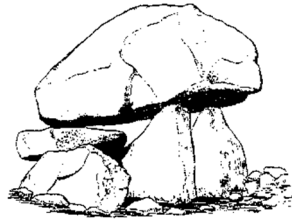


ULSTER ARCHAEOLOGICAL SOCIETY



Survey Report: No. 29



Survey of the Ice House at Mount Stewart Demesne UAS/11/02

In association with



Ian Gillespie

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First published 2011

Ulster Archaeological Society

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1. Summary

1.1 A site survey was undertaken at the National Trust's Mount Stewart House site in the townland of Mount Stewart, Grey Abbey, Ards, Irish Grid reference J 55427 69907.



Figure 1: Location map for Mount Stewart

1.2 Aims

In order to enhance the archaeological record of this site, the aims of this survey were to produce an accurate plan and section drawing of the monument and carry out a photographic survey. This information was compiled into a report and submitted to the Environment and Heritage Service and the National Trust.

2. Introduction

2.1 Background

The survey of the Icehouse was carried out on Saturday 26th March 2011 by members of the Ulster Archaeological Society. This was the 29th such survey carried out by the Society, whose survey programme has been running since April 2006. This programme was undertaken in response to a decision taken by the committee of the Society to extend an opportunity to members to participate in practical surveys of archaeological monuments that had not previously been recorded. This decision had been prompted by a bequest to the society from the late Dr Ann Hamlin, from which the items of survey equipment were purchased. During discussions with Mr Malachy Conway, Survey Archaeologist of the National Trust in Northern Ireland, it had been noted that many archaeological sites on National Trust property had not been subject to a detailed archaeological survey. It was therefore agreed that members of the society would commence a programme to survey these sites.

2.2 History of Mount Stewart Demesne

The following description is reproduced from the Register of Parks, Gardens and Demesnes of Special Historic Interest (Northern Ireland Environment Agency).

Mount Stewart demesne owes its origin to Alexander Stewart MP (1699-1781), a minor Donegal landowner and successful linen merchant, who, having married his cousin, Mary Cowan, a rich heiress [in 1737], purchased the Colville manors of Comber and Newtownards in 1744 and resolved to build a seat on the present site, then known as Templecrone.



Illustration 1: Mount Stewart Demesne © Madidi; Panoramio

This building, which he initially called Mount Pleasant, was a large long low two storey building, originally painted blue, occupying much the same ground as the present William Morrison house. Just south of this house facing the Portaferry Road, then running close to the house, he built a small settlement known as Newtown Stewart, which Young described in 1776 as ‘a row of neat stone and slate cabins’ (Hutton, 1892) and shown on David Geddas’s Demesne map of 1779 [presently in the house].

Young also mentioned ‘some new plantations, which surround an improved lawn, where Mr Stewart intends building’ – a reference to landscaping around a planned new house that Alexander Stewart intended to build on the hill lying just south-west of the present walled garden. His son, Robert, later 1st Marquess of Londonderry (1739-1821), advanced his father’s plans once he inherited in 1781. In June 1783 the architect James Wyatt was paid for providing plans for ‘New Offices’ and ‘Mansion house intended at Mount Stewart’.

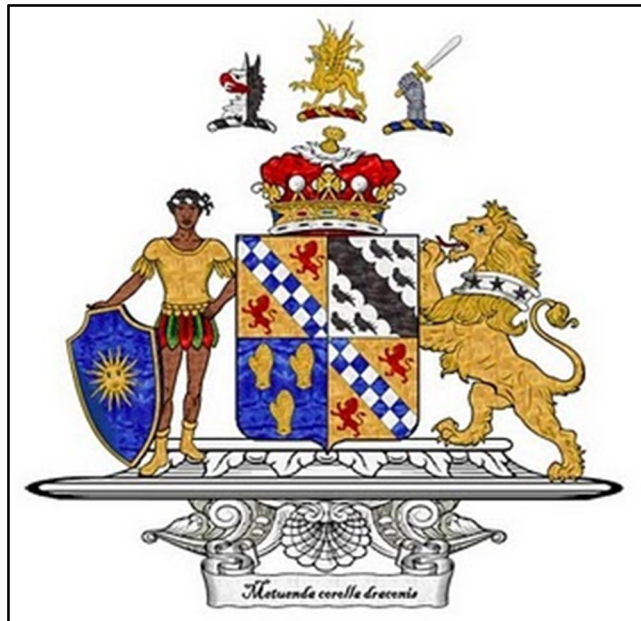


Figure 2: Londonderry Coat of Arms courtesy of European Heraldry

The latter was never built, but evidently intended for the same location on Bean Hill near the walled garden. The walled garden itself was probably completed by 1780-1 for in July 1781 there are payments for the ‘freight for tiles for hothouse’, while in 1780 the head gardener replanted a vine ‘in the west pine stove’ – apparently the same ancient vine that occupies the west end of the glasshouse today. The adjacent sprawling farm yard complex, which includes a hexagonal dovecote, were also built around this time, possibly in 1784-5, with the yard being repaired in 1816-7 following a fire (listed HB 24/04/055). Further additions were put up here in the 1870s. The landscape gardener William King, who may have been already involved in landscaping here in the 1770s, was paid for work in July 1781, May and November 1782. The park layout as shown on the 1834 Ordnance Survey map is probably largely King’s work, and was laid down sympathetically to the drumlin country, probably assuming the house to be located near the walled garden. However, most of the demesne plantations were put down over the much longer period, with payments being made in 1785, 1787, 1789, 1789-91 and 1792-1801.

