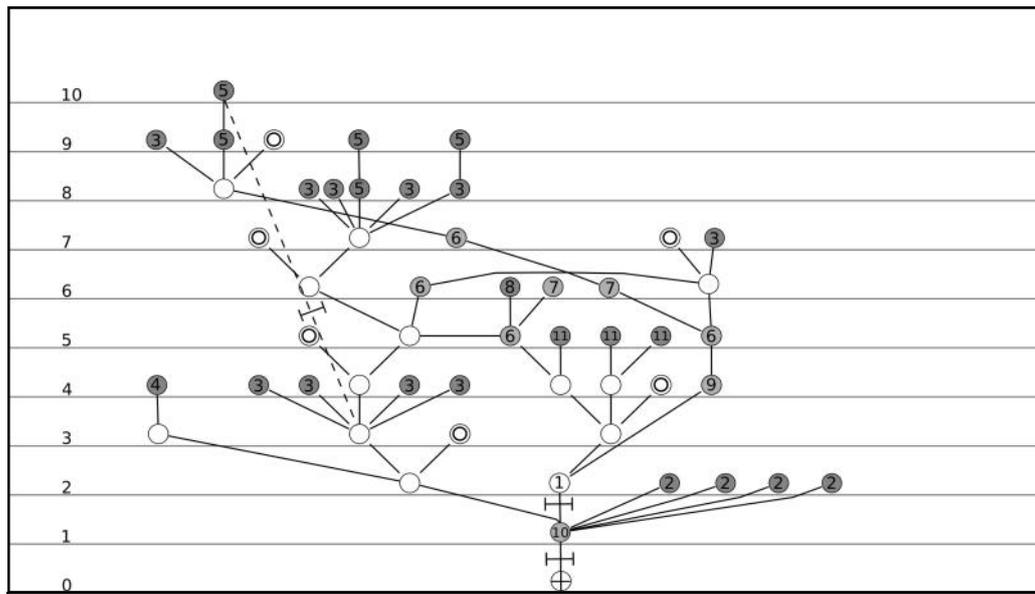


Figure 6: Later phase access graph of D Block.



Figure 7: Inner Courtyard.

The general pattern at Haslar is that the shallowest spaces are those occupied exclusively by the staff. Conversely the deepest structures are the wards where the patients would be confined at night. Between these the middle group represents spaces that would be used both by staff and patients; as outdoor exercise spaces that the patients would have used during the day and the staff would have used to move around the hospital. Logic would dictate that it would be easiest to escape in the dark and the Hospital Instructions [5, 6] directed that patients were to be confined to the wards at night and the external doors locked. Thus at a time when they would be most likely to escape, the patients were in the deepest part of the structure. The pattern is not entirely pure however as the ward staff had to be located close to the wards in order to carry out their nursing function.

The outer security of the Haslar site is provided by the perimeter wall that is dated to the mid eighteenth century and is therefore contemporary with the construction of the main part of the hospital. The wall remains largely intact on the north-east and north-west margins of the site; its original form on the south-west margin is difficult to discern due to the later construction of the Officers' Terrace (1796). Its appearance in 1809 is shown in a watercolour sketch by a soldier from the 2nd West Yorkshire Militia, John Durant, who was stationed at Haslar Barracks. This sketch of the north-east aspect of the site shows that the perimeter wall is lower than today; the current appearance of this wall is shown in Figure 8. There is a clear change in the colour of the bricks in the upper part of the wall to the left of the picture where there is a building against it. This building is one of a pair of storehouses built in 1853; the change in the brickwork must mean the height of the perimeter wall here was increased to accommodate the building rather than to increase the security as the height of the perimeter wall elsewhere remained unchanged.

By the middle of the nineteenth century plans of the hospital show that several openings had been made in the perimeter wall, for example to the 'Works' area in the north corner of the site (shown as a bricked up gate to the right of Figure 8) and in the north-west wall giving access to the cemetery. Whilst these entrances could have been either locked or guarded the presumption must be that, at the time they were inserted, the risk from desertion had diminished and there was no significant external threat that would require a strong perimeter defence. The evidence however is somewhat mixed as the wall surrounding the cemetery contains gun loops (Figure 9) which face the paddock.



Figure 8: North-east perimeter wall.



Figure 9: Gun loops in the cemetery wall.

Three of these openings remain and there were probably more but part of the wall has collapsed. There is no 'scarring' in the adjacent brickwork and they are made from the same brick as the rest of the wall. The interpretation is therefore that they are contemporary with the main construction phase of the wall and are not a later addition. The wall surrounding the paddock is securely dated, by an incorporated date stone, to 1857. The wall surrounding the cemetery is harder to date. It must post date the consecration of the cemetery in 1826 but there would be no requirement to incorporate defensive gun loops at this time as there were no significant military threats. A later date of 1857 for the construction of the cemetery wall would make more sense as there was a real fear at this time that a French army would land to the west of Haslar and seize the peninsula in order to control the harbour entrance. These gun loops would have provided an effective field of fire over the paddock area which would be the logical route of an invading army.

The majority of the gates that were inserted in the wall were later bricked up; the date for this is unknown but presumably reflected a growing concern with an external threat. Haslar is adjacent to a motor-torpedo boat base and a main submarine base and the whole area would, therefore, have continued to have been of significant military importance throughout the twentieth century; this would have required all of the sites to be made secure. The bricks and workmanship used to seal the additional gateways is of a high standard and the work was probably carried out around the period of the First World War rather than later.

Influence of aerial bombardment

There are deep cellars extending under all of the main blocks of RNH Haslar but there are no cellars under the outlying blocks such as the Sick Officers Block, Zymotics Block and the staff accommodation areas. In the Second World War the cellars under the main hospital would have provided good protection from all but a direct hit and there is photographic evidence that they were used as emergency operating theatres. They may also have been used as temporary wards but no photographic evidence for this has been discovered. From a practical point of view, it is unlikely that patients were accommodated in the cellars permanently but would have been taken there when the air raids were most intense.

Where there were no cellars underground air raid shelters were built. A recent visit has shown them to be in an excellent state of preservation with sound concrete walls and no significant water ingress; the built-in bunks and seating are in almost perfect condition. The shelters adjacent to Zymotics Block and the accommodation blocks have vertical internal walls made from concrete poured in situ and are entered by a steep set of stairs. There is a vertical emergency escape ladder at the far end of each shelter. Each shelter has about 20 bed spaces but could accommodate more if necessary. The shelter adjacent to the Sick Officers' Block uses the slope of the ground to provide an alternative entrance arrangement. It is built with about half of its height above ground level and internally it has a circular cross-section with the walls constructed from pre-cast concrete. There is a large mound of earth covering the above ground portion. The shelter is composed of two connected 'wings' with three entrances and one emergency exit.

The interpretation of these differences is that the shelters adjacent to the Zymotics Block and accommodation buildings were used by only a small number of people, possibly only staff who were off duty whilst the shelter next to the Sick Officers' Block would have to be used by both the patients and staff. The latter type of shelter however would have taken more resources to construct than the completely underground type used elsewhere. There are no shelters associated with the main blocks of the hospital presumably because the patients and on duty staff would have used the cellars for shelter.

The plans to use the cellars as shelters continued into the Cold War period and there were instructions to staff about the use of the cellars in the event of a Soviet attack. As the cellars are not hermetically sealed their use would only have been of any benefit in the event of a conventional attack. They would not have provided any defence against a nuclear, biological or chemical attack. The only remaining visible reminder of their use is a shelter sign at the end of B Block.

Influence of terrorism

The main terrorist weapon is the improvised explosive device (IED), which requires to be placed in close proximity to the target, the principal defence against such a threat is in preventing the terrorist from gaining access to the site. Since Haslar also acted as the local civilian hospital restricting access was, and is, difficult. Although this threat is relatively recent the threat of direct assault has been present since the middle of the nineteenth century as has already been discussed with respect to the gun loops in the external wall. Access control was effected by securing the perimeter of the site against unauthorised entry and so the limitation on the number of access routes into the site persisted.

Although a new main gate was created in 1980, on the north-west perimeter as part of the Cross-Link construction, the old main entrance was closed and only used for ceremonial purposes. The earlier closure of entrances created in the nineteenth century ensured that there continued to only be one route into the hospital which was, and is, permanently guarded. At times of heightened threat in the 1980's, sandbag revetments were added to the gate defences to provide cover for the armed sentries. The threat on the mainland was never, however, considered severe enough to construct permanent pillboxes such as those found at the Army hospital at Musgrave Park, Belfast.

The original perimeter walls around the main part of the site are of sufficient height to prevent unauthorised access, however the sections along the south-east, adjacent to the sea wall had been lost or reduced in height and those built around the paddock in the south-west part of the site were too low to provide an adequate defence. These weak spots were reinforced with the construction of a wire fence topped with rolls of barbed wire. The gap between this fence and the original wall was kept clear of obstructions and is illuminated at night in order to provide a further deterrent to unauthorised access.

In 1991 the IRA attacked Downing Street with mortars. The change of tactics to these 'indirect fire' weapons meant that the perimeter defences at Haslar were inadequate to protect against this new threat. Those parts of the perimeter close to the accommodation areas, which were considered to be at highest risk, were strengthened with the additional fencing to increase the height of the perimeter as a defence against mortars. At the same time additional gates were placed at the main entrance which could be closed at times of heightened security in order to completely seal the site. The threat from IEDs remained and precautions were taken to reduce the places where these weapons could be hidden. The ground level vents which led to the basement of the main hospital blocks were sealed with additional, surface level, gratings to prevent IEDs being placed next to this building.

Conclusion

The design of RNH Haslar has had to encompass both military and medical requirements which, whilst not wholly incompatible, certainly required compromises to be made. These requirements altered over the subsequent 250 years and the fabric of the hospital, and the way it was used, had to alter to accommodate them. Some of these changes, such as the requirement for guards, are only known because of documentary evidence whilst for others the only evidence is in the fabric of the existing buildings. The most striking change was that the initial threat was an internal one of desertion and disorder which altered, in the late nineteenth century, to an external threat of bombardment or direct assault. Consequently the defences

have had to change from inward looking to outward facing and this is reflected in the material remains and the documentary evidence.

The defences against the internal threat were not just the perimeter wall but the whole design and use of the hospital; wards were placed deep in the structure and were locked, exercise areas were enclosed and the whole site was guarded. The construction of Haslar corresponded to an active period of hospital building with much experimentation with various designs; the Royal Navy was in the vanguard of this change with Stonehouse being the prototypical pavilion style hospital and Haslar echoing the enclosed spaces associated with prisons.

Both Haslar and civilian hospitals of the period show that the spaces occupied by the patients are the deepest ones but the respective meanings of this are different. At Haslar this depth is related to a requirement to control the patients and to prevent them escaping. At the civilian hospital there is no requirement to prevent the patients escaping and the depth of the wards is used to control access to the patients and allow them some privacy. It should be recognised, however, that this is an interpretation based upon modern medical practice and that the original power relationships between staff and patients could have been very different. It would be equally valid to recognise that civilian patients are controlled by the staff, albeit in a less formal way than the military, and that the design reinforced this control.

Current academic debate centres around how much a building can control people and influence the power relationships between them. Markus [7] states that social relations explain both society and the buildings they construct such that building design is derived from the societal relations. He further asserts that the purpose of a building is to interface the controllers of a building (i.e. the medical staff) and the visitors (i.e. the patients) whilst excluding strangers. Churchill's quote at the start of this article was referring to the rebuilding of the debating chamber of the House of Commons following its war time damage. He argued that it should not be expanded, to allow all of the members a seat, since this would alter the dynamics of the relationships within the chamber and lessen the quality of the debates. He clearly believed that buildings could have a significant effect on the way people interacted.

