

# John Hay 1758-1836

'...the most eminent horticultural architect Scotland  
has ever produced.' (J.C. Loudon)

Institute of Historical Research

MA Garden and Landscape History

CONTENTS (16,345 words)

## Contents

	Page
List of illustrations.....	3
Acknowledgements.....	10
Introduction.....	11
Chapter 1. The Scottish landscape, horticulture and development.....	13
of the city of Edinburgh at the start of the 19 <sup>th</sup> century.	
Chapter 2. The development of glasshouse heating and technology.....	28
Chapter 3. An account of Hay's early life and career.....	37
a) Prestonhall.....	42
b) Archerfield (Collegehead).....	51
c) Camperdown (Lundie House) .....	60
Chapter 4. John Hay and Edinburgh 1810 onward.....	64
a) The formation of the Caledonian Horticultural Society.....	65
b) George's Square Garden.....	73
c) Balnagown Castle.....	75
d) Bargany and Kilkerran.....	81
e) Saltoun Hall.....	86
f) Newhailes.....	89
g) Edinburgh Experimental Garden.....	92
Chapter 5. Evaluation and Conclusion.....	95
Bibliography.....	99

## List of Illustrations

	Page
Figure 1. Advertisement in <i>Edinburgh Evening Courant</i> 1812.....	40
Byrom, C., <i>The Edinburgh New Town Gardens</i> , (Edinburgh: Birlinn Ltd, 2005).	
Figure 2. Aerial view of Prestonhall House and walled garden.....	41
Sourced from <a href="http://canmore.org.uk/collection1311557">http://canmore.org.uk/collection1311557</a> [accessed on 08 March 2016].	
Figure 3. Plan of Prestonhall included in McIntosh's book.....	43
McIntosh, C., <i>The Book of the Garden</i> , Vol. 1, (Edinburgh and London: William Blackwood and Sons, 1853), p.50.	
Figure 4. The extant north facing wall at Prestonhall indicating.....	44
where the glasshouses would have been. Photographed by the author.	
Figure 5. The twin Gazebos viewed from the back yard at.....	45
Prestonhall. Photographed by the author.	
Figure 6. View across the walled garden from the west gazebo.....	47
at Prestonhall. Photographed by the author.	

Figure 7. One of the remaining boilers at Prestonhall.....48

Photographed by the author.

Figure 8. Plan of Archerfield alongside aerial photograph.....51

Sourced from [maps.nls.uk/geo/explore/side-by-side](http://maps.nls.uk/geo/explore/side-by-side), NT502837

[accessed on 19 April 2016].

Figure 9. OS six inch 1843-1882 map of Barns alongside aerial.....53

photograph. Sourced from [maps.nls.uk/geo/explore/side-by-side](http://maps.nls.uk/geo/explore/side-by-side), [accessed on 19 April 2016].

Figure 10. The unusually shaped walled garden at Dalhousie.....55

Sourced from OS six inch map 1888-1913, [maps.nls.uk/geo/explore/side-by-side](http://maps.nls.uk/geo/explore/side-by-side), NT 324636 [accessed on 26 September 2016].

Figure 11. Photographs of the recent excavation of the old walled.....59

garden at Alnwick showing the northern hothouse which may have been modified by Hay. Photographs courtesy of Pre-Construct Archaeology Ltd. Durham, DH6 5PD.

Figure 11. Engraving of Camperdown House by a local engraver, .....60

G. Cummings. Courtesy of Friends of Camperdown House,  
<http://www.eurosurf.com/camperdown/index.htm>. [accessed 24 May 2017].

Figure 13. OS six inch 1843-1882 plan of Camperdown walled garden.....62

Sourced from [maps.nls.uk/geo/explore/side-by-side](https://maps.nls.uk/geo/explore/side-by-side), NT362327.

[accessed 19 April 2016].

Figure 14. Possibly a former orangery. View of one of the back.....63

buildings at Camperdown. Photographed by the author.

Figure 15. Letter of Invitation from a Horticultural Society.....66

Courtesy of the Caledonian Horticultural Society.

Figure 16. Minute Book of the Caledonian Horticultural Society.....67

showing John Hay as one of the founder members. Courtesy of

the Caledonian Horticultural Society.

Figure 17. Note in Caledonian Horticultural Society Minute Book.....69

Courtesy of the Caledonian Horticultural Society.

Figure 18. The high north facing wall at Oxenfoord Castle.....70

Photographed by the author.

Figure 19. The proposal to set up an Experimental Garden.....71

Courtesy of the Caledonian Horticultural Society.

Figure 20. The feuing plan for George's Square.....73

Tait, Margaret and Gray, W., Forbes, *Annals of an Edinburgh*

*locality, 1766-1926, from authentic records* (Edinburgh: T. and A. Constable Ltd for The Old Edinburgh Club, 1948), facing p. 16.

Figure 21. George's Square, named after the brother of the builder, .....74

not the monarch! Photographed by the author.

Figure 22. John Hay's plan of Balnagown, 1814.....76

Photographed by the author at Daniel Crouch Rare Books LLP,

4 Bury Street, St James's, London SW1Y 6AB.

Figure 23. Estate map of Balnagown surveyed by George Brown, .....77

1808 ('New Garden' annotated in upper right corner).'

National Records of Scotland, RHP 13299. Map collection, shelfmark,

EMS.b.2.124.