In the 1790s there was little building activity at Mount Stewart, following the expense of electing Robert’s son Castlereagh into Parliament in 1790. However, in 1802 he decided to modernise part of his existing house and so engaged George Dance, the Younger (1741-1825), who produced plans in 1804 for a Classical Regency replacement of the west wing, which was completed around 1806.

Charles William Stewart (1778-1854), succeeded as the 3rd Marquess of Londonderry in 1822 after the suicide of his elder half-brother Castlereagh (who had become Marquess the previous year), and during the 1820s the family’s resources were focused on building work at Wynyard & Seaham in Co. Durham & Holderness in London. Eventually, in 1835, the 3rd Marquess and his wife, the heiress Frances Anne Vane-Tempest, invited William Vitruvius Morrison to prepare plans to knock down the old house to the east of the Dance wing at Mount Stewart, with a scheme to rebuild and enlarge the mansion. Morrison’s plans were not actually implemented until after the

architect's death [in 1838], when work was undertaken between 1845 and 1849, supervised by the Newtownards builder Charles Campbell.

As work was being completed on the house, a U-shaped rubble-built stable yard was added in 1846 to a design of the architect Charles Campbell (listed HB24/04/053), while at the same time improvements were being made in the park, most notably work on digging a 'new lake' between 1846-51 in what was formerly a gravel pit to the north of the house. Water from this lake was subsequently used to supply the house via McComb's Hill, through the use of a horse-drawn pump and later a hydraulic ram.

During the second half of the 19th century the house was only occasionally used by its owners, the 4th Marquess (1805-1872), his half-brother the 5th Marquess (1821-1884) and Charles Stewart. the 6th Marquess (1852-1915), the latter spending much of his time in London.

In 1921 Charles, the 7th Marquess and his wife Edith, moved to Mount Stewart, having inherited the property in 1915. She had once remarked, on a visit prior to 1921, that the property was 'the dampest, darkest and saddest place I had ever stayed in'; so, as soon as she arrived there to live, Lady Londonderry undertook to transform the grounds around the house.

In 1949 the 7th Marquess died and left the property to his wife for her lifetime and then to his youngest daughter, Lady Mairi Bury. In 1955 the gardens were transferred to the care of the National Trust and two years later in 1959 Lady Edith died. The Temple of the Winds were acquired in 1963 and in 1977 the house plus and endowment were accepted by the National Trust as a generous gift from Lady Mairi Bury. Lady Mairi died on 16th November 2009.

2.3 Cartographic evidence

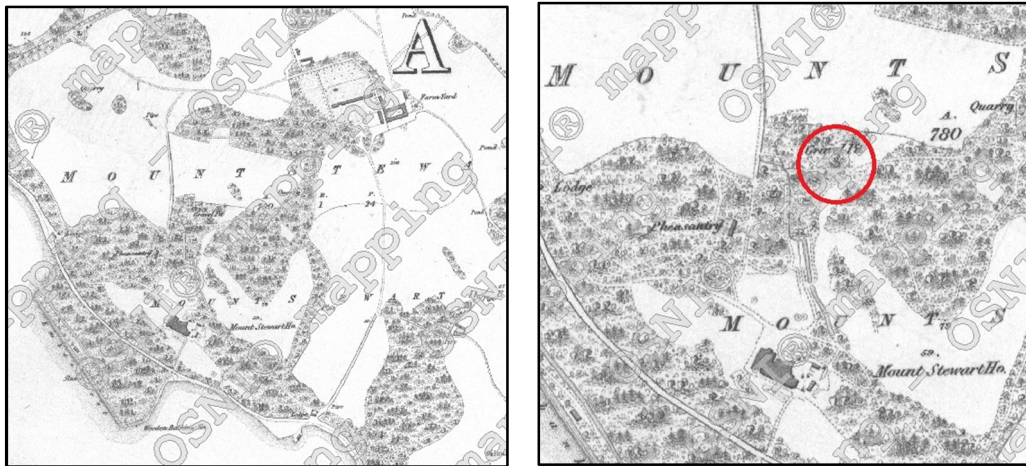


Figure 3: OS 6-inch-County Edition: 1 1834 © Crown Copyright

The 1834 map shows Mount Stewart before the lake was dug out from a gravel pit (circled) and before the Ice House was constructed.