Over the years we, the military, have shaped Haslar to balance the changing and competing military and medical requirements and this 'shaping' continues to the present day as Haslar transitions to a fully civilian hospital. But has Haslar shaped us? By constraining and controlling their movements, the design certainly shaped and reinforced the relationships between the staff and patients in the past. More recently the effect is less obvious but does persist with rules governing the use of certain paths or the wearing of uniform in particular areas.

At a more spiritual level walking around the same wards used by James Lind or crossing flagstones over which the wounded from Trafalgar passed is a profound experience. In its more than 250 year history the Royal Naval Hospital Haslar has been shaped to cope with changing requirements and in its turn, over the last 26 years, it has shaped the author.

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Afternote

This article is a shortened version of the author's MA dissertation which is available at pjbuxton.googlepages.com.

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The Military Archaeology of Irish Buildings in the Twentieth Century—Damian Shiels, Rubicon Heritage

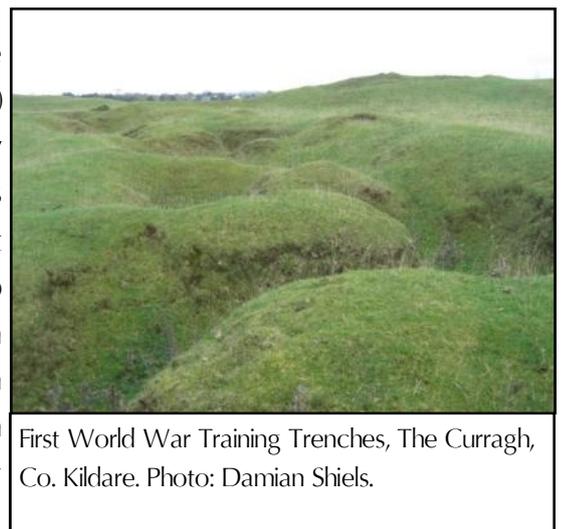
Introduction

Recent years have seen a rise in interest in Europe and further afield in the archaeology of the two world wars. The conflicts were the defining events of the twentieth century and have left an indelible imprint on the landscapes of all those countries involved. This archaeological recognition is perhaps best exemplified in the United Kingdom, where over 20,000 twentieth century military sites have been recorded as part of the Defence of Britain Project. The archaeological study of twentieth century military sites and buildings in the Republic of Ireland is still in its infancy, and unfortunately few enjoy any measure of archaeological protection. Some of this rich heritage has recently been highlighted by the excavation of Bud Wolfe's spitfire in Co. Donegal for the BBC, the restoration of the 'Eire' sign on Loop Head in Co. Clare and the ongoing work on maritime aspects of the wars, particularly with regard to U-Boats.

The island's experience of warfare in the twentieth century was frequent and varied. In World War One a united Ireland was part of the Allied war effort and as such was a major base for recruitment, training and offensive and defensive military operations. Both during and after the Great War the 1916 Rising, War of Independence (1919-21) and Civil War (1922-23) had a profound effect on the island. By World War Two partition found the North constituting part of the Allied War effort much as it had in World War One, while the South adopted a course of neutrality during a period that became known as The Emergency. All these wars have left a unique imprint on the Irish archaeological landscape, and offer opportunities for advancing our understanding of the country's roles in both conflicts.

World War One

The island of Ireland was a participant in World War One on the Allied side, sending the 10th (Irish), 16th (Irish) and 36th (Ulster) divisions to the front along with a number of regular army regiments. Training-trenches were constructed in public spaces such as the Phoenix Park (Co. Dublin), while others were built at military bases such as Finner Camp (Co. Donegal), Kilworth Camp (Co. Cork) and The Curragh (Co. Kildare). The Curragh in particular was (and remains) the most important military base in Ireland, retaining many of its nineteenth and early twentieth century structures such its clock tower and a number of ancillary buildings.



First World War Training Trenches, The Curragh, Co. Kildare. Photo: Damian Shiels.

Many of Ireland's World War One buildings do not survive in original condition, while other impressive complexes remain virtually unknown. The Lower Aghada Tennis Club in Cork Harbour stands on the site of a former United States Naval Air Service base, which was home to over 1,000 personnel in 1918. From here flying boats operated to counter the German U-Boat threat off the Irish coast. Although the majority of the base is no longer extant there remain indications of its presence, which highlight Cork Harbour's importance

during World War One as a base for military operations. The remains of the base include the original slipway from which the flying boats were launched, refurbished buildings that once formed part of the military complex, and the overgrown gateposts inscribed 'USNAS' and '1918'. Killeagh in Co. Cork is home to a remarkable military base that is also largely forgotten. Construction began at Killeagh Royal Naval Airship Station in 1918, before being abandoned a year later following the cessation of hostilities. Despite the fact that the site was never operational the remains of a water tower, airship sheds, narrow gauge trackway and ancillary buildings all survive, spread across agricultural fields to the west of the village.



Killeagh Royal Naval Airship Station. Photo: Damian Shiels.

1916, War of Independence, Civil War



Machine-gun impact scarring on the Royal Dublin Fusilier's Memorial Arch, St. Stephen's Green, Dublin. Photo: Damian Shiels.

The 1916 Rebellion was largely restricted to Dublin and had a devastating impact on that city. The main evidence for this conflict survives on some of the buildings that were occupied by the insurgents or were in the line of fire during the fighting. Traces of the violence can still be seen on statues such as the O'Connell Monument, which bears bullet-holes from Easter Week. Perhaps the most dramatic evidence can be seen at St. Stephen's Green. Here members of the Irish Citizen Army who had occupied the Green were engaged by British machine-gunners, who had taken up positions in the buildings along the park's northern boundary. The fire forced the Citizen Army to evacuate to the Royal College of

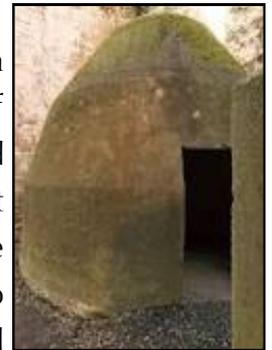
Surgeons on the west side of the Green. Today all the upper windows of the College of Surgeons bear machine-gun impact scars, as does one side of the Royal Dublin Fusiliers Boer War Memorial Arch, which lay in the line of fire for the British guns.

Unlike the 1916 Rebellion the majority of the War of Independence (and much of the Civil War) was characterised by small scale warfare. Here civilian buildings were often adopted and adapted for military use by both insurgent and British forces. This was particularly the case in ambush situations, where buildings such as rural farmhouses were used for everything from observation posts to places of concealment. Perhaps the most significant pieces of military architecture from the War of Independence were Royal Irish Constabulary barracks. The I.R.A. targeted these buildings in villages and towns throughout the country in an effort to use them as a source of arms and munitions, and ultimately to deprive Government forces of their use. This strategy was designed to restrict the police and military to the large towns and cities, giving the I.R.A. increased freedom of manoeuvre in the countryside. Despite the importance of these often modest barrack buildings as a central aspect of the War of Independence, little work has taken place on them from an archaeological perspective. Much work is required on how they were modified for defence during the conflict and in assessing evidence for the conflict through destruction or repairs. The War of Independence²⁸

and Civil War also witnessed the wide-scale destruction of British military architecture, as Republican forces attempted to put them beyond use and deny them to British forces and later the Free State Army. Numerous military barracks, such as that in Charles Fort, Kinsale, Co. Cork were destroyed at this time.

World War Two

Despite the Irish Free State's neutrality during World War Two the country was on a defensive military footing for the duration of the conflict. This led to the construction of a large number of military and civilian buildings across the country, as the nation steeled itself for the possibility of invasion and aerial bombardment. One of the most recognisable survivals from this period was the Beehive Shelter, Ireland's answer to the Anderson Shelter. It was designed in Ireland and made of mass concrete, intended to withstand the blast of a 500lb bomb. They were most commonly placed outside local government buildings. Unfortunately these once commonplace constructions are today often regarded as of minimal historical value and have become quite rare- the example now on display in the National Museum of Ireland's *Soldiers and Chiefs* exhibition was relocated from Cobh where it had been sited behind a local municipal building.



WW2 Period Beehive Air-Raid Shelter, National Museum of Ireland. Photo: Damian Shiels

As the recent restoration of the 'Eire' sign on Loop Head (designed to inform aircraft that they were flying over the Free State) illustrates, the physical remains of The Emergency are often to be found on seemingly remote locations along the coast. The most ubiquitous of these monuments are the LOPs- Lookout Posts- that were constructed on headlands around the coastline for use by the Coast Watching Service. A total of 83 of these continually-manned observation stations were built, each with a mission to relay all maritime and aerial activity to Military Intelligence. Although some have been destroyed, the ruins of the majority of these positions that performed a key role in Ireland's Emergency can still be seen dotted around the country's coast.



A WW2 searchlight in-situ at Fort Shannon, Co. Kerry. Photo: Damian Shiels

Although technically neutral, Ireland adopted a pro-Allied stance during the conflict. The need to defend key arteries on the west coast from attack was recognised by both the Irish Free State and the British Government. During the war the British Army contributed armament to the newly built Fort Shannon, in the form of 6-inch naval guns. This fort was constructed in north Co. Kerry to protect the Shannon Estuary and was the first such complex to be designed and built in its entirety by the Free State. Although today

much overgrown by gorse bushes, much of the complex survives, with search lights and their housing remaining *in-situ*, together with defensive pill-boxes and a network of underground tunnels leading to the main gun battery positions.

Among the most significant of the military sites in Ireland during the Emergency period were what had formerly been termed the 'Treaty



WW2 Pillbox, part of the defensive network of Fort Shannon, Co. Kerry. Photo: Damian Shiels

Ports'. As part of the Anglo-Irish Treaty of 1921 Britain retained control of Berehaven (West Cork), Queenstown (East Cork) and Lough Swilly (Donegal) as part of the Royal Navy's network of Atlantic bases. They remained in British hands until they were handed over to the Free State in 1938 (with war looming, some saw the handover as folly, most notably Winston Churchill). As a result, these British military installations had been continually upgraded throughout the twentieth century, and continued to be manned by the Irish army during the Emergency. Perhaps the most impressive remains of this continued military presence can be found on Bere Island in West Cork. The island today contains a network of nineteenth and twentieth century fortifications, including numerous gun battery positions and stop-lines. The abandoned Lonehort Battery on Bere Island still retains two of its six-inch guns, which were originally installed by the British Army and were maintained throughout the Emergency and beyond by the Irish Army.



6-inch guns at Lonehort Battery, Bere Island, Co. Cork. Photo: Damian Shiels

The buildings discussed above are just a handful of those which form part of the Republic of Ireland's twentieth century military heritage. Unfortunately there are few areas of Irish archaeology which are more neglected. This is particularly true of the buildings, which often suffered during the Celtic Tiger years as their lack of heritage status made them easy targets for development. The lack of State recognition continues to hamper efforts to conserve some of this dwindling resource, particularly given the advanced rate of degradation that many of these concrete and iron structures endure, a side-effect of their method of construction and the often exposed coastal positions in which they are located. There is unquestionably much to be learned from a thorough analysis of all these building types, be they specifically designed military/civil power structures or civilian buildings adapted for short-term military use. It is past time that the Republic of Ireland followed the United Kingdom in developing a programme with a similar scope and ambition as that seen with the Defence of Britain Project.