Figure 24. OS six inch 1843-1882 map of Balnagown showing.....78  
semi-circular wall garden as on Hay plan. Sourced from  
[maps.nls.uk/geo/explore/side-by-side](http://maps.nls.uk/geo/explore/side-by-side), NT 758754. [accessed 09 March 2016].

Figure 25. Postcard of Balnagown walled garden.....79

Unknown source, shown to author by Balnagown garden staff.

Figure 26. Plan of Bargany estate alongside aerial photograph.....82

Sourced from [maps.nls.uk/geo/explore/side-by-side](http://maps.nls.uk/geo/explore/side-by-side), NT 247004. [accessed  
09 March 2016].

Figure 27. The bricked up alcove of the walled garden, formerly.....84

a retreat for the ladies. Photographed by the author.

Figure 28. 'Design for a kitchen-garden, orchard, and flower.....86

& winter garden, at Saltoun Hall, the seat of Andrew Fletcher'

John Hay 1818. Scanned from original National Libraries of Scotland,

Saltoun Map 2, <http://reproscans.nls.uk/scans/105342857.jpg>

[accessed 23 May 2017].

Figure 29. One of the entrances into Saltoun walled garden.....87

showing the same niche found at Camperdown.

Photographed by the author.

Figure 30. The flued wall at Saltoun.....88

Photographed by the author.

Figure 31. Bauchop plan of Newhailes 1798.....90

National Library of Scotland, Acc, 7228/522

Figure 32. Photograph of Newhailes taken c. 1880, showing.....91

Christina Dalrymple's flower garden on south side of house.

Courtesy of National Trust for Scotland, from collections held at Royal  
Commission on the Ancient and Historical Monuments of Scotland.

Figure 33. The plan is labelled 'Plan of Edinburgh Experimental.....93

Garden, 1825'. From *Memoirs of the Transactions of the*

*Caledonian Horticultural Society* held in the Royal Botanic

Gardens Edinburgh Library.



Figure 34. Report of funding for the Experimental Garden.....94

Courtesy of the Caledonian Horticultural Society.

Figure 35. Samples of Hay's walled garden features.....97

Photographed by the author.

Figure 36. Burial certificate for John Hay 17 December 1836.....98

Courtesy of <http://scotlandspeople.gov.uk/viewers/Download/image>,

[accessed on 01 March 2016].

## **Acknowledgments**

The research for this dissertation has taken me across many parts of Scotland and into England, visiting estates that previously I would have had no reason to visit. I want to thank those estate owners and their staff for allowing my intrusion, for taking photographs and answering my endless questions. The staff at the major archives have been most helpful; especially the National Records of Scotland, the Map Library of Scotland and the Lindley Library. As always, the library at the Royal Botanic Garden Edinburgh were one step ahead of me with a tactful pile of manuscripts before I had even requested them. My biggest thanks to Christopher Dingwall who started me on this subject, with an email suggesting I have a look at the John Hay garden plan that was for sale in an Edinburgh auction house. I was hooked! Thank you!

## Introduction

This dissertation examines the evidence for the gardens attributed to John Hay (1758-1836) the Scottish horticulturalist and garden architect; it considers his contribution to the design of glasshouses and their heating systems, determines his contribution to the design and planting of gardens, especially the kitchen garden, and evaluates his contribution to Scottish horticulture during the early part of the 19<sup>th</sup> century.

Although a cursory study of John Hay would suggest that he was an Edinburgh gardener it soon becomes evident he worked far beyond the 'capital' of Scotland. This dissertation will present several case studies of estates as far apart as Inverness in the north, Ayrshire in the south west and as far south as Alnwick in the north of England. The case studies have been chosen to illustrate how Hay developed and matured in confidence with his increasing contacts with other professionals in Edinburgh and wider afield. Site visits have been made to most of the estates currently attributed to Hay; discussion has taken place with owners and local historians; the local and national archives have been researched and some further unlikely leads have been followed.

This dissertation is composed of five chapters with a number of sub sections in each:

1. The Scottish landscape, horticulture and development of the city of Edinburgh at the start of the 19<sup>th</sup> century. To review and evaluate Hay's contribution to horticulture, the position of horticulture in Britain in general, and in Scotland in particular is considered.
2. The development of glasshouse heating and technology at this time. A consideration of the importance of walled gardens and the quest for growing the new seeds and plants coming into Britain at this time.
3. An account of Hay's life and early career up until c. 1810. What research has uncovered of the influences in his early life and work.
4. John Hay in Edinburgh, c. 1810 onward. His life in the city leading to case studies of his commissions.
5. Evaluation and conclusion as to whether J.C. Loudon's statement that 'Mr. Hay, the most eminent horticultural architect that Scotland has ever produced' was justified.<sup>1</sup>

---

<sup>1</sup> J. C. Loudon, *The Gardener's Magazine* (London: A. & R. Spottiswoode, 1829-1842), Vol. 5, p.451.