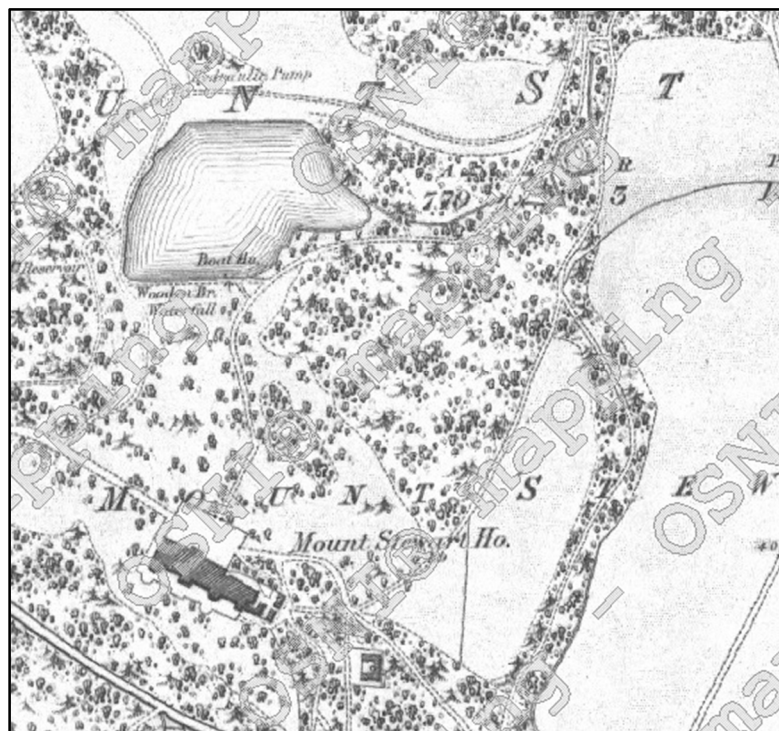


Figure 4: OS 6-inch-County Edition: 2 1858 © Crown Copyright

The 1858 map shows the lake which was dug between 1846 and 1851, but no evidence of the Ice House which presumably had not yet been constructed.

However there is a reference to an Ice House in a ledger contained within the Londonderry Estate Office Papers held at the Public Record Office of Northern Ireland

(P.R.O.N.I.). The ledger entry, dated 8th March 1858, refers to purchase of a “Bar for Ice House”:

Contra *6-11*

1858		1857					
Mar. 1.	"	By Amount brought forward		"	"	12. 11 6	2
2.	78	By Mt. Stewart Estab ^l for wages Bill 2 weeks	219	1, 8	10	0 4	
"	172	By Mt. Stewart Improvements for Architects wages Bill	213	2	14	"	
"	181	By Mt. Stewart Drainage for wages	211	15	1	1 1/2	
"	78	By Mt. Stewart Estab ^l for wages for gathering leaves	215	1	16	2 1/2	
"	165	By Subscriptions for Wood A. Cuppage	216	4	13	6	
8	78	By Mt. Stewart Estab ^l Bar for Ice House	217	"	10	"	
"	165	By Subscriptions to Green Mason Lodge Down	218	2	7	6	

Figure 5: Excerpt from Londonderry Estate Ledger (PRONI)

This would suggest that the Ice House was constructed some time in 1858. It is not certain what function the Bar would have had in the Ice House. Its cost of 10 shillings in 1858 would be equivalent to £40 - £50 today (Officer, 2011). It may have been used to suspend food in the cool air above the ice.

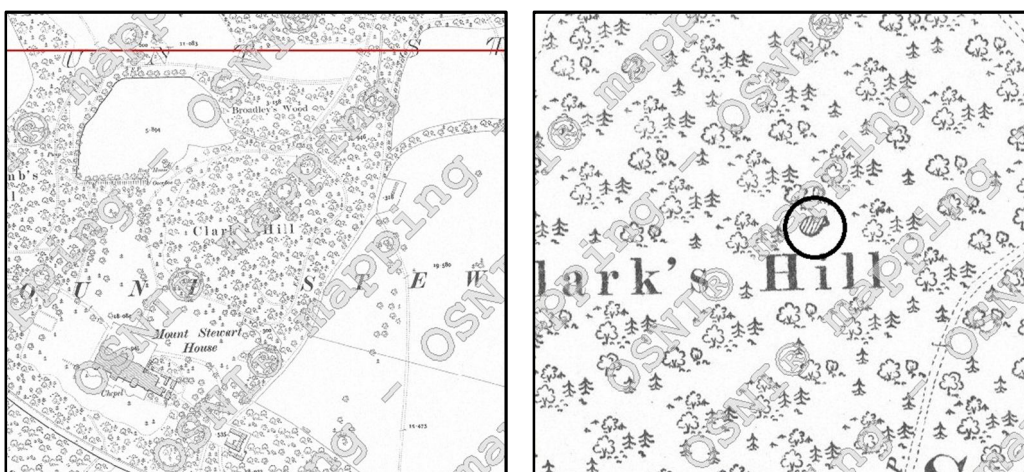


Figure 6: OS 10 25 inch County Edition: 1 1901 © Crown Copyright

The 1901 25 inch County Map shows the Ice House on Clark’s Hill.