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The World War I camp at Felday, Holmbury St.Mary, near Dorking, Surrey—Surrey Archaeological Society

Interest in the First World War is developing leading up to the 100th anniversary of its commencement. Very little is known about the existence of prisoner of war camps, possibly due to the Defence of the Realm Act and a desire not to create disquiet amongst the population. However German prisoners were made available for forestry and farming work by the Board of Agriculture

“The Daily News says the War office is making arrangements for the employment of German prisoners on the land. It has assigned 75 men for each English County. They are to be located at some central position where they can be dealt with under barrack conditions, and will be at the disposal of the Executive Committees of The War Agricultural Committees which have been given powers under the board of Agriculture to use them to the best advantage. A certain block number of prisoners have also been assigned for Wales. German prisoners will also work on the land in Scotland. In this case men will be controlled by the Scottish Department which has also set up a food production branch.”

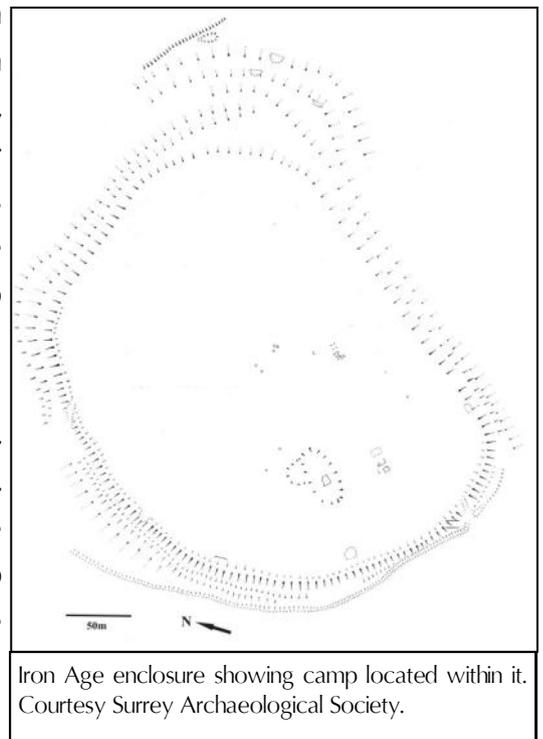
(Extract from 1916 Newspaper ‘Prisoners of the Land’. From 1914-1918 invisionzone.com/forums Stuart Brown 03/12/02)

This arrangement avoided exploitation by individual farmers and also expected the Germans to be paid at the going rate. Although some prisoners were housed in domestic lodgings such as the camp in Redhill, Surrey, there was also the necessity to build camps to house the men at their remote work locations. Some were housed under canvas and, as is the case at the Holmbury St. Mary camp, wooden huts. A significant number of guards also required housing.

The WW1 POW camp at Felday is known locally and is noted on the Surrey HER (HER 15518) but does not appear to have been recorded on any of the known national lists. It had been described, by local historian Margaret Bird, as a civilian internment camp for prisoners, thought locally to have been Italian (although this seems unlikely), who were employed in the local timber industry. The identification as either a POW camp or an internment camp required clarification.

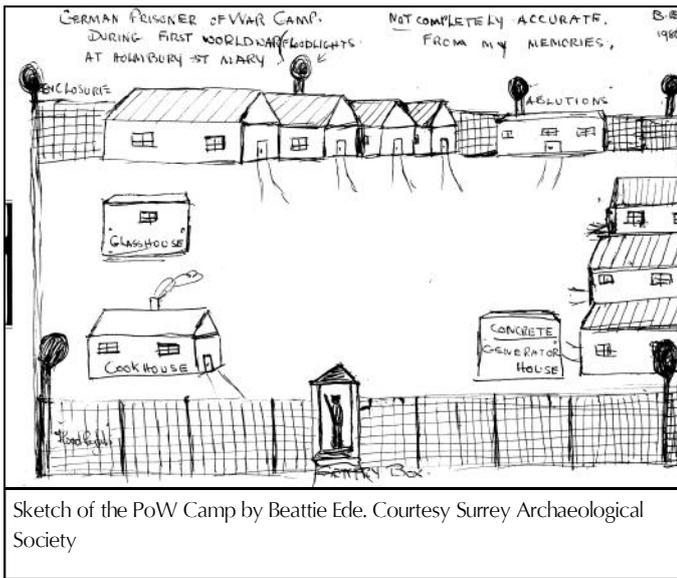
The Iron Age enclosure was last surveyed in 1985 by Dave Field, when the existence of the prisoner of war camp was noted, though no written records had been evidenced at that time. We undertook a further survey and the results given show the camp within the Iron Age enclosure, which is scheduled, and therefore protects the camp site.

It was the removal of the invasive rhododendrons which gave us the opportunity to survey the Iron Age hill fort above Holmbury St Mary. The rhododendrons were polluting the watercourse and the Friends of the Hurtwood dealt with their removal. This left the hilltop bare of



Iron Age enclosure showing camp located within it. Courtesy Surrey Archaeological Society.

ground cover and ready for investigation.



Sketch of the PoW Camp by Beattie Ede. Courtesy Surrey Archaeological Society

Keith Winsor and Ken Waters, both raised in Holmbury St Mary, knew of the existence of the camp. Local tales suggested it may have interned Italians in the Second World War but we were lucky to be given copies of a statement and drawing made by a local resident, Beattie Ede. Pat Nicolaysen, a past member of the Surrey Archaeological Society, interviewed Beattie in 1986 and recorded her memories. The drawing became the basis of our investigations and, by probing the ground, we discovered evidence of building platforms in concrete and stone seemingly matching her plan.

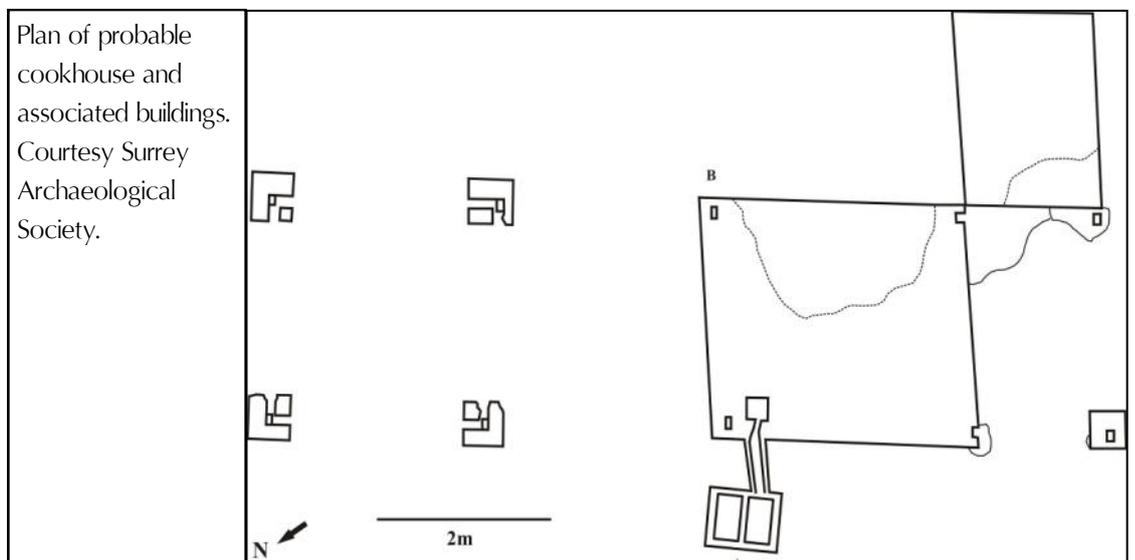
From the plan we saw the existence of a glasshouse, a cook house, an ablutions block and a generator house. There is also a clear indication of the perimeter with the floodlights. Our searches revealed concrete bases, and stone foundations in the positions indicated, together with an alignment of plots representing the position of a Decauville railway, used to move the timber to the saw mill in the village. We also found dumps of carbide waste representing the acetylene arc lights around the perimeter.



One of a set of four corner supports for a timber building. Courtesy Surrey Archaeological Society.



Base of probable cookhouse and drainage sump. Courtesy Surrey Archaeological Society.





Surveying the remains of probable generator building on the left and, on the right, the resultant plan. Courtesy Surrey Archaeological Society.

Reference to the Swiss Federal Archive also disclosed contemporary reports of the camp following inspections done for the Red Cross and the Germans:

*16th October, 1917.
Monsieur le Ministre,*

I have the honour to submit a report covering a visit of inspection to the Prisoners' of War Working Camp at HOLMBURY ST. MARY, nr. Dorking, Surrey, on October 11th, 1917. This Camp was opened on August 24th, 1917.

DIRECTION. *The Commandant is Lieut K.H.Thorneycroft. Dr. Cory, a medical practitioner at Shore, about 5 miles distant, is camp physician.*

PRISONERS. *There are at present 147 German military prisoners in the camp, including the Camp Leader Feldwebel Meerbutte and 4 Unteroffiziere.*

DESCRIPTION OF CAMP *The Camp is healthily situated on high ground, and is surrounded by pine woods. The prisoners have, until lately, been under canvas, but they have now built huts, into which the last batch of men were moving on the day of my visit. The huts are of the regulation army type - length 18 metres, width 4.75 metres, height at the side 2.35 metres, height at the gable 3.65 metres. The roofs are of wood, covered with rubberised felt.*

Each hut is capable of holding 30 men. Stoves for heating are now being put in, and the Commandant informed me that the lighting will be supplied from an acetylene plant. Each man has the usual bed-board and trestle bed and four blankets. Two dining huts are in course of construction. In the meantime the prisoners take their meals in a marquee tent."



Photo of the 60th Royal Defence Corps., who were responsible for preparing the Camp, outside the Royal Oak in Holmbury St Mary, in 1917. Courtesy Surrey Archaeological Society.

The site lasted only as long as the supply of timber to be processed and in 1919 equipment was auctioned off at a local Dorking auctioneers. Huts were sold wholesale and contents. One of the huts was moved to the village and remains as a private house, greatly improved of course! The most spectacular sale was the electricity plant, sold for today's equivalent of £7,000 (Dorking and Leatherhead Advertiser, 20/09/1919).

A full report of the site is being prepared.

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Website: Swiss Federal Archives. <http://www.bar.admin.ch/index.html?lang=en> accessed June 2012.

Contact: [Surrey Archaeological Society](http://www.surreyarchaeology.org.uk/)

The Archaeology of Early Radar: an introduction—Andrew Passmore, AC Archaeology

Radar was one of the great secrets of the Second World War, and details of its role in protecting the country and its later use on the continent were not revealed until much later in the 20th century. The technological development and use of radar is now well documented, but its archaeology has been neglected. This article presents a brief introduction to the archaeology of sound acoustics and early radar systems in the United Kingdom.



The First World War acoustic dish at Kilnsea, Yorkshire .
Photo: Andrew Passmore

The development of radar in the mid 1930s was preceded by experiments with acoustic equipment during the First World War to detect the *sound* of approaching aircraft. From 1918 through to the 1930s concrete acoustic receiving dishes were sited in vulnerable areas of the country, with varying degrees of success. There were two main designs of dishes: mirrors with concave bowls contained within concrete slab walls, and discs with a concave bowl supported by concrete or iron stands. A third, less common, design was the sound wall, of which one example survives in Kent, with another in Malta. The receiving dish reflected the sound of distant aircraft engines onto a focal point where it was detected by a listener or, later, by microphones. The operator would have worked from 'bunker' or small room below the dish, or an adjacent hut or trench.

Concentrations of sound mirrors were constructed around Kent and the North Sea coast in Yorkshire and around Sunderland, the latter to give advance warning of an attack on this industrial region. Almost all the surviving acoustic dishes have been afforded protection as scheduled monuments and/or listed buildings.