## **Chapter 1: The Scottish landscape, horticulture and development of the city of Edinburgh at the start of the 19<sup>th</sup> century.**

One of the earliest modern books on Scottish garden history is E.H.M. Cox's *A History of Gardening in Scotland*, published in 1935.<sup>2</sup> His introduction bemoans the fact that in Scotland there is so little information available on Scottish garden history compared with south of the Border which he attributes to the dearth of domestic records in Scotland; to the lack of travellers to Scotland unless on business; and the slow evolution of the pleasure garden in Scotland.<sup>3</sup> Cox makes no mention of Hay, or indeed of few professional gardeners, but interestingly includes a photograph of the walled garden at Camperdown, Dundee.<sup>4</sup>

Probably there was not the ready access to historical gardening journals at the beginning of the 20<sup>th</sup> century as there is nowadays, otherwise Cox would have learnt that J.C. Loudon mentions Hay in respect of Camperdown, commenting on the ingenious supply of water for the walled garden 'which J. Hay planned and executed for Lord V. Duncan at Lundie House (Camperdown) near Dundee'.<sup>5</sup>

---

<sup>2</sup> E.H.M. Cox, *A History of Gardening in Scotland* (London: Chatto & Windus, 1935).

<sup>3</sup> *Ibid.*, p. xiii.

<sup>4</sup> *Ibid.*, facing p. 92.

<sup>5</sup> J.C. Loudon, *Encyclopaedia of Gardening*, 1835, Section VI - Water (London: Longman, Rees, Orme, Brown, Green, and Longman, 1822-1835), p. 463.

The more recent ease of access to archives in general, has resulted in several modern publications on Scottish gardening history. In 2012 Marilyn Brown published a detailed account of early Scottish gardens up to the mid 18<sup>th</sup> century, drawing on historical maps and modern aerial photography.<sup>6</sup> Her book shows that far from being a bleak, barren landscape Scotland had many designed landscapes with formal parterres, water gardens and architectural features. Many of these gardens may have had earlier royal or monastic beginnings but they show an evolution of the Scottish designed landscape, albeit at a slower pace than further south in Britain, and in a uniquely Scottish style.

The first substantive reference to the works of Hay does not appear in modern print until 1980 when A.A. Tait makes several comments in *The Landscape Garden in Scotland 1735-1835*, and provides a list of the gardens with which Hay is associated.<sup>7</sup> They include Barns, Peebleshire 1805, Castle Semple, Renfrewshire 1818 and Dalmeny, West Lothian some time before 1822.<sup>8</sup> Interestingly Tait states that Hay ‘established his reputation by building a remarkable pineapple house at Alnwick in 1804’ although he does not elaborate on what was ‘remarkable’ about it.<sup>9</sup>

---

<sup>6</sup> M. Brown, *Scotland's Lost Gardens, From the Garden of Eden to the Stewart Palaces* (Edinburgh: Royal Commission on the Ancient and Historical Monuments of Scotland, 2012).

<sup>7</sup> A.A Tait, *The Landscape Garden in Scotland 1735-1835* (Edinburgh: Edinburgh University Press, 1980), p.255.

<sup>8</sup> *Ibid.*, p.255.

<sup>9</sup> *Ibid.*, p.144.

A more recent reference to Hay is made by Christopher Dingwall, Scottish garden historian, in his 2015 discussion of the design of Edinburgh's New Town. Dingwall states that the laying out of one of the squares, George's Square, as a pleasure ground 'is attributed to the garden designer and seedsman John Hay'.<sup>10</sup> He also describes Hay as being better known for his garden designs and lists several estates where he is credited with the design of the flower and kitchen garden.<sup>11</sup>

In 2005 Cathy Byrom published a detailed history of the Edinburgh New Town gardens and her research credits Hay as contributing to the design of several gardens, including East Queen Street Gardens.<sup>12</sup> She describes him as a 'versatile and competent man' on the basis of his advertisement in the *Edinburgh Evening Courant* in August 1812 where he lists some of the roles he undertakes: plans for gardens, hothouses and conservatories, laying out plantations and shrubberies, and supplying experienced overseers and gardeners to the gentry!<sup>13</sup>

Other references to Hay are in various older gardening journals, describing some of the gardens he designed. For example, his design for Dalhousie

---

<sup>10</sup> Christopher Dingwall, 'In Search of Free Air and an Agreeable Prospect: the Flight from Edinburgh's Old Town', *Garden History*, No. 43: Supplement 1 (Spring 2015).

<sup>11</sup> *Ibid.*, p.9.

<sup>12</sup> Connie Byrom, *The Edinburgh New Town Gardens* (Edinburgh: Birlinn Ltd, 2005), p. 166-7.

<sup>13</sup> *Ibid.*, p. 18.

Castle, Midlothian, is described by the Head Gardener, Mr Joseph Archibald, in the *Gardener's Magazine*, 1826.<sup>14</sup>

Hay was evidently a close friend of Patrick Neill (1776-1851), a Scottish printer and horticulturalist. Both were founder members of the Caledonian Horticultural Society, established in 1809, with Neill being the Secretary of the organisation for forty years.<sup>15</sup>

The apparent friendship between these two men is fortuitous for this research because Patrick Neill was a prodigious author and makes reference to Hay in several of his writings. In Neill's published account of their travels in Northern Europe during 1817 Hay adds an appendix detailing a separate journey he made himself on their return to London, visiting some gardens in the south of England.<sup>16</sup> These included Broadlands, seat of Lord Viscount Palmerston, where he comments 'that the grounds were laid out by Brown'.<sup>17</sup> Further visits were made to Embly Park, seat of Sir William Heathcote MP, Paultons, seat of Hans Sloane and Cuffnells, seat of Right Honourable George Rose, where it was 'too dark to see many of the plants but saw the conservatory by candlelight'.<sup>18</sup> This appendix is one of the two only known writings of Hay.

---

<sup>14</sup> Loudon, *The Gardener's Magazine*, Vol.1 (1826), p.451.