Figure 7: OS 6 6 inch County Edition: 4 1920 – 1921 © Crown Copyright



Figure 8: Detail of OS 6 6 inch County Edition: 4 1920 – 1921 © Crown Copyright

The Ice House is shown on the 1920 6 inch OS map.

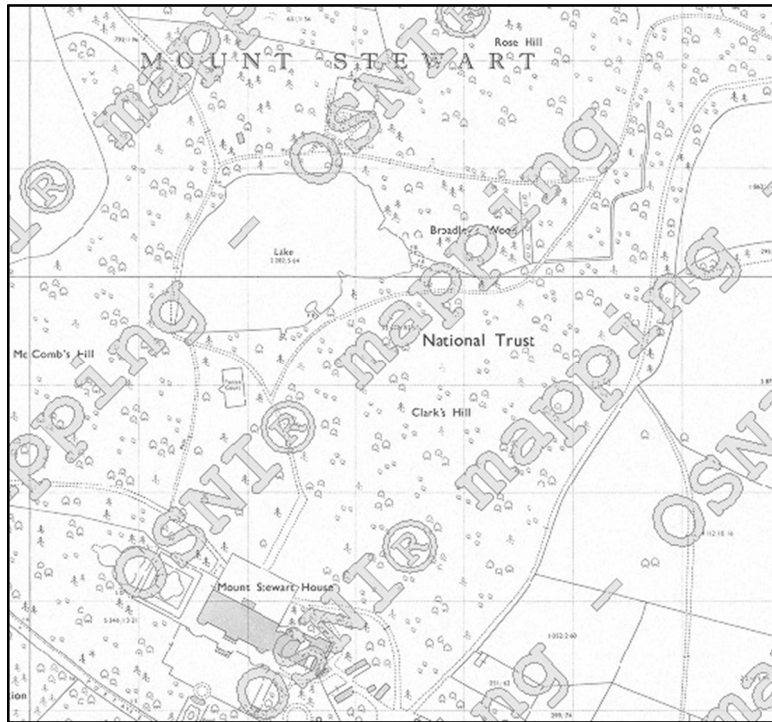


Figure 9: OS 11-25inch Irish-Grid Edition: 1 1971 © Crown Copyright

By 1971 the map records that the demesne is in National Trust ownership. There is no record of the Ice House which has, presumably, been demolished by this time.



Figure 10: Google Earth view - Imagery date 15th June 2010 © Google

2.4 Archiving

Copies of this report have been deposited with the Environment and Heritage Service and the National Trust. All site records are temporarily archived with the Honorary Archivist of the Ulster Archaeological Society.

2.5 Credits and Acknowledgements

The survey was led by Harry Welsh and other members of the survey team were Duncan Berryman, Colin Boyd, Hilary Boyd, Michael Catney, Ian Gillespie, Lee Gordon, Anne McDermott, Jana McDonald, Liz McShane, Pat O'Neill, Ken Pullin, George Rutherford, Janey Sproule and June Welsh.

The Ulster Archaeological Society is particularly grateful to Mr Malachy Conway, Survey Archaeologist of the National Trust, who worked closely with the survey team in choosing the site and facilitating access.

3. Survey

3.1 Methodology

It was decided that the survey would take the form of the production of plan and section drawings. A report was compiled using the information obtained from these sources, in addition to background documentary material.

3.2 Production of plan and profile drawings

Plan and profile drawings were completed, using data obtained from a field survey. Measurements were obtained by using the society's *Leica Sprinter 100* electronic measuring device.

Sketch plans at 1:100 scale were completed on site by recording these measurements on drafting film secured to a plane table and backing up the data on a field notebook for subsequent reference. Field plans were later transferred to a computer-based format for printing.