The first successful field trial of radar in an air-defence capacity was in 1935 near Weedon, Northamptonshire. Radio waves were sent out from the BBC's radio transmitters at Daventry. They were reflected from an RAF aircraft flying on a pre-determined course and received on mobile equipment in a vehicle at Weedon. Subsequent experimental and development work was carried out at Orfordness in Suffolk, the nearby Bawdsey Manor, and later Dundee, Worth Matravers in Dorset, and finally at Malvern College in Worcestershire. Bawdsey Manor and Malvern College are reminders that not all wartime infrastructure was new, and that much property and land was requisitioned.

The Second World War air-defence radar network (or Radio Direction Finding as it was at first called) comprised:

Chain Home (CH): a chain of stations at "home", as opposed to those overseas; a long-range, high



The CH transmitter mast at Stenigot, Lincolnshire. Photo: Mike Passmore.

looking radar;

Chain Home Low (CHL): developed to cope with the detection of low-level aircraft;

Chain Home Extra Low (CHEL): a more powerful system for very low-level detection;

Coast Defence / Chain Home Low (CD/CHL): originally army coastal defence radars seeking out both low-flying aircraft and surface shipping, eventually absorbed into the RAF network; and

Ground Controlled Interception (GCI): a system whereby personnel could liaise directly with pilots, and place RAF fighters in a position that allowed the aircraft's own (newly developed) radars to locate an attacker both by day and by night.

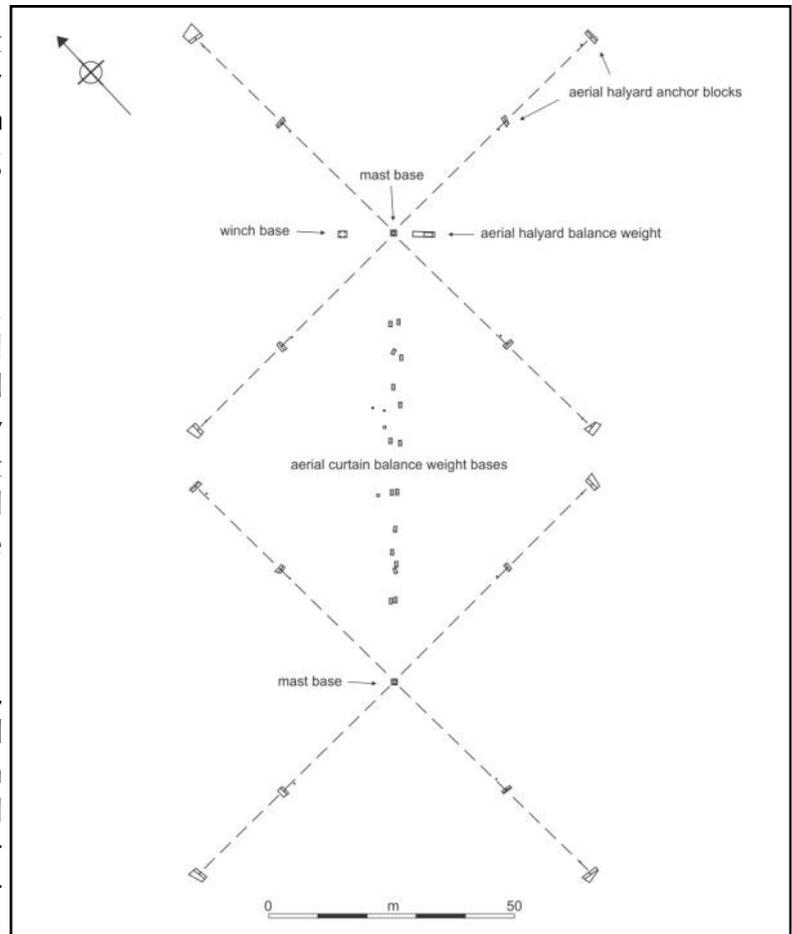
The remainder of this article will focus of the archaeology of the CH system. CH was an early-warning and reporting system. It was high-looking and outward-facing, and once the invader had crossed the coast the Observer Corps (later bestowed with the prefix Royal) took on tracking responsibilities. The radars were not particularly effective when working with night fighters, or

in fighter control.

The chain was originally established around the Thames Estuary from Bawdsey to Swingate (near Dover), but by the outbreak of the war, the chain had been extended to the east and south coasts of Britain from Ventnor on the Isle of Wight to the north of Scotland. In their final form, the east coast sites employed three or four self-supporting 360 feet high (109.73 metre) transmitting towers in a row with an transmitter block to one side and four timber 240 feet high (73.15 metre) receiver towers set around a receiver block (see Lowry 2001, fig. 12). The transmitter and receiver blocks were long, narrow, brick structures, that were later known as Type A buildings. They were surrounded on all four sides by an earth traverse and had a shingle covering, protecting the roof.

Other infrastructure usually included a guardroom, administrative and accommodation huts and a cookhouse, as well as a stand-by set house – an emergency generator building. Local protection against land and air attacks was also provided, and would have been manned by the Army, the RAF Regiment and the Home Guard.

Single transmitter towers, now listed buildings, survive at Stenigot in Lincolnshire and Swingate, whilst a third has been moved from RAF Canewdon in Essex to BAE's Advanced Technology Centre at Great Baddow. Other structures survive at many sites, including, for example, the transmission block at Bawdsey that now houses a small museum. It should be



Survey plan of the remains of a pair of guyed transmitter masts at RAF Northam, Devon. Andrew Passmore.

noted that after the Second World War some stations were upgraded and some upstanding buildings relate to cold-war radar and military and civil communications (see Cocroft and Thomas 2003 for the archaeology of post-war radar).

During the early years of the war the CH system was extended west to cover all vulnerable areas of the country. There were differences in the layout of these west coast sites and the earlier east coast stations. In their final form, west coast sites utilised two pairs of guyed steel transmitter masts, 325 feet high (99.06 metre), with a curtain array suspended between each pair, and had two timber 240 feet high (73.15 metre) receiver towers. Stations were also provided with two transmitter blocks and two receiver blocks. The transmitter and receiver blocks were Type B and Type C structures. Type B blocks were above ground and similar in shape to Type A blocks, with brick walls and a surrounding traverse. Their roofs were however, unprotected, and they had a different internal layout. Type C blocks were also above ground, were smaller than Type B structures, built of reinforced concrete, sealed in a water-proofing “skin”, and were fully earth-covered. Research has demonstrated that the earlier CH stations in Devon had both Type B and Type C blocks; the later Type C (Passmore and Passmore 2008).



The type C remote reserve receiver block for RAF West Prawle, Devon, at Prawle Point. Photo: Mike Passmore.

The west coast stations had a similar infrastructure to the east coast sites. Most staff, gunners possibly being the exception, would have been accommodated away from the technical site, usually in a specially constructed domestic complex. Some sites had a cookhouse, NAAFI and station sick quarters. Provision was made for the stations to remain on air, even if put out of action by enemy action, or through equipment malfunction. Reserve systems, were built to house duplicate equipment. On east coast sites they were usually underground and initially situated at the main station. Where built on west coast sites – their construction was abandoned partway through the expansion – the technical buildings were situated above-ground and located some distance from the main technical site. These reserves utilised Type C transmitter and receiver blocks.

The other air-defence radars in the Second World War network had different aerial types, buildings and station layouts.

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- Passmore, M., and Passmore, A., 2008, *Royal Air Force Air-Defence Radar Stations in Devon: the Second World War and Beyond*.

Andrew Passmore BSc MifA (1611) is a project manager at AC archaeology's Devon office. His specialist areas of interest are the archaeology of standing buildings, as well as industrial and military archaeology. He worked at the Royal Gunpowder Mills in Waltham Abbey as an archaeologist before it opened to the public as a museum, and has recorded military buildings and sites across the southwest of England. With his father, a former RAF serviceman, he has also researched the archaeology of RADAR in Devon and co-authored several books and articles on the subject. He can be contacted here: andrew.passmore@talk21.com

Recording Work at the Former RAF Alconbury Airfield—Paul Francis, Airfield Research Group

The Airfield Research Group (ARG) is working with Urban & Civic, the owners of Alconbury Airfield, to develop a full archive for the site capturing its significant historical role in world events. This archive will be used to inform a heritage strategy, which will integrate this history into the overall masterplan to redevelop the former 1,420 acre airfield site into a mixed use development of jobs, homes, woodland and green space.

The form and function of the former airfield is clearly of historic significance, and Urban and Civic want to ensure it is both captured and accessible as a future resource for students of the Cold War and airfield history. The work of ARG is part of an agreed process with Huntingdon District Council to build up the archive material and recording of the site which will, in turn, help us ensure the site's past is reflected in the development of Alconbury Weald.



The Nissen hut complex at the former RAF Alconbury, looking North. Photo: Geoff Soden.

A small part of the airfield forming the WWII technical area as well as a domestic site (previously known as Site 5) which is mainly contained within the Ordnance Survey grid square TL 190 760, now forms the Alconbury Airfield Enterprise Zone Enabling Application Site. In December 2011, CgMs produced a Heritage Statement (Enabling Works), in line with PPS5, Policy HE6. This document provided a considerable amount of information on the site's development and included an appraisal of each building. In support of this document, ARG was asked to compile a historical report and gazetteer of buildings in order to discharge certain conditions made by Huntingdon District Council as part of the Enabling Development Application.

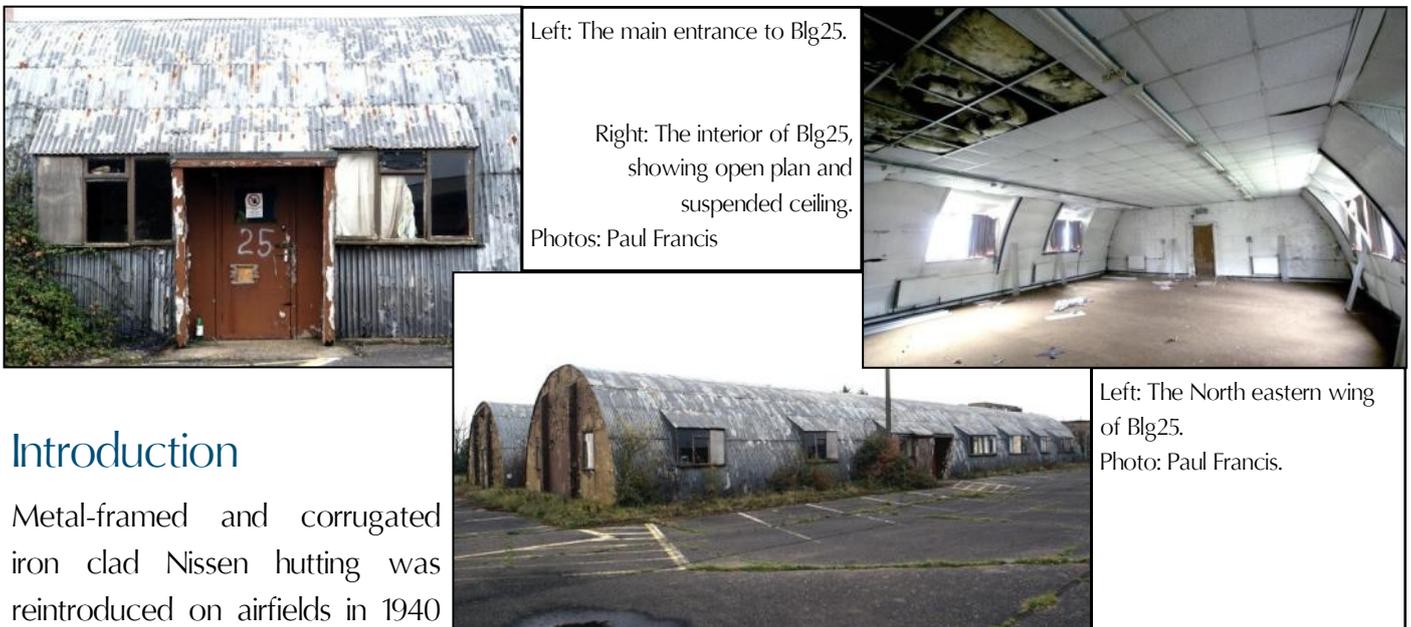
The first task for ARG, was to catalogue the RAF Alconbury drawing collection and create a data base of over 4,000 drawings. These are considered to be of national significance and are a crucial source of Cold War data on building design and construction as well as the development of the airfield landscape from the mid-1950s to the early 1990s. Another early task was to locate and recover a considerable paper archive, mainly relating to design studies of buildings, aircraft pavements and other projects, some of which never actually got beyond the design stage. This collection gives an excellent insight into the funding, construction and development of buildings from the early 1980s to the early 1990s.