<sup>15</sup> Forbes W. Robertson, *Patrick Neill, Doyen of Scottish Horticulture* (Dunbeath: Whittles Publishing, 2011), p.48.

<sup>16</sup> Patrick Neill, *Journal of a Horticultural Tour in 1817 Through Some Parts of Flanders, Holland and the North of France in the Autumn of 1817 by a Deputation of the Caledonian Horticultural Society*, Appendix XI (Edinburgh: Bell & Bradfoote, 1823), p.557.

<sup>17</sup> Presumably this is Lancelot 'Capability' Brown (1716-1783).

<sup>18</sup> Neill, *Journal of a Horticultural Tour*, p.559.



In the account of the trip Neill makes several comments regarding Hay which it was hoped would provide extra sources of information for this dissertation. At the beginning of the trip Neill states that they visited Mile End Nurseries 'where Mr. Hay learned some parts of gardening thirty five years ago'.<sup>19</sup> This is the first indication that Hay worked in England. Another pointer that Hay had worked in England comes from the account of their meeting, at St Germain, with Thomas Blaikie (1750-1838), who had left Edinburgh fifty years previously to work in the gardens of Paris. Recounting his experiences Blaikie mentions Dr Fothergill of Upton in Essex, 'where, by coincidence, Hay had spent a year', as had Blaikie.<sup>20</sup> Despite research on the archives of both these sites there is no mention of Hay. One of the most detailed accounts of the Mile End Nursery is written by Derek Morris but email correspondence with the author found no record of Hay, although Morris stated that the ratebooks of the East End of London showed a large number of Scots and their relatives.<sup>21</sup>

Hay's only other known writing is an account of his design for hothouses that appears as part of an article in the *Memoirs of the Caledonian Horticultural Society* in 1829. In it he describes his method of providing steam heating in pine pits and glass houses.<sup>22</sup> This lengthy article concludes with references to the method being employed in nurseries in London and the author observing

---

<sup>19</sup> Robertson, *Patrick Neill*, p.83.

<sup>20</sup> *Ibid.*, p.96.

<sup>21</sup> Derek Morris, *Mile End Old Town 1740–1780: A Social History of an Early Modern London Suburb* (London: East London History Society, 2007).

<sup>22</sup> *Memoirs of the Caledonian Horticultural Society*, 1829, Vol. VIII, p. 330.

'Mr Hay's mode in operation for early cucumbers at Mr. Roskell's at Gatacre, near Liverpool'.<sup>23</sup> For his work on steam heating the Caledonian Horticultural Society nominated Hay for The London Society's medal in 1828.<sup>24</sup> The expertise of his heating systems is referred to by Patrick Neill in his practical guide to gardening, *The Fruit, Flower and Vegetable Garden* published in 1845.<sup>25</sup> In the section on 'Forcing Gardens' he discusses the variations of steam heating and states that '...similar expedients were long ago employed by John Hay of Edinburgh...a garden architect of great judgement and experience'.<sup>26</sup>

From these various references one can possibly surmise that Hay started life as an apprentice gardener and through his various connections was sent to London for further experience. This would have been a common route for an apprentice gardener to better his position.<sup>27</sup> Possibly the considerable experience gained with horticulturalists such as Dr Fothergill enabled him to return to the burgeoning estates around Edinburgh and East Lothian and take up a position as assistant or even head gardener. Hay's interest in the influx of new plants and their cultural requirements led him to experiment with heating of glasshouses and this, combined with his practical expertise, led to some lucrative commissions. Records show that Hay was able to afford to

---

<sup>23</sup> *Ibid.* p. 338.

<sup>24</sup> *Ibid.* p. 337.

<sup>25</sup> Patrick Neill, *The Fruit, Flower and Vegetable Garden* (Edinburgh: A. and C. Black, 1845).

<sup>26</sup> *Ibid.*, p.134.

<sup>27</sup> Forbes W. Robertson, *Early Scottish Gardeners and their Plants* (East Linton: Tuckwell Press, 2000) p.165.

move into Edinburgh city and open business premises, become a city burghess and join in the professional and social life of the city whilst undertaking commissions across Scotland.<sup>28</sup>

Surprisingly there is no mention of Hay or the development of steam heating in Scotland in Susan Campbell's book *A History of Kitchen Gardening*.<sup>29</sup>

Research for this dissertation has shown that most of the published work is from an English perspective, frustrating when one knows there is a rich seam of garden history to be found in Scotland.

For an account of the Scottish response to the Landscape Movement in England the work of A.A. Tait is widely quoted.<sup>30</sup> However, when one considers that the greatest proponent of the Landscape style, Launcelot Brown (1716-1783), judged a site not so much in its own terms but rather in its 'capabilities' to being moulded to his ideal, one can understand why there are so few landscape gardens in Scotland –the topography is unsuitable. The only garden in Scotland attributed to Brown is Ardgowan, Renfrewshire, but even its claim to Brownism is doubtful.<sup>31</sup> A catalogue of Brownian landscapes shows the vast majority to be created in the southern half of Britain where there are gently rolling hills and extensive acres of pasture, a landscape found in limited quantity in Scotland. However, it would be wrong to think that

---

<sup>28</sup> *Scottish Record Society, Edinburgh*, Vol 53, p. 74 (accessed 03 September 2016).

<sup>29</sup> Susan Campbell, *A History of Kitchen Gardening*(London: Unicorn Publishing Group, 2016).

<sup>30</sup> Tait, *The Landscape Garden*, Introduction, pp. 1-7.