Illustration 2: UAS Survey team at work at Mount Stewart Ice House

3.2.1 Site Plan

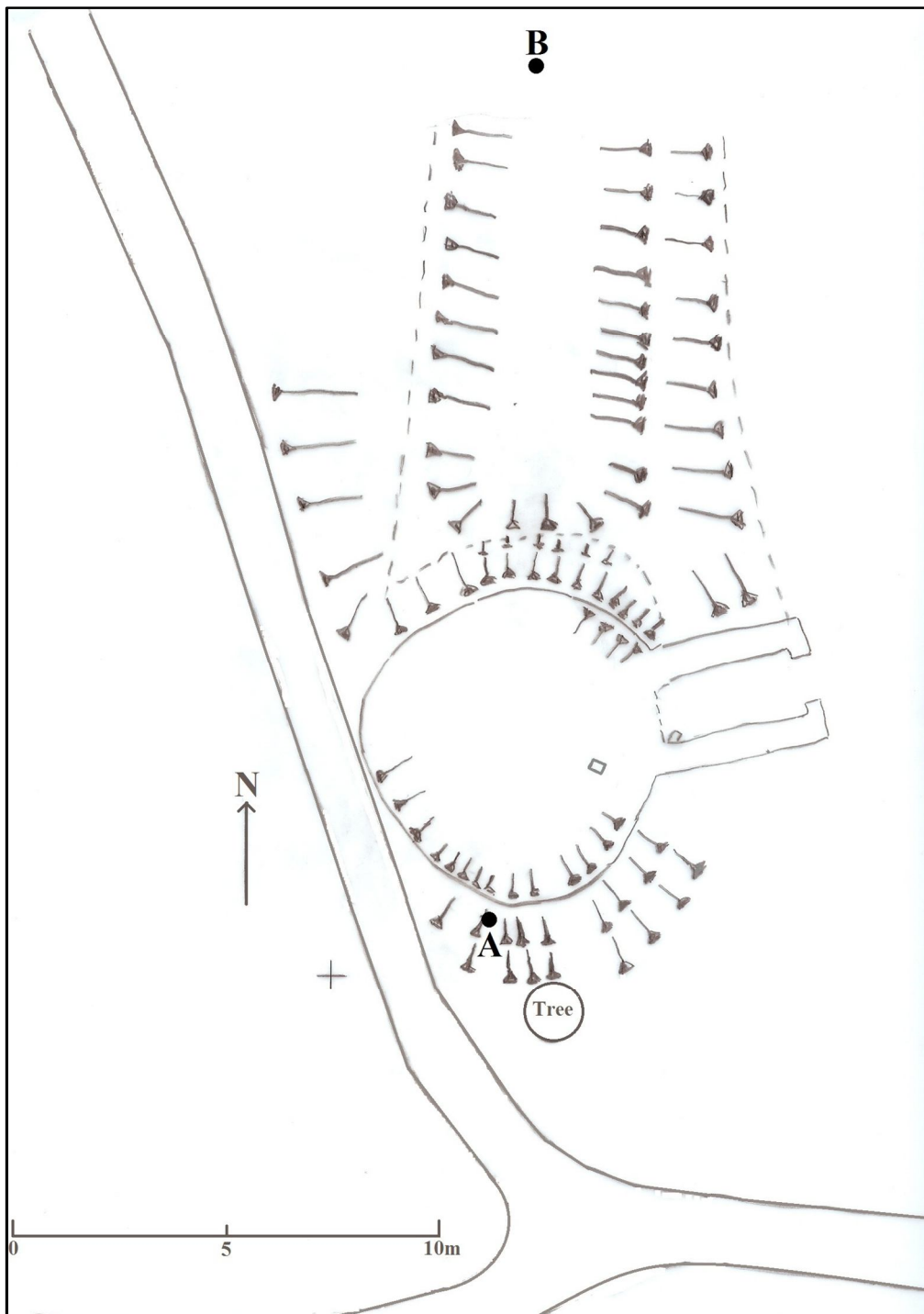


Fig 11: Schematic diagram of Ice house

3.2.2 Profile

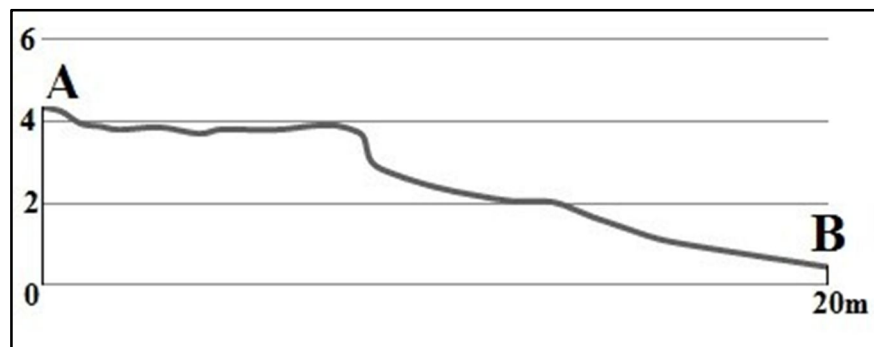


Fig 12: Profile A – B

3.2.3 Detail of Doorway

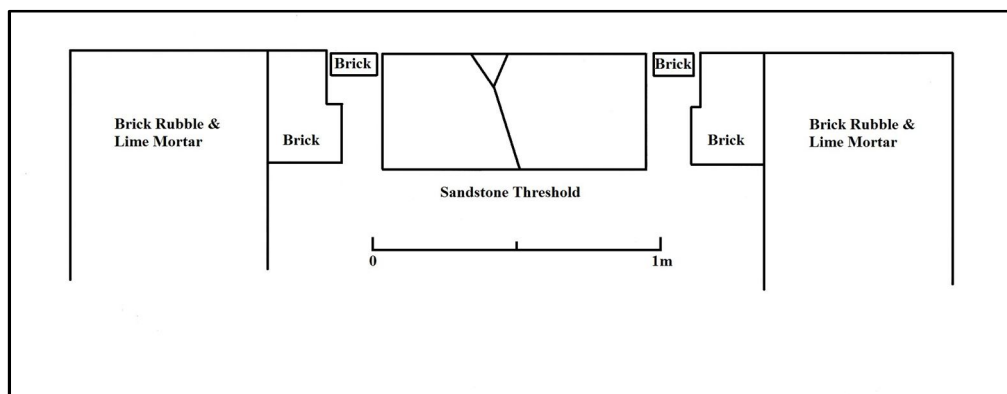


Fig 13: Detail of Doorway

3.3 Photographic archive

A photographic record of the site was taken by using a Nikon D700 12.1 megapixel digital SLR camera and a photograph record sheet was employed, corresponding to photographs taken during the site survey on 26 March 2011. The archive has been compiled in jpeg format and saved to compact disc.