Together with other primary sources in the National Archives, Kew and the RAF Museum, Hendon, these were used to compile the ARG reports. Over 70 buildings and other structures including aircraft pavements were included in the gazetteer, the descriptions ranged from the English Heritage Level 1 to 4 criteria. A site history report to Level 4 forms the other ARG document.

All military organisations generate paperwork, and the USAAF during WWII was no exception; this material is preserved in the Air Force's archives at Maxwell AFB, Alabama. It has now been condensed onto countless reels of microfilm. This vast archive of primary source information is available to the public, and in recent years a programme of digitisation has begun to put the contents of each ageing reel of film onto compact disk. The files relating to RAF Alconbury are on 50 CDs and while we have yet to view this material, samples have been ordered and the data within will be added to the ARG reports at a later date as appropriate.

One of the structures recorded was a complex of humble Nissen huts which had a very interesting and significant Cold War history as it was the base's switching centre for the Automatic Digital Network (AUTODIN), this is Building (Blg) 25. The bulk of the description below, is based on a 1959 drawing (#50) as this is the earliest one found and it has been compared with other more recent drawings plus what survives today. Altogether there are 11 original drawings of Blg.25 in the archive. Note that all dimensions shown are imperial.

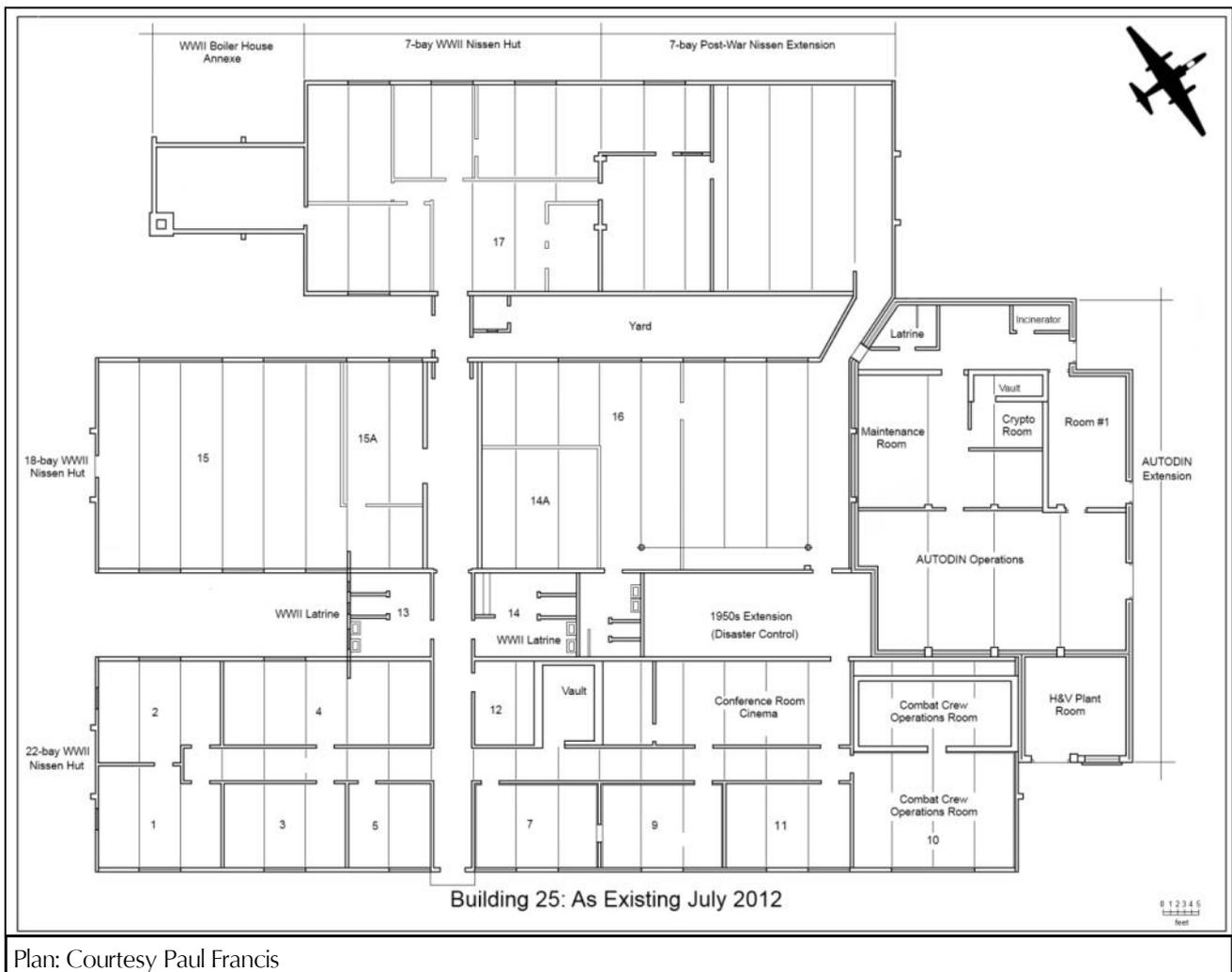
Building 25: Crew Locker and Drying Room Block/Wing Headquarters



Introduction

Metal-framed and corrugated iron clad Nissen hutting was reintroduced on airfields in 1940 and this system of construction

proved to be the most successful of the factory-made huts that were available to the Air Ministry. Originally invented in 1916 by a Canadian, Major Peter Norman Nissen (1871–1930), Royal Engineers, these huts were available during WWII in three spans 16, 24 and 30 ft. Many thousands of huts of this kind were produced and used extensively for both domestic and technical accommodation as an alternative to brick. WWII technical buildings at Alconbury were a mixture of timber (1938–40), temporary brick and Nissen (1940–43), and Uni-Seco (1943–45 and beyond).



Crew Locker and Drying Room

Located on a plot between Missouri and Indiana Streets is a large Nissen hut complex of WWII origin. It was originally designed as Air Ministry drawing 5657/41.

The complex consists of three, 30-foot span Nissen huts of unequal length and are connected together by a lateral brick corridor; this begins at the main entrance and lobby which is off-centre (so that the hut lengths on the north side of the corridor are longer than those on the south side). The lobby therefore continues as a corridor through to the central hut and then connects with the western Nissen. The lobby functioned in wartime as a blackout porch, whereby one door is opened first and then closed before opening the other to enter the corridor. There is an angled weather canopy on the exterior of the entrance lobby.

The complex in WWII consisted of the following three huts:

- West: 7-bay Nissen 43 ft by 30 ft with boiler room annexe 13 ft 3 in by 21 ft 10
- Central: 18-bay Nissen 109 ft 6 in by 30 ft
- East: 22-bay Nissen 133 ft 6 in by 30 ft 8 in.

The smaller boiler room would have been in two parts, consisting of the boiler room itself and a blower room, which forced warm air into the attached Nissen hut drying room.

Wing Headquarters

Drawings show that the eastern hut survives today more or less as in 1959 with brick partitions between rooms and a central brick corridor running nearly full length with rooms arranged on either side and at both ends. The main entrance to the complex is off-centre. In this section there are 13 offices, a modern cinema and projection room, and two vaults. Most rooms are identified by a painted room number and the corridor junction has pointers indicating where the rooms are. Internal walls are painted cream and green. One of the two vaults is not accessible and these are the main structural alterations to this hut. Both end walls are of 4.5 in brick with external piers. Windows are standard Nissen style window cheeks of standard length, fixed between the 'T' ribs and these are mainly fitted in a symmetrical layout with a window fixed opposite another within the same bay. All windows are timber replacement frames. There are many original pitch pine / plywood doors, either with or without hardboard coverings.

In the space between this and the adjacent hut, on either side of the corridor are toilet annexes. An original toilet annexe lies on the north side which has been extended; on the other side is a more modern toilet annexe (all toilets were present in December 1959). North of the extended toilet is another modern extension with two rooms which, when built, was a disaster control room. It does not show on a plan dated December 1959, but appears on another dated February 1960.

The central hut has undergone many internal room changes. Today, to the south of the main corridor is a large open-plan room with a partitioned-off office in one corner, which is the same layout that existed in 1975. In 1959 this area was subdivided into five offices, accessed through an internal lobby with a central dividing wall to four of them, the final one being the full width of the hut. By February 1960, this room had been made considerably bigger and a stage was built against the rear wall. In this form, there were three rooms accessed from the same internal lobby.

To the north of the corridor, in the 1959 configuration, were two small offices separated by a passageway. This led to a large mainly open-plan room with a raised viewing area or office with borrowed lights on all four sides. In 1960 the western Nissen was extended in a northerly direction by 42 ft which almost doubled its WWII size, to take it slightly beyond the central hut and an angled corridor was built in the space between the two huts to connect them together. This odd-shaped corridor was required to take the tracks for a moving map system from the western hut to the central hut. The large open-plan area in the central room became an operations centre. The maps were able to travel in two directions in this room.

The corridor at this point is narrower than the eastern section, and there is a set of double doors where it connects to the central hut.

The western Nissen hut, in its original form therefore, was much smaller in length than it is today. It was originally the drying room part of the WWII complex and is attached to a brick-built boiler house (Blg.23). As soon as Blg.23 had been built, there was no longer a need for a dedicated boiler room, as Blg.25 would have been



The north-west wing and boiler house, Blg.25. Photo: Paul Francis.

connected to the district heating scheme. In 1959 there were just two rooms inside the Nissen hut section, but, after 1960 when it was extended, there were eight rooms and today's internal arrangement is identical to that of 1960.

Construction

Construction is of Nissen hut semi-circular 'T'-shaped in section frames at 6 ft 0.5 in centres, exterior cladding is galvanised steel sheeting (not original) and lined on the inside with hardboard; the cavity is insulated with rockwool insulation material. End walls are stretcher bond brick with piers. The main lateral corridor (connecting all three huts) appears to have been built in three phases; it is constructed with sections having 9 in and 4.5 in brick walls and is of three different widths (see drawing), while the longitudinal corridor (running full length of the east hut) is stretcher bond as are most room dividing walls in this hut. As most of these were built post-war they are only built up to the level of the suspended ceiling, the void above the ceiling is either open or contains ventilation trunking. Most other dividing walls in the other huts are modern partitions. Windows are arranged within fabricated side cheeks spanning whole bays and fixed to the framework.

The general condition of the Nissen hut framework is very good. Unfortunately the flat roofed sections constructed in the space between huts, and a section where the Nissen frames have been cut out and replaced with flat roof sections are in very poor condition.