<sup>31</sup> Tait, *The Landscape Garden*, p.88.

Scottish gardeners ignored what was happening in England as there were garden designers working in Scotland who claimed association with 'Capability' Brown and designed similar, if less exciting, landscapes.<sup>32</sup> Two such men were Robert Robinson (1734-after 1780) and James Robertson (fl. 1750-1780), their designs now reworked, neglected or disappeared.<sup>33</sup>

By the end of the 18<sup>th</sup> century the creation of the Landscape style was being seen as not only destructive of formal gardens and avenues of trees, but destructive of history itself, and just at a period of revival in Scotland's past<sup>34</sup>. Tour guides and travel diaries of that time focussed on the castles and abbeys of the medieval past, the romanticism of glens and waterfalls, and, in Scotland itself, there was a renewed interest in the language and manners of the Gael and the 'curiosities of nature'.<sup>35</sup>

It was the ideas of the later exponents of the Landscape garden, such as Humphry Repton (1751-1818), 'who consulted the genius of the place', that found roots in Scottish garden design, although it is significant that Repton is only credited with one designed landscape in Scotland, that of Valleyfield in Fife. In England in 1794 both Richard Payne Knight (1750-1824) and Uvedale Price (1747-1829) published essays attacking the 'smoothness and uniformity' of the Landscape fashion.<sup>36</sup> They advocated the ruggedness and

---

<sup>32</sup> Ibid. p. 88.

<sup>33</sup> Ibid., p. 2.

<sup>34</sup> G. Allen Little, ed., *Scotland's Gardens* (Edinburgh: Spurbooks, 1981) p. 19.

<sup>35</sup> Lord Buchan's diary, Glasgow University Library, Murray MS. 502/61.

<sup>36</sup> Penelope Hobhouse, *The Story of Gardening* (Dorking: Kindersley Ltd, 2002), p.229.

wildness of the natural scene; one that would be 'painterly' rather than a static 'picture'.<sup>37</sup> Scotland had an abundance of lochs, forests and crags to embrace the Picturesque but it was a Scottish picturesque. As Loudon summarised,

Nature has done more for the landscape scenery of Scotland than she has for the rest of England by supplying the most interesting or striking features; but man has not been endowed with sufficient taste, or perhaps, wealth.<sup>38</sup>

With the rise of the Picturesque and the Sublime those with a dramatic natural landscape found themselves at the height of fashion with little effort!

But it would be only part of the story to think that Scottish garden design was following what was happening in England. Many of the Scottish landowners had a genuine love for their country and their land, and embarked on huge redevelopment projects. Tree planting was a passion with many, although often out of necessity for shelter and fuel. At the Blair Adam estate in Perthshire in the mid 18<sup>th</sup> century John Adam grew his trees from seed in his own nursery. When the family fortunes declined towards the end of the century it was the woodlands that propped up their finances.<sup>39</sup>

---

<sup>37</sup> John Dixon Hunt, *The Picturesque Garden in Europe* (London: Thames & Hudson Ltd, 2004), p.72-77.

<sup>38</sup> Loudon, *The Gardener's Magazine*, Vol. 8 (1832), p.3-4.

<sup>39</sup> Tait, *The Landscape Garden*, pp.98-100.

Another of the earliest landowners to promote agricultural improvement was the Ormiston estate in East Lothian under the ownership of John Cochrane (1687-1746). He introduced long leases for his tenants and formed the Ormiston Society in 1736 to promote better agricultural practices. He introduced turnip growing as over-wintering feed for cattle to ensure that healthy herds were ready to commence breeding in the spring.<sup>40</sup>

Perhaps this national optimism and surge in horticultural improvements was the impetus for Hay to return to Scotland from his employment in England although there are no records to verify this. The first definite record of him being in Scotland is his marriage in 1791; maybe it was simply the need for a wife which brought him back home, but nonetheless it was into a developing city and vibrant environment that John Hay launched his career.

Despite the influences emanating from England there was a larger national influence which affected all areas of Scottish life and indeed, some would claim, would change the world.<sup>41</sup> The mid 18<sup>th</sup> century in Scotland is sometimes described as the country's 'Golden Age'. The turbulence of the Jacobite risings of 1715 and 1745 had subsided and there was an explosion of intellectual debate. At the time of the Act of Union in 1707 Edinburgh had lost its Parliament to London along with many of its prosperous citizens.

However Scottish law was entirely separate from English law so the city

---

<sup>40</sup> Lecture at the East Lothian Society for Local History and Antiquarians, Haddington, Scotland, 02 September 2016.

<sup>41</sup> Arthur Herman, *How the Scots invented the Modern World* (New York: Three Rivers Press, 2001) p.11.

retained its courts and lawyers. It also retained its leadership of the Church, its universities and its medical schools. These intellectuals formed a new middle class and are credited with facilitating what is classed as the Scottish Enlightenment, resulting in the City's future being defined through learning and knowledge rather than tradition, history or aristocratic patronage and leadership.