4. Discussion

4.1 Site description

The Ice House is situated on a drumlin, known locally as ‘Clark’s Hill’, 140 m SE of the lake. A 50m channel has been dug into the drumlin from its northern aspect. The ice house has been excavated into the drumlin at the southern terminal of the channel, presumably so that the sump of the Ice House can drain melt water into the channel towards the lake.

The only extant remains are the walls of the entrance passage which entered the Ice House from ESE. These are built of rubble stone with brick facing at the entranceway.



Illustration 3: Wall of Entrance Passage © Ian Gillespie

The Ice House has been demolished leaving a circular saucer-shaped depression on the ground surface. There is in-situ rubble stonework exposed in the scarp face at the southern terminal of the gulley which is the remains of the underground bowl of the Ice House.



Illustration 4: Exposed masonry (circled) of Ice House bowl © Ian Gillespie

4,2 The Ice House at Castle Coole

Comparison can be made with a surviving Ice House at Castle Coole, Co Fermanagh. This is a brick-lined inverted cone, below an earth-covered dome.



Illustration 5: Castle Coole Ice House © Lee Gordon

It is likely that the Ice House at Mount Stewart was of a similar design.

4.3. History of the Ice House

Architectural historian Ellen Leslie (2010) gives the following account of the development of the ice house in her blog “The ice house uncovered”.

[An ice house] is a subterranean structure, built and used for the storage of ice and in turn for the preservation of food. When ice is packed together, its relatively small surface area slows down the thawing process. Ice will, of course, last longer if kept at a regular low temperature and insulated by straw, thick walls and a roof.

An ice house tends to be located close to a water source, such as a lake, in order to easily harvest ice in the depths of winter. Ice houses also have a drain hole in the base for the slow-melting ice to drain away. However, because of their temperature control efficiency a full ice house could take up to 18 months to thaw.

James I of England commissioned the construction of the first modern ice house in Greenwich Park in 1619. Medieval versions, known as ice pits, have not survived but it is likely that what set them apart from the new 17th century design was that the latter’s walls were brick-lined and their cylindrical shape, engineered for temperature regulation and strength.



Figure 14: The Greenwich Ice House drawn in 1772 by Hieronymous Grimm

King James commissioned another ice house (or snow conserve) to be built at Hampton Court in 1625-6. It is known to have been a brick-lined round well, 30 ft (9.1 m) deep and 16 ft (4.8m) wide and covered with a thatched timber building. While there were variations in this design and ice houses also varied greatly in size, this early 17th century model set the standard for future constructions

Four decades later the grandson of James 1, Charles II, was a man who promoted and patronised science and technology. One key example of this was the construction of an ice house in Upper St James's Park (now Green Park) in London in 1660. This scientific project also enabled Charles to entertain and impress by providing chilled drinks and ices to his retinue and guests, even in the height of summer.

This ice house was so noteworthy that the poet Edmund Waller wrote in 1661:

ON ST JAMES'S PARK (As lately improved by His Majesty)

*Yonder the harvest of cold months laid up,
Gives a fresh coolness to the royal cup,
There ice, like crystal, firm and never lost,
Tempers hot July with December's frost;
Winter's dark prison, whence he cannot fly,
Tho' the warm spring, his enemy draws nigh:
Strange! That extremes should thus preserve the snow,
High on the Alpes or in deep caves below.*

The 18th century saw a significant increase in the number of ice houses being constructed, mainly serving great manor houses and their estates. But rural manor houses were not the only ones to keep up with the rising trend in ice and food preservation. London of the 1700s experienced rapid growth including the construction of grand houses and villas, for new wealthy individuals. So it was during this period that what was once the preserve of royalty became accessible to the gentry and well-to-do.