Automatic Digital Network (AUTODIN) Extension

The purpose of the AUTODIN system was to maintain the status of key repairable parts at each US Air Force Base with aircraft, weapons, equipment and feed that status into a central location where priorities were decided in order to keep the entire Air Force at its highest level of readiness. Maintenance personnel had to painstakingly provide accurate, documented details of their daily activities. For example, time spent doing each job, parts replaced and transferred to a repair shop, and then the repair shop would provide their information about repair progress and status of those parts. All the information went on forms that used system specific codes, and taken to the data automation centre on the base for input into the AUTODIN system.



The AUTODIN extension, showing original main entrance. Photo: Paul Francis.

Messages were entered via the AUTODIN terminal to the Automated Switching Centre, the centre 'stored and forwarded' the message, in case it needed to be resent; the centre then transmitted the message to the destination. It basically gave command a better capability to keep aircraft flying by providing efficient system of parts supply and control. The nearest switching centre to Alconbury was at the USAF communications site at RAF Croughton, near Brackley, Northants.

In theory, today's email works in a similar way. You connect to your ISP to send an email; they take the

email and send it out on your behalf to the provider that the recipient uses. The recipient may not be online, so the provider holds onto the email and waits for the recipient to 'check for mail'.

The AUTODIN extension is believed to have been designed by Hoare Lea & Partners Consulting Engineers, to the US project number of ALC/69/100-025 in May 1969. It consists of a single-storey windowless brick structure built at the northern end and between the three Nissen huts. Access originally was only from outside, the main entrance being on the north facing wall where there used to be an internal lobby, but this is now missing, (the doorway is extant as an emergency exit). There was no access from the Nissen hut complex until after 1989, when the angled corridor (mentioned above) had a door inserted and a new corridor created through the AUTODIN toilets (which had to be made smaller).

The room arrangement is as follows: lobby, toilet, incinerator, crypto vault office, AUTODIN operations room, and heating and ventilation plant room (this part is only accessible from outside the main building).



The Crypto lock door in Building 25.
Photo: Paul Francis.

Crypto Vault Door

This door is noteworthy in that it has a feature usually seen on very high security safes, in the form of a glass 'relocker'.

The lock mechanism itself (missing) would have been mounted onto a metal plate which forms part of the sliding bolt actuation system. Attached to the bottom rear of the lock mounting is a thick tempered glass plate. Wire cables attached to this plate actuate one or more 'blockers' which, when dropped, would secure the sliding bolts into a deadlocked position. Anyone attempting to hammer, torch or blow-out the lock mechanism would shatter this plate, and thus the blockers would descend permanently into place. Even if one had blown a sizable hole in the door, it would still be difficult to draw back the locking bolts and they would most likely have to be cut out. This door appeared noticeably older than other vault doors

observed in this and other buildings. Another interesting feature of this vault was that it had a foot operated switch, strangely mounted on the wall. It looks like a "Duress switch" for operating an alarm system surreptitiously in a bank or similar. It also seemed to link up to what was probably a PIR sensor in one corner.

This was probably part of a safety system intended to operate in case someone got locked in as there was no internal unlocking facility on this type of door.



The interior of the AUTODIN extension. Photo: Paul Francis.

AUTODIN Construction

The external walls are 11 in cavity brick, incorporating the northern stretcher bond ends of the existing Nissen huts as the outer skin of the south facing end wall. Internal walls are 9 in and 4.5 in brick, while the vault is constructed of 8 in reinforced concrete. It has a flat roof of Metsec lattice beams which are carried on internal brick piers. There are timber purlins and metal channel reinforced woodwool roofing slabs supplied by Woodcemair Ltd and covered with asbestos based bituminous roofing felt finished with mineral



Entrance to AUTODIN plant room, view looking south-west, Bldg.25 . Photo: Paul Francis.

chippings. In the main operations room, walls are lined with acoustic plaster tiles fitted to battens; all rooms have false ceilings which hide the roof beams and air conditioning plant trunking.

Building 25 was closed on 8 August 1995.

Paul Francis is currently Archivist at AiX-ARG Achive Ltd, having previously worked for Rolls Royce and British Aerospace. He has produced a significant number of reports for organisations such as English Heritage and Defence Estates, and has so far published eight books. He is currently working on the former RAF Uxbridge site. He can be contacted here: paul.francis30@ntlworld.com.

Assessing Guernsey's World War II fortifications for Conservation — Christopher Mauger, States of Guernsey

World War II and the Occupation of Guernsey

During World War II the Channel Islands were occupied by German Forces who took possession of Guernsey at 2:45pm on Monday 1 July 1940. Prior to the Occupation all British military forces were withdrawn and some of the population was evacuated to England. Overall Cruickshank (1975,40) states '17,000 of 42,000 left Guernsey' and based on the German Army (2007,172) records there were 10,980 military personnel and 260 Organisation Todt officials in Guernsey. This is a ratio of 2.3 locals to 1 German occupier. The German Forces finally surrendered on 9 May 1945.

Fortification Development

The chronology for the construction of the fortifications is correlated to Hitler's changing priorities during the War. Initially German Forces took possession of Guernsey with a view to invading Britain. However, by winter 1940 the planned invasion had not commenced and the German Forces prepared to defend the Island against a liberation attempt by constructing small field order structures. By December 1940 Hitler

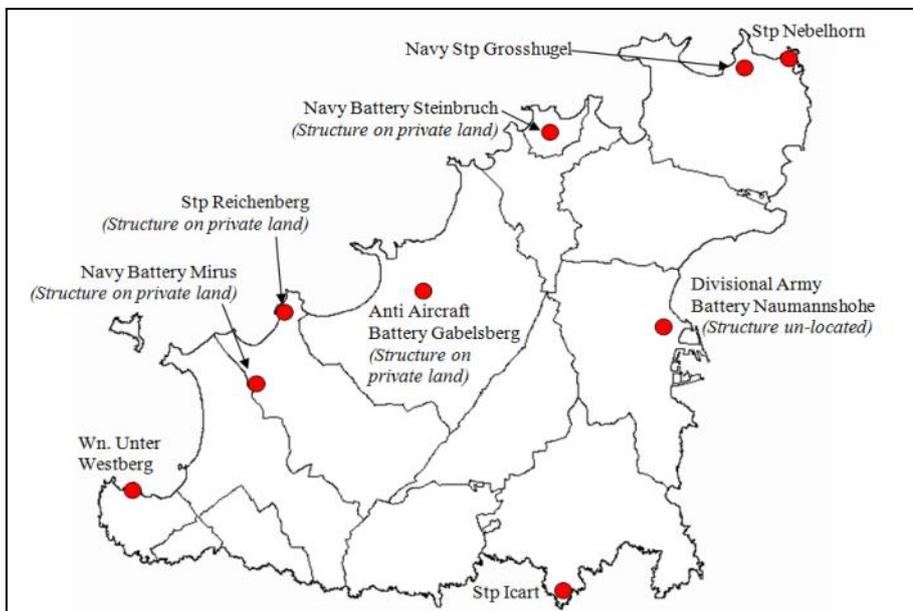


Figure 1: Site distribution map. Source: Christopher Mauger.

postponed the invasion of Britain and issued a directive to invade the Soviet Union. Consequently the Army and Navy construction units began constructing coastal artillery batteries and adapting the Islands existing Napoleonic and Victorian defences which were already in the most strategic positions. Hitler then directed that the Channel Islands be converted into an impregnable fortress requiring further strengthening of the fortifications. In July 1941 the Fortress Engineers arrived in Guernsey to survey the Island and design the new fortifications. In October 1941 Hitler

accepted these plans and issued a directive for their construction. Initially it was intended for the Channel Islands to become a naval fortress and large coastal artillery batteries were constructed. This would allow a large section of the French Coast to be less heavily defended. However, the naval armaments were not available resulting in the Army being brought in to strengthen the defences. In December 1941 the United States joined the war and fearing an attack along the Western front Hitler decided to build a line of fortifications from Norway to Spain. These fortifications and the fortifications in Guernsey were then rationalised as part of the Atlantic Wall Defences through a Directive issued in spring 1942. This context is critical to understanding the diversity of the Islands German fortifications and standards of construction as a result of changing priorities and the increasing threats to the Island and the European coast.



Photo 1: Fortress Standard Generator Bunker at Navy Strongpoint Grosshugel. Photo: Chris Mauger.

Realising fortifying the Channel Islands was beyond the scope of the Fortress Engineers alone the Organisation Todt (OT) arrived in Guernsey during late 1941. The OT was brought to Guernsey to carry out tunnelling works, construct fortress standard fortifications and organise the non-military labour force. Initially the non-military labour force consisted of German contracting firms who employed local labour and volunteers attracted by high rates of pay. However, in Guernsey most of the local labour was supplied by

the States Labour Office. When the OT labour demands could no longer be satisfied across Europe this was expanded to using forced labour, Spaniards, slave workers, French North African prisoners of war and Irish workers. The OT and Army construction units began moving back to Europe in spring 1943 to strengthen defences elsewhere. Construction did continue in Guernsey at a slower pace until June 1944 and a second construction programme never progressed past the planning stage.



Photo 2: Reinforced Field Order Radar Station at Navy Strongpoint Grosshugel. Photo: Chris Mauger

There were also three standards of fortification construction in Guernsey; Fortress Standard, Reinforced Field Order Standard

and Field Order Standard. Photos 1 to 3 provide examples of these standards of construction. Fortress Standard Structures have roofs and walls constructed of up to two metres thick reinforced concrete and were constructed for a variety of purposes. Reinforced Field Order Structures have roofs and walls constructed of up to 1.2 metres thick reinforced concrete. Gavey (2001,8) states that ‘the most common installations in this category are personnel shelters, mortar pits, tobruk pits, observation posts and artillery emplacements.’ Field Order standard structures were constructed from available materials including corrugated iron sheeting, earth, timber, granite and brickwork. These structures included weapon positions, rudimentary air raid shelters and ammunition shelters.



Photo 3: Field Order Personnel Shelter at Navy Strongpoint Grosshugel. Photo: Chris Mauger.

Quantity, Diversity and Rarity

As part of an MSc dissertation a database of the fortifications was produced based on the records of a local interest group called ‘Festung Guernsey’. These records contained more detail regarding the types of structure than the SMR which labelled a significant number of the structures as ‘German Shelter’. An analysis of the database identified that there are 992 known structures of which 880 survive (89%). However, of the 992 recorded structures; the status of 114 (11%) is unknown which, if surveyed, could confirm further losses.

The fortifications can also be classified by the type of site as shown in Table 1.

Type of Site	Number of Sites
Coastal Defence Strongpoints	11
Coastal Defence Resistance Nests	62
Naval Coastal Artillery Batteries	3
Army Coastal Artillery Batteries	9
Divisional Army Coastal Artillery Batteries	5
Anti-aircraft Batteries	6
Main Headquarters	7
Telephone Network	25
Tunnels	18
Total Number of Sites	146
Table 1: Number of Sites. Source: Christopher Mauger.	

The analysis identified that 10 of the 146 separate sites (7%) identified above are recorded as totally destroyed. Furthermore there are 135 different types of structure of which only 8 types (6%) have all examples been destroyed. Of the surviving 127 identified types of structure, 76 types (60%) have three or less remaining examples and 31 types (24%) have 10 or less remaining examples.