An interesting reason for the impressive spread of the Scottish Enlightenment was put forward in a documentary produced for and first shown on Scottish television on 20 September 2016.<sup>42</sup> In the programme the producer and director, Andrew Abbott, brings together historians, architects and social historians to discuss why Edinburgh was a city buzzing with clubs, societies and scholarly associations. They emphasise the fact that in the mid 18<sup>th</sup> century Edinburgh was a very small city with its population crammed onto a single street along the narrow stretch of land between the castle and Holyrood Palace. The residential buildings were the forerunner of today's high-rise flats: often having a commercial business at ground level, a large desirable apartment at first floor level and the other social classes packed into the floors above. Besides the usual public and social events there were the taverns, sporting activities and a variety of other fields for the different strands of society to meet. This mixing of the social classes was very different from the English cities of the time, whose residents rarely had the opportunity to meet others on a day-to-day basis, living as they did in

---

<sup>42</sup> BBC2 Scotland, 20 September 2016, produced by Andrew Abbott.

separate areas of the city and frequenting separate social events.

Commentators put forward this mixing of professionals and academics as one of the reasons for the exchange of ideas and opinions and why Edinburgh was so 'crowded with genius'.<sup>43</sup>

Edinburgh as a city was changing physically as well, expanding to accommodate an increasing population of professionals, merchants, tradesmen and students. By the end of the decade the population had doubled to over 81,000 and there was a surge in well paid working-class employment.<sup>44</sup> In order to address the overcrowding, but also in an attempt to attract back the wealthy absentee nobility, an architectural competition was held to design a new town for Edinburgh. Work commenced mid 1760 and for the next thirty years New Town was created north of the castle. Laid out with symmetrical streets and terraced town houses with large gardens it proved an outstanding success in bringing commercial and cultural dynamism to the city. It was the largest late 18<sup>th</sup> century urban development anywhere in Great Britain and led to Edinburgh 'being lauded at home and abroad for its beauty and elegance'.<sup>45</sup> John Hay was to play a part in this New Town, being involved in the design of one or more of its garden squares.

---

<sup>43</sup> John Buchan, *Crowded with Genius: The Scottish Enlightenment: Edinburgh's Moment of the Mind* (New York: Harper Collins, 2003).

<sup>44</sup> StanaNenadic, *History-British History in depth: The Rise of Edinburgh* (2011) [http://www.bbc.co.uk/history/british/civil\\_war\\_revolution/scotland\\_edinburgh](http://www.bbc.co.uk/history/british/civil_war_revolution/scotland_edinburgh) [accessed 15 September 2016].

<sup>45</sup> A. Lewis, *The Builders of Edinburgh New Town 1767-1795* (London: Spire Books Ltd, 2014) p.15.



In 1762 Voltaire wrote 'today it is from Scotland that we get rules of taste in all the arts, from epic poetry to gardening'.<sup>46</sup> There had always been an exchange of people and ideas between France and Scotland, more so than with England. Many of the Scottish aristocracy employed French tutors rather than English ones and similarly the French hired Scottish gardeners! Palladio had observed, some three centuries earlier in his introduction on domestic architecture that,

The city houses are certainly of great splendour and convenience to a gentleman who is to reside in them all the time ...directing of his affairs, but perhaps he will reap much consolation from the country house, where the remaining part of the time will be passed in seeing and adorning his own possessions and by industry and the art of agriculture improving his estate.<sup>47</sup>

And adorning and improving their estates was what many of the Scottish landowners did in the mid 18<sup>th</sup> century. It followed a self-imposed removal from London society where many of the Scottish aristocracy had been caricaturised or even abused for their Scottishness.<sup>48</sup> At home in Scotland they could have a large town house in Edinburgh to accommodate their social and entertaining commitments, especially if they were one of the legal or political men of the day, but they may also have had an estate in the Edinburgh environs. The Lothians, to the south of the city, was a popular

---

<sup>46</sup> [www.britannica.com/topic/Scottish-Enlightenment](http://www.britannica.com/topic/Scottish-Enlightenment) [accessed 13 April 2017].

<sup>47</sup> A. Palladio, *The Four Books of Architecture*, Vol 2, Ch. 12, p. 46.

<sup>48</sup> Anand C. Chitnis, *The Scottish Enlightenment and Early Victorian English Society* (Guilford and Kings Lynn: Biddles Ltd, 1986), p. 183.

location, where there was pleasant undulating countryside, a scenic prospect of the Firth of Forth and on the coach road to London. Glasgow appears to have been favoured by the more commercially orientated, the shipbuilders, the traders and those with overseas estates.

Hay would have benefitted from many of the consequences of the Enlightenment years, not least in his education. As far back as 1696 the Scottish parliament passed its 'Act for Setting Schools' establishing a school in every parish.<sup>49</sup> The reason was primarily religious with the intention that every child should be able to read *The Bible*. The basics of education were no doubt rudimentary and varied in standard from parish to parish but by 1750 male literacy was as high as 75%, compared to 53% in England.<sup>50</sup> This excellence in education is often cited as reason for so many of the head gardeners in England being Scottish. Undoubtedly it is a major contributor to the Southern emigration but another reason was the networking amongst the Scottish gardeners, often employing relatives and friends and advertising vacancies in Scotland. Research has proved and this dissertation will illustrate, that Hay was literate, was competent at geometry and had an understanding of science. Several of his glasshouse and garden plans are included demonstrating his drawing skills and technological knowledge. The regret for this research is that so little of his writing is extant.

---

<sup>49</sup> Herman, *How the Scots invented the Modern World*, p. 22.

<sup>50</sup> *Ibid.*, pp. 23-24.