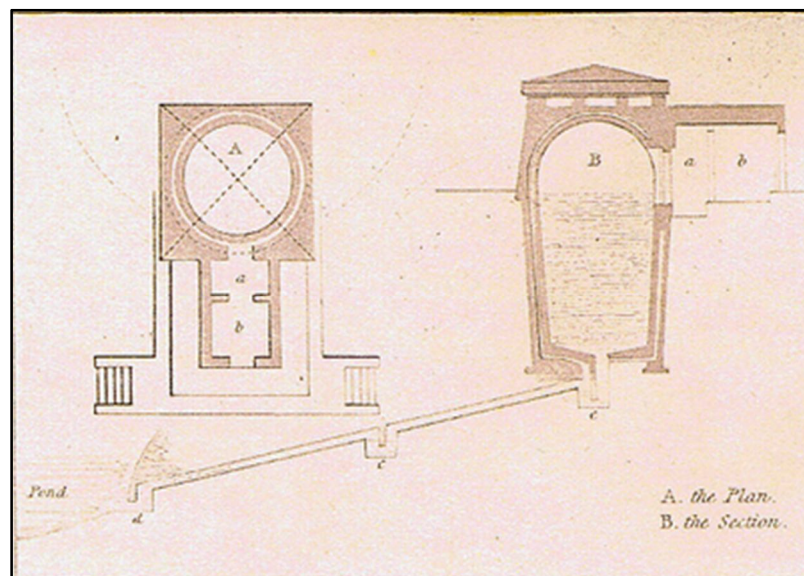


Figure 15: John Buonarotti Papworth's 1818 Design for an Ice House

In the 19th century vast, industrial quantities of ice tended to be sourced from North America and Norway. These fed the ice houses of the country estates, as well as commercial ice stores in the cities and private ice wells in smaller domestic houses. (Ice was also shipped to India from North America with an impressive 50% of the frozen cargo surviving the voyage). It was only the invention of the refrigerator at the end of the 19th century that saw the end of the ice trade and the demise of their brick-lined stores.



Illustration 6: Woodlands Park Ice House, Acton

Between 1939 and 1945 old ice houses did find new purposes. Some were reinstated as ice and food stores, but many, by virtue of being subterranean and strongly built became air raid shelters. Since World War II ice houses have been used as garden sheds, fruit stores, wine cellars or, if there are sufficient entry points, as bat roosts. However, in these eco-friendly days; at a time when traditional building techniques and other old ways are seen to be "greener", it could be considered carbon-wise for those lucky enough to have one, to ditch the electric fridges and freezers and reinstate their ice house for its original purpose!

4.4. Freestanding Estate Icehouses (Buxbaum 1992)

The icehouse in the grounds of the mid nineteenth-century country house was typically a freestanding masonry structure, the roof vault covered either with earth or with a thatched roof. In Britain some three thousand were built, the majority in the period 1750-1875. They were often sited near the stable block or walled garden, by the game larder or on the perimeter of the deer park. Many were built by old fishponds or landscaped lakes. Proximity to the house or to a source of ice was often less important than solving the problem of drainage, which in such structures was critical. In 1819 John Papworth summarised the requirements thus: 'in a retired spot in the grounds, and not far removed from water, and yet sufficiently elevated to be secure from damp', by which he meant safe from permanent saturation below the water table. So the most popular location became the sloping bank of a stream or pond, not too far from one of the estate roads.

Failure of an icehouse was usually put down by nineteenth-century writers to one of three factors: imperfect drainage, lack of cavity walls, or too few doors in the access passage. Most agreed on the need for a sloping setting, ideally in porous chalk, gravel or sand, and stressed the importance to the chamber of coolness, dryness and 'confinement from external air'. The traveller and writer William Cobbett observed in 1821 that: 'ice will not melt in the hottest sun as soon as in a close and damp cellar. An icehouse should never be underground nor in the shade of trees, but the bed of it ought to be 3 feet above the level of the ground.' Other writers said that the entrance porch should face south-east to enable the morning sun to dispel

overnight dampness, and that the site should be open. Yet others maintained a northerly aspect was best and suggested the shadow of trees. Rings of yew or oak trees may be seen around a number of icehouses; others are smothered in rhododendrons and self-seeded plants. Hops and French beans could be planted each spring to provide shade, which was elsewhere achieved by building wing walls to block direct sunlight on the entry door. Many builders followed their own inclination: an icehouse at Wakefield Lodge, Northamptonshire, was reputed to have been built under the lake, and those at Hatchlands, Surrey, and Holland Park, London, are of masonry construction exposed above ground.



Figure 16: Line drawing 'Illustrated London News' January 1850

The great majority of icehouses on country estates comprise four distinct elements: an entrance, a passage, a chamber and drain, and a vault. Apart from a few ostentatious examples, most entrances take the form of a masonry pediment protecting a secure lockable wooden door which appears to lead into the side of an earth mound, probably covered in shrubs or trees.

Beyond the outside door, the paved passage leading from the entrance to the ice chamber varies from a short straight corridor to an elaborate construction with niches in the walls, flights of steps and changes of direction. Some doors were once edged with leather and covered with sheepskin to provide airtight seals, subdividing the access passage to create a 'strawshed', which was filled with cushions of insulating barley straw. It must have made access very tiresome. Occasionally passages were extended, as at Ury, Grampian, presumably in an attempt to improve insulation, and the longest recorded stretches to 36 feet (10.9 metres) at Baron Hill, Beaumaris,

Generally the passage leads into the top half of the chamber, allowing the bottom half to be filled with ice. A door always separates passage and chamber, and sometimes the frame is angled, presumably to ensure the door would stay shut.