The structures can be divided into four categories; standard plan, gun positions, non-standard plan, and miscellaneous structures. The standard plan type structures are structures for which there is a German plan with a specific structure type number. All structures in this category are nearly identical with only minor alterations to suit the site conditions. The gun positions investigated were also of a similar design and construction. However, the non-standard plan structures are structures which have been categorised by use,

such as searchlight shelter. A case study of these searchlight shelters identified that 10 were constructed in Guernsey but only 4 were on accessible land and successfully located, shown by the Site Distribution Map in Figure 1. Furthermore, all four structures were of different types of construction, size and design shown by Photos 4 to 8. This obviously has significant implications when trying to apply a methodology for selecting exemplar structures. In Guernsey of the 992 known structures 488 (45%) are within the non-standard plan category.



Photo 4: Wn Unter Westberg Searchlight Shelter Front.
Photo: Chris Mauger

As stated above the diversity of the fortifications is likely to be related to the German Forces changing priorities. Initially small field order structures were constructed as they prepared to defend against a liberation attempt. When the invasion of Britain was aborted the German Forces looked to establish more significant combat positions to secure the Island and install coastal artillery batteries to defend the French coast. Following Hitler's Directive for the Island to become an impregnable fortress and the unavailability of naval armaments further Army fortifications were constructed. This has resulted in a wide diversity of types of structure and standards of construction in Guernsey.



Photo 5: Navy Stp Grosshugel Searchlight Shelter. Photo: Chris Mauger

Assessment For Conservation

As part of an MSc dissertation English Heritage's Monument Protection Programme assessment methodology was adapted and applied to the structures.

A Class Characterisation Assessment showed that the fortifications have a restricted period of use, high diversity, low rarity, high representativeness and very high significance. Consequently the fortifications are of national significance and when considered as part of the Atlantic Wall defences are likely to have international significance. Furthermore to provide a representative sample of structures and sites will require a substantial number of structures to be protected due to the high diversity of form. To protect just one example of each surviving type of structure would require 127 structures, 14% of surviving structures, to be protected. Furthermore when considering the diversity of the structures within the non-



Photo 6: Stp Nebelhorn Searchlight Shelter Side. Photo:



Photo 7: Stp Nebelhorn Searchlight Shelter Front. Photo: Chris Mauger.



Photo 8: Stp Icart Searchlight Shelter Front. Photo: Chris Mauger

standard plan category a significant number of additional structures would require protection to provide a representative sample. In addition to retain their context the associated structures on the site would also require protection.

Three case studies were conducted to apply the Monument Class Discrimination Assessment to a sample of types of structure. A single type of structure from each of the standard plan, non-standard plan and a simple gun position categories were selected for the assessment.

The case studies demonstrated that the Discrimination Assessment methodology will produce a defensible ranking identifying the best example of each type of structure. However, this ranking can only be used to consider structures for statutory protection as other factors need to be considered to ensure the selection mirrors the diversity of the actual resource. This particularly applies to the non-standard plan structures where their diversity may require protection of multiple examples. Furthermore factors such as condition and vulnerability need to be considered. This ensures structures which are not in a conservable condition or are at imminent risk to a vulnerability which cannot be managed, such as significant coastal erosion, are omitted.

Furthermore the Assessment will identify the best example of each type of structure. However, if individual structures on different sites are selected for protection, the context provided by the whole installation could be lost. Consequently the results of the assessment will need to be reviewed to protect the best example of each type of site (coastal artillery battery, anti-aircraft battery, etc). Following which further isolated examples may be selected to ensure the best examples of individual structure types are also protected.

Fortification Condition and Vulnerability

A brief assessment of condition and vulnerability was included in the case studies. This identified that the majority of the structures are currently in optimal or satisfactory condition with some problems. Furthermore 14 % are in imminent risk of damage to the structure and 64% are at risk of damage in the next 10 years. Only 22% are likely to be at no risk in the next 10 years. Consequently protection decisions need to be made within the next 10 years or deterioration could result in a reduction of the quality of the fortifications.

Lastly the principal vulnerabilities of the structures are to natural deterioration of the structure, vegetation growth and coastal erosion. However, the vulnerability of the fortifications to coastal erosion will particularly affect the coastal defences and not the artillery batteries due to their location on high ground.

Assessment of Significance

Table 2 below summarises the significance of the fortifications.

Value	Level of Significance	Justification
Aesthetic	Considerable	Form, scale, materials and sounds associated with their use provides the character of the sites.
Scenic / Panoramic	Some	Coast defences and observation posts demonstrate the views achieved from the fortifications.
Architectural / Technological	Considerable	Demonstrate changes in fortification design and construction at the middle of the 20 th century along with the changes in warfare.
Historical	Exceptional	Part of the Atlantic Wall defences and the Channel Islands were the only part of the British Isles to be occupied by German Forces during the War. Furthermore the development of the fortifications demonstrates the changing priorities for German forces along the Western Front during this period.
Associational	Considerable	Significance with this period of the Islands history and the locations of the sites.
Archaeological	Considerable	Structures will be required to validate or correct the information in the documentary records to provide a clearer understanding of the sites.
Economic	Limited	Generate little revenue as heritage places and have little development value.
Educational	Some	Encouraging local people to learn about this period in the Islands history.
Recreational	Some	As tourist attractions and spaces used by the public.
Artistic	Unknown	War art within the fortifications has not been evaluated to date.
Social	Some	Part of the Islands identity.
Commemorative	Considerable	A reminder of this period in history.
Symbolic	Considerable	Negative value as a representation of the Occupation of the Island.
Inspirational	Limited	Represent a period of inequality which could inspire fairer treatment of people.
Ecological	Limited	Very few sites known to provide habitat for wildlife.
Spiritual / Religious	None	No religious sites known.
Environmental	None	Plenty of other open spaces for the community to enjoy.

Table 2: Summary of Assessment of Significance. Source: Christopher Mauger.

Future

Guernsey has a significant quantity of German fortifications on British soil in a very small geographic area. There is also a wide diversity of fortifications due to changing German priorities and resource availability. Overall the fortifications are not rare, however, a proportion of individual structures do have only a few remaining examples in Guernsey. An outline strategic assessment of significance has also shown that the

fortifications are of very high significance of the Island, nationally and possibly internationally.

Executing case studies using an adapted version of the Monuments Protection Programme methodology showed that this could produce a defensible list of structures for protection. However, this would need to be reviewed to ensure the selection mirrors the diversity of the resource and maintains the context of the sites. Furthermore an assessment and selection decision needs to be made within the next 5 years otherwise the quality of the fortifications will deteriorate.

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PATAREI PRISON, TALLINN: PROBLEMATIC BUILT HERITAGE AND DARK TOURISM — Paul Belford, Nexus Heritage

Patarei is an unusual heritage attraction in the picturesque Baltic city of Tallinn, and one which raises a number of questions about the presentation of problematic built heritage. The story of the building reflects the long and complex relationships between Estonia and Russia at different stages of their histories. However its future remains delicately balanced between different narrative strands, and different visions of the future.

After almost two centuries as part of the Swedish empire, Estonia came under Russian rule in 1710. Russia planned an ambitious series of fortifications to protect all of its Baltic territories, although little was achieved on the ground in Tallinn in the short term. Grand plans were drawn up in 1791, but it was not until 1829 that work began on one of four intended forts; in the end Patarei was the only one to be completed (Treufeldt 2005). The main building was completed in 1837, with the rest of the complex operational by 1840. It was a self-contained fortress housing over 2,000 people; there were officers' apartments, soldiers' barracks, an infirmary, bakery and kitchens as well as the various magazines and artillery emplacements. Officially called the 'Defence Barracks', locals came to call it the 'Battery Barracks' (Patarei kasarmud), eventually shortened to 'Battery' (Patarei).

Problems arose almost immediately. Underlying springs caused damp, although ironically there was insufficient drinking water until a well was completed in 1847; steam and smoke from the ground-floor kitchens also damaged the ordnance (Treufeldt 2005). Consideration was given to abandoning the site altogether, but it proved to be a useful deterrent during the Crimean War. In 1854 and 1855 a joint Anglo-French naval operation attacked the Russian navy (and its forts and supply chain) in the Baltic; the Russian fortress at Suomenlinna (near Helsinki) came under heavy attack and the Russians were forced to retreat to land-based forts, of which Patarei was one of the most important (Greenhill and Giffard 1988).



Figure. 1. General view of the first courtyard of Patarei prison from the entrance. The original 1830s 'lunette' is in the background; to the right are later additions made during the 1860s; to the right are later additions built by the prisoners in the twentieth century. Photo: Paul Belford

From 1864 Patarei became an ordinary barracks, and improvements were subsequently made to the accommodation (Figure. 1). In 1869 the seaward gunports were converted to windows, improving ventilation. In 1892 the main semi-circular range (lunette) was raised to three storeys, and a Russian Orthodox church was established in one of the casemates. In 1899 a new bakery and kitchen range was built (Treufeldt 2005).

The later nineteenth century had seen a 'national awakening' in Estonia and other Baltic states, and more outspoken demands were made after the first Russian revolution of 1905. Estonian autonomy was granted after the second Russian revolution in February 1917, but elections were thwarted by the third Russian revolution in October and the subsequent German occupation. The withdrawal of German troops in November 1918 was quickly followed by a Red Army invasion; Estonian troops eventually won the War of Independence, and in 1920 the Treaty of Tartu marked the beginning of the new Republic of Estonia. It was at this time that Patarei was turned into a prison (Kuusi 2008, 109). Extensions were built by the prisoners using limestone blocks and prison-made concrete and roof tiles; these comprised an eastern wing of 48 solitary cells in 1932, and a southern wing accommodating 500 inmates in 1934 (Treufeldt 2005).

Patarei's most notorious period – and the one with which it is still most closely associated today – began with the first Soviet occupation of Estonia from June 1940. The prison came under the jurisdiction of the Soviet secret police, the NKVD (Hinrikus 2009, 520). Within months 8,000 people had been arrested and deported; a further mass deportation of 'socially foreign elements' began in March 1941, and it is estimated that around 100,000 people (nearly 10% of the population) were lost during this period (Rahi-Tamm 2005, 26-28). In June the German Army invaded, beginning a brutal occupation which quickly crushed any initial hopes of liberation. In 1944 the Red Army recaptured Estonia, and so began the second Soviet occupation, which lasted until 1991. There was considerable resistance, including the 'forest brothers' – a loose affiliation of up to 30,000 resistance fighters who remained active into the 1950s (Rahi-Tamm 2005, 31).



Figure. 2. Corridor on the third floor of the 'lunette' building. Doors give access to former artillery emplacements, converted to barracks in the 1860s and then used as cells in the twentieth century. Photo: Paul Belford

Patarei was one of two prisons in Tallinn that served in effect as clearing houses whilst prisoners were investigated before being sent to the Gulag. These investigations could last days, weeks or even months, but were extremely rapid in the early years of the occupation when the lack of accommodation in Estonia meant that it was preferable to send prisoners to Siberia as quickly as possible (Rebassoo 2008, 4). Interrogation mainly took place at the notorious Pagari Street in cramped, dark, filthy and poorly-ventilated cellars, with prisoners subsequently moved to Patarei (Figure. 2). Hillar Tassar, a civil engineer, was in Patarei in 1948 and 1949, before being moved to

Vorkuta to work in the mines: 'The difference between Patarei and Pagari prisons was like day and night. In Patarei ... the cell was a room with a vaulted ceiling in an old naval [fortress] with a window opening right on to the sea. In stormy weather the wind blew spray into the window' (cited in Hinrikus 2009, 173).