## **Chapter 2: The development of glasshouse heating and technology.**

One may well ask why would Hay become so engrossed in the design of kitchen gardens, the glasshouses and their heating systems? But that would be to overlook the importance of the kitchen garden for producing fruit and vegetables to add variety to the staple field foods of potatoes, root vegetables and beans. Most estates produced all their own food, or the major part of it, to feed not only their family but their staff and visitors. One acre of a kitchen garden was expected to supply enough produce for twelve people and was estimated to require two or three full-time gardeners.<sup>51</sup> Most kitchen gardens were larger than this, varying from about four acres up to twelve acres or more. By the beginning of the 19<sup>th</sup> century the kitchen garden was becoming a showcase for the owner to demonstrate his wealth, his taste and the skill of his gardeners by presenting a wide variety of fruit – melons, figs, peaches apricots – as well as a variety of vegetables, out of season. The pressure on the head gardener was immense, ensuring his staff recognised the different plant requirements and the ability to manipulate the growing conditions.

The problem of maintaining a warm environment for plants in a greenhouse became more acute as glass became incorporated into the building. The earliest extant greenhouse in Scotland is at Arniston, Midlothian, built by

---

<sup>51</sup> Susan Campbell, *Walled Kitchen Gardens* (Princes Risborough: Shire Publications, 2006), p. 5.

William Adam, the father of Robert Adam, in 1750.<sup>52</sup> It has a solid roof and back wall with windows to the side and front but it bears little resemblance to what one would visualise as a greenhouse. As more glass became incorporated there was an advantage to the plants in the amount of light, but a disadvantage in the temperature fluctuation. Heat loss from single glazing was ten times as great as that from a brick wall and the heat storage capacity of the material was drastically reduced.

The beginning of the 19<sup>th</sup> century saw the development of varying heating systems and increasing use of coal and coke as fuel. Every head gardener had his own theory on the best method of heating and experimented with heat production, initially from fires in adjoining rooms or vaults underneath the structure. Instead of the chimney flue going straight up, bends were created in the flue in the hope of heating a greater surface area. But the heat from a fire was never sufficient to heat all the air in the greenhouse and keep it warmed. Plants did not like the dry air, the toxic fumes and the variation in temperatures. It was a time-consuming job looking after the fires and the estate would usually employ at least one gardener and one apprentice solely to look after the glasshouse full time, day and night. Furnaces required stoking, on hot days the ventilation needed to be increased and floors had to be flooded for those plants requiring a moist environment. Gardeners had their own preferences for meeting these requirements.

---

<sup>52</sup> May Woods and Arete Swartz Warren, *Glasshouses* (London: Aurum Press Ltd, 1988), p. 71.

Hay records his method for producing a moist environment before he developed his steam heating,

I always steamed the peach house with a large piece of cast iron, made red hot in one of the furnaces, and put into a white-iron pail full of water; the whole water thus evaporating into steam. I was always successful, while in practice as a gardener, in raising a full crop of peaches.<sup>53</sup>

Successful maybe, but hazardous!

It was probably the arrival of the pineapple that really spurred the quest for a satisfactory heating system for the culture of exotic fruits. Dutch and English growers had been experimenting with pineapple plants since the first arrival of seeds and plants from the Caribbean in the 18<sup>th</sup> century.<sup>54</sup> The craving to grow this exotic fruit was tempered by the horticultural regime the plant demanded. Pineapples need a year-round soil and air temperature of about 21C (70F) and the earliest method of cultivating pineapples was arduous, time consuming and expensive. They required a separate hot-bed, about 5ft deep, filled with one foot of fresh horse dung and then covered with tanners bark. This was pulverised oak bark, a by-product of the tanning industry, and generated a lot of heat over a period of several months. But pineapples took a couple of years to reach fruiting time and this process had to be repeated

---

<sup>53</sup> J.C. Loudon, *The different modes of cultivating the pine-apple, from its first introduction into Europe to the late improvements of T.A. Knight, Esq. By a member of the Horticultural Society* (London: Longman, Hurst, Rees, Orme and Brown, 1822), p. 175.

several times to maintain the required heat. With their spiny leaves, the need for tepid watering and constant inspection for pests, it was a prickly full-time job for a gardener. And pineapples, and other exotic fruits, did not like the hot dry air produced by the stove.

Martin Triewald (1691-1747) a Swedish merchant, engineer and amateur physicist living for a time in England, is credited with the first use of water for heating a greenhouse at Newcastle on Tyne in 1716.<sup>55</sup> The earliest book on heating is generally regarded as *A Treatise on the Economy of Fuel and Management of Heat* by Robert Buchanan (Glasgow 1815) and it would be no surprise if Hay was aware of the developments of heating systems in other spheres of commerce.<sup>56</sup> Glasgow was already a centre of experimentation and innovation with the work of James Watt (1736-1819) and his steam engine; technology which was fundamental to the changes brought by the Industrial Revolution.<sup>57</sup>

In their book on the history of glasshouses, Woods and Warren attribute the first use of steam heating in a greenhouse to a Mr Wakefield of Liverpool about 1780.<sup>58</sup>

---

<sup>55</sup> European Route of Industrial Heritage, [www.erih.net/how-it-started/stories-about-people-biographies/.../site/.../triwald](http://www.erih.net/how-it-started/stories-about-people-biographies/.../site/.../triwald) [accessed 11 Nov 2016].

<sup>56</sup> [www.hevac-heritage.org/equipment/timeline-boilers/1803-1868](http://www.hevac-heritage.org/equipment/timeline-boilers/1803-1868) [accessed 10 November 2016].

<sup>57</sup> Herman, *How the Scots invented the Modern World*, p.320.