Chambers take a variety of forms, perhaps influenced by the rule of thumb that 'a skillful well-digger is a proper man to build an icehouse'; thus the earliest form seems to have been a conical brick well covered over with a thatched timber-framed roof. The conical shape was easiest to build and it would most securely contain a slowly melting mass of ice. Where the ice chamber is built of brick, the walls often reach 0.6 metres in thickness and cavities were incorporated from an early date in an attempt to keep the ice dry.

The chamber has to be drained of melt-water, most commonly through a sump at the base. Sumps would have been covered by a grating and connected to a drain, ideally discharging at the base of a nearby lake.

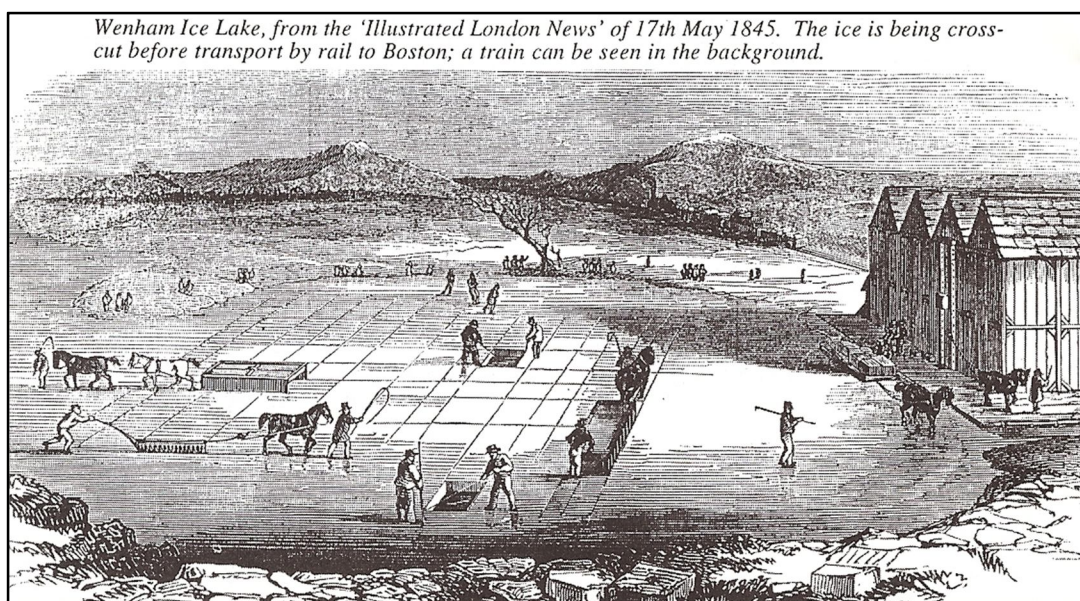


Figure 17: Line drawing 'Illustrated London News' May 1845

The ice house at Mount Stewart has been carefully designed and constructed. The chamber has been excavated into the side of a small drumlin, possibly at the site of an earlier quarry, thus avoiding the problems associated with digging into the water table. Its door is east-facing however abundant trees have been planted here which provide the necessary shade to minimize melting. Drainage is easily achieved via the gully which runs north from the ice house towards the lake.

5. Recommendations for further work

The site should be recorded on the Sites and Monuments register.

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P.R.O.N.I. Londonderry Papers. Ref No. D/654/H1/7 facing p 72

Appendix 1: Photographic Record

Nikon D700 12.1 megapixel digital SLR

Frame No	Direction viewed from	Details
DSC_8599	N	Gulley
DSC_8603	S	Gulley
DSC_8605	W	Entrance way
DSC_8607	SW	Entrance way
DSC_8608	E	Entrance
DSC_8615	NE	View of site
DSC_8650	N	Gulley
DSC_8654	E	Entrance way
DSC_8674	W	Sandstone threshold
DSC_8676	W	Detail of entrance
DSC_8685	W	Detail of doorway
DSC_8686	W	Detail of doorway
DSC_8696	S	Detail of doorway
DSC_8697	S	Gulley
DSC_8699	S	Gulley
DSC_8700	W	Detail of doorway



6

DSC_8615 Site viewed from NE



DSC_8603 Gully viewed from S



DSC_8605 Entrance viewed from W



DSC_8676 Detail of entrance passage



DSC_8608 Entrance viewed from E



DSC_8654 Entrance viewed from E



DSC_8674 Detail of doorway



DSC_8685 Detail of doorway



DSC_8686 Detail of doorway



DSC_8700 Detail of doorway

	
<p>DSC_8650 Gully viewed from N</p>	<p>DSC_8599 Gully viewed from N</p>
	
<p>DSC_8676 Detail of doorway</p>	<p>DSC_8696 Detail of doorway</p>
	
<p>DSC_8697 Gully viewed from S</p>	<p>DSC_8699 Gully viewed from S</p>