Nevertheless conditions were cramped (Figure. 3). Cells with 16 bunk beds were often made to accommodate 30 people (Anon 2008, 2). Hilja Lill was in Patarei during the winter of 1945-1946: '...up to 25 people were crammed in a cell meant for seven. We slept like herring in a tin, heads against the wall, feet jumbled together. For food we were given 400 grams of bread a day, a teaspoon of sugar, fish-head soup' (cited in Hinrikus 2009, 49). Another inmate, one of the 'forest brothers' recalled that in solitary confinement the daily ration was only 300g of bread and cold water (Hinrikus 2009, 136). Heljut Kapral, a musician in Patarei during 1945, remembered shaving using a piece of glass, and 'we made needles from a piece of bone salvaged from our soup, also using a piece of glass ... After the evening roll-call a regular feature of the daily schedule was mutual delousing' (cited in Hinrikus 2009, 135).

Despite the conditions, prisoners in this early period had relative autonomy. They tended to be housed together with people from their own areas or groups, and were able to make use of the open yard for exercise (Anon 2008, 5). Kapral recalled how the majority of men in his cell 'had a university education' and put together a schedule of lectures and discussions: 'my assignment was to familiarise my cellmates with the basic principles of making an atomic bomb, since I had just passed my examinations in physics and chemistry' (cited in Hinrikus 2009, 134).

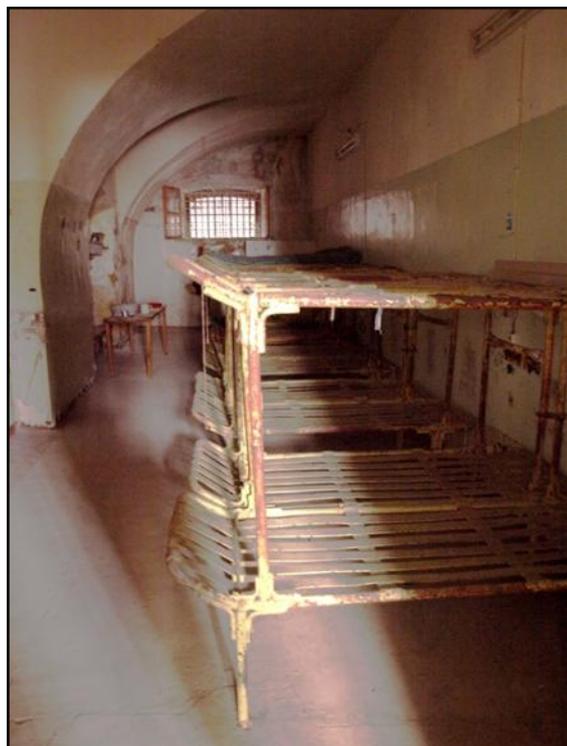


Figure. 3. 1840s artillery emplacement subdivided in the 1860s, and then used as a cell – containing 16 beds in 8 bunks, and typically housing 30 prisoners. Photo: Paul Belford.



Figure. 4. The formerly open courtyard, viewed through later twentieth-century guardhouse windows; the yard below is enclosed and subdivided into small, closely-observed cells. Photo: Paul Belford.

The death of Stalin saw a change in the climate of the relationship between Estonia and the USSR, with many deportees being allowed to return home. Policy adjusted from mass repression and deportation to more targeted approaches (Rahi-Tamm 2005, 32). For the inhabitants of Paterei the consequence was a hardening of the regime. Whilst prisoners in the 1940s were able to say that interrogations there were 'rather polite' (Hilja Lill, cited in Hinrikus 2009, 49), or even 'polite and reasonable' (Heljut Kapral, cited in Hinrikus 2009, 134), it is clear that later questioning techniques involved psychological and sometimes also physical violence. It is possible that sexual violence was also deployed as an interrogation technique against women (Kurvet-Käosaar 2009, 76). Despite the installation of central heating and flushing toilets in the 1970s, this period also saw

the formerly open courtyard partitioned into small cells, and freedom of movement curtailed (Anon 2008, 5) (Figure 4). Tallinn hosted the sailing events for the 1980 Moscow Olympics; the sea-facing windows of Paterei were clad with steel ribbing to prevent eye contact between prisoners and foreign sailors (Treufeldt 2005). Executions were frequent; by shooting and by hanging – the last execution took place in 1991 (Anon 2008, 4) (Figure. 5).

In 1988 the Estonian Sovereignty Declaration was issued, and the next few years saw a flurry of activity as a new 'national awakening' sought to revive the Republic of Estonia. On 20th August 1991 Estonia's independence from Russia was 'confirmed' (the argument that this was a continuation of the 1919-1940 Republic was a powerful tool in avoiding Russian reprisal); and three years later the Russian army withdrew.

Paterei prison closed in 2002, although the infirmary remained open until 2005. This period saw considerable debate around a plan to use the building as the future home of the Estonian Academy of Arts – for some an ideal solution, but an expensive one which was politically contentious (Treufeldt 2005). Instead, in September 2005, the complex was opened as a temporary museum by the Museums of Virumaa; however it almost immediately closed after safety concerns, and although re-opened in early 2006 the Museums of Virumaa withdrew from the project in July (Kuusi 2008, 109-110). The site has subsequently been operated under a public-private partnership as a 'Culture Park'.

Under the 'Culture Park' regime the site has been used for music and arts events, with the main building complex largely left untouched. Initially tourists were offered a variety of lurid 'prison experiences', but more recently this has been toned down; there is an optional guided tour, but most visitors pay a simple €2 and undertake a self-guided 'urban exploration'. There is no formal interpretation or guidebook, little in the way

of signage, and an almost total absence of any health and safety. In many ways this is a refreshing approach, and results in a haunting and ultimately moving visitor experience. However the emphasis is very much on the ‘Soviet prison’ aspects of the history of the site, with former roles as barracks and fortress very much downplayed.

The long-term future of Paterei remains in the balance. At the moment it offers a unique ‘dark tourism’ experience, providing a brooding and haunting symbol of Soviet occupation and repression which in a way echoes the role of Auschwitz-Birkenau in relation to the Nazi regime. Clearly it cannot remain abandoned and unmaintained forever – it will either fall down, or become unviable as a tourist destination – even if for the very niche ‘dark tourism’ market which it currently attracts.



Figure. 5. The hanging room. The trapdoor and stepladder (the hook in the ceiling is out of shot) provide a grim reminder of the function of this room, last used in 1991. Photo: Paul Belford.

However development of the site needs to proceed with caution. The authorities are keen to upgrade the area (they have recently built an excellent new maritime museum next door), and are actively trying to sell the site. It failed to attract a buyer earlier this year, and has been withdrawn from the market whilst interest is sought from the public sector (Ilves 2012). Various suggestions for future uses have been put forward, including any or all of a communist crimes museum, an Estonian War Museum, police, security police and firefighting museums; the Defence Minister has also recently suggested that the complex could ‘also include catering services and a creative incubator ... it will open up the sea to the city, clean up the urban space and improve the seaside city's image’ (Ilves 2012). However buildings archaeologists should be concerned; already significant elements of the post-1940 complex have been demolished without record to enhance the site’s perceived value to future developers (Roman 2011).

At the moment Paterei remains a unique and largely unexplored document which encapsulates much of the last 200 years of Estonian history. It is a delicate and remarkable testament to some very painful aspects of recent history. It would be a shame to see it lose that patina altogether, but it is also crying out for sensitive and nuanced conservation.

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Book Reviews

The BAG Committee would like to thank those who responded to the last Newsletter's request for potential book reviewers. If we didn't get back to you, never fear, your response was very gratefully received, and you are now firmly on the list.

The Committee is always keen to hear from people who would be interested in providing reviews of books which would then appear in print. If you are interested please get in touch with us at our email address or the IfA postal address, and we can add you to our database. If you could please provide a bit of background information about yourself and your areas of expertise it would be very useful in selecting the best candidates for material to be reviewed by. We look forward to hearing from you!

THE ROYAL ORDNANCE FACTORY AT HAYES: THE STORY OF A WORLD WAR II GUN AND TANK FACTORY AT HAYES IN THE LONDON BOROUGH OF HILLINGDON

Author: Nick Holder

ISBN 978-1-901992-88-5: 48 pages

Museum of London Archaeology 2011: price £7

On being offered *The Royal Ordnance Factory at Hayes* to be reviewed I was expecting to read a book about an explosive or filling factory. Instead, as the subtitle denotes, Hayes was an engineering factory that almost exclusively produced anti-tank guns and tank guns. During the later war years the factory also converted the US Sherman tank into the 'Firefly' variant by replacing the standard 75mm gun with British 17-pdr anti-tank gun.

The book is a slender, A5, full-colour, history of the factory from its construction in 1941-2 through to its closure in the early 21st century. It contains eight short chapters covering the Royal Ordnance Factories, the construction of ROF Hayes, what the factory manufactured and how it operated (three chapters), the workforce and its welfare (two chapters), the defence of the factory, and the site's post-war history.

In several chapters Holder acknowledges the challenges the Government faced in supplying ordnance and other materiel for the war effort. British factories featured heavily in wartime propaganda, and Hayes was the focus of a 1942 film *Work party*. Stills from this film, along with contemporary photographs of the factory, are used to illustrate the book, as are 'in action' photographs of tanks fitted with guns made at the factory. Reminiscences of those who worked in and visited the factory provide a personal insight into the establishment.

The factory closed in 1946 but the site was reoccupied as a government records centre in 1950 – the hundreds of machine lathes were replaced with 210 miles of racking! As a consequence, most of the original buildings remained intact until closure and redevelopment by ProLogis, a logistic company who funded the archaeological investigations and publication of the book. A selection of photographs taken during these investigations, as well as the subsequent development, is included, although one error was noted – the caption on page 15 refers to building A where the illustration is of building Y. A single modern cross section through part of a store is included, as are a plan of the wartime layout and a 1950s cross section.

The book concludes with an acknowledgements section, and notes on further reading including publications, documentary sources and the archaeological investigations archive; the latter two helpfully include reference codes.

In summary, this is not a detailed architectural or archaeological account of the factory, and the book was not designed to be. Instead, we have popular brief account that provides an insight into the architectural, social and technological history of the works, easy to read, informative, fully illustrated and well laid out.

Andrew Passmore, AC Archaeology



Front Cover. Photo: Andrew Passmore

Events

- 9 February 2013—Conference: The Archaeology of the Severn Estuary and Beyond. [Strode Theatre](#)
- 22 February 2013—Conference: [Living Legacy; Archaeology and early towns](#). Society for Post-Medieval Archaeology and Irish Post Medieval Archaeology Group. Londonderry.
- 22-23 February 2013—CAAUK Conference. [Hosted by L-P Archaeology, London](#)
- 23 February 2013—Conference: Infrastructure and the Historic Environment. [IfA SAG, London](#)
- 2 March 2013—CBA Winter General Meeting. [York](#).
- 5 March 2013—Conference: Fortifications at Risk Symposium. [Fortress Study Group, London](#)
- 17-19 April 2013—'Making Waves: designing and demonstrating impact in archaeology and heritage'. [IfA Conference, Birmingham](#)
- 13-18 May 2013 — Association for Industrial Archaeology. Spring Tour: [Roaming the Ruhr](#).
- 12 June 2013—[Historical Metallurgy Society 50th Anniversary Conference and AGM](#). London.

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The next issue

The next issue of the BAG Newsletter will be the Summer 2013 edition. It will be of a more average length, and will focus on the buildings archaeology and built heritage of 'Entertainment and Sport', given the widely recognised success of the 'London 2012' Olympics. The deadline for submissions will be 30 April 2013, for publication by 20 May 2013. The following edition will be a special edition following BAG's joint session with the Graphical Archaeology Group at the upcoming IfA Conference in Birmingham, and will focus on the use of new technologies in the study of historic buildings and their archaeology. This will be circulated in the early Autumn.