<sup>58</sup> Woods and Warren, *Glasshouses*, p.121.

With these various claims on the best heating methods it is no surprise that the gardening journals were also in hot debate and, as on most gardening topics, Loudon had views on steam heating!

Application of steam to the heating of glasshouses appears first to have been attempted by Wakefield in 1778, and shortly afterwards to the vault of a cucumber house at Knowle. Little progress was made until about 1816 and then it extended rapidly. The 'grand cause' of the improvements is because they were no longer under the control of mansion architects.<sup>59</sup> This seems to suggest that it was the gardeners themselves who were instrumental in the design of glasshouse heating.

Hay must have been familiar with pineapple growing, melons, peaches, figs and other exotic fruit and flowers, having worked in the gardens of eminent horticulturalists and nurserymen in England. He would have read the advice of Stephen Switzer (1682-1745), in his book *The Practical Fruit Gardener*, and been familiar with the methods commonly employed at the time: flued walls and temporary copings. The disadvantage of the flued wall was the uneven distribution of heat, with cold spots in one area and overheating in another, both situations damaging to young growth. Temporary coping was used with peach trees to shed water and help prevent dissemination of the spores of the fungus which cause Peach Leaf Curl.<sup>60</sup> One can presume that as an innovative practical gardener Hay was experimenting with ways to overcome

---

<sup>59</sup> Loudon, *Encyclopaedia of Gardening*, Section 1589, 1824, p. 311.

<sup>60</sup> C. Brickwell, ed., *Encyclopaedia of Gardening*, (Dorking: Kindersley Ltd, 1992) p.555.

these problems and the history of his improvements is well documented in a lengthy article in the *Memoirs of the Caledonian Horticultural Society*.<sup>61</sup> Basically, Hay was seeking a way to produce an even moist environment around the plants throughout their growing period and this led him to design experimental steam pits, one filled with soil alone and another with a graduated layer of stones, 'the first three layers are 4in in diameter...the layers near the top are about the size of a hen's egg, those above...a pigeon's egg,...at the top that of large marbles'.<sup>62</sup> These dimensions would have been readily understood by the less literate gardener.

The 'sandwich' was finished with a layer of soil into which the plants were placed directly as opposed to being in pots. Steam was admitted through perforated pipes running along the bottom of the pits. Hay found that the steam only needed to be admitted to the stone-based pits for an hour and a half every forty-eight hours to maintain a temperature between 23-26C (75-80F) which is sufficient for pineapples plants in winter. To start the plants into fruit he was able to introduce steam more frequently and raise the temperature to 32C (90F). The article includes a detailed architectural drawing for the housing and for the pits, followed by detailed technological and engineering plans for assembling the steam apparatus. The instructions illustrate Hay's extensive knowledge of materials and plumbing and no part

---

<sup>61</sup> John Hay, 'Account of a Mode of producing a steady and uniform Bottom Heat in Pine-apple or Melon Pits, or in Stoves for Exotic Plants, by means of Steam introduced into a close Chamber filled with Water-worn Stones,' *Memoirs of Caledonian Horticultural Society*, Article 72 (05 March 1829).

<sup>62</sup> *Ibid.*, p. 335.



of the design is left to chance. He includes a safety mechanism in case the steam pipe is occluded, 'the steam rushes up the pipe, producing a loud whistling noise, and giving notice to the gardener that his attendance is required to the boiler'.<sup>63</sup>

He also gives instructions for the supply of a water cistern and even the construction of a thermometer to measure the temperature at the bottom of the soil layer.

The article in the *Memoirs* goes on to comment that this method of steam heating was being used in the pits of the Bristol Nursery, Cottam and Hallen of Winsley Street, boiler makers,<sup>64</sup> and Walker of St. John's Square, Clerkenwell.<sup>65</sup> Further research would be needed to establish if Hay had been involved directly in any of these constructions or if steam heating was progressing in parallel in other parts of Great Britain. Charles McIntosh (1794-1864) appears to suggest in *The Book of the Garden Vol. 1* that Hay was involved in the design of the heating system at 'Messrs Loddige at Hackney, and the plant houses in the garden of the Duke of Northumberland, at Sion House, Middlesex'.<sup>66</sup> Hay certainly designed the steam heating at the Northumberland's family seat at Alnwick but further research would be needed regarding any involvement at Sion House and Loddige's nursery.<sup>67</sup>

---

<sup>63</sup> Ibid. p. 335.

<sup>64</sup> Grace's Guide, *Cottam and Hallen* (2016) [http://www.gracesguide.co.uk/Cottam and Hallen](http://www.gracesguide.co.uk/Cottam_and_Hallen) [accessed 13 October 2016].

<sup>65</sup> Hay, 'Account of a Mode'.p.337.

<sup>66</sup> Charles McIntosh, *The Book of the Garden*, Vol. 1 (Edinburgh and London: William Blackwood and Sons, 1853), p. 229.

<sup>67</sup> *Memoirs of the Caledonian Horticultural Society*, 1829, Vol. IV, p.582.

Loudon, in reviewing the methods for growing pineapples, also noted Hay's comments,

I afterwards erected Pine-stoves for John Harvey Esq. of Castle Semple to be heated by steam' and he was 'applied to by Sir Hew Dalrymple (through Mr Dodds his gardener) to examine his Pine Stoves at Bargany, and to report whether I thought they could be improved.<sup>68</sup>

Loudon added more examples of Hay's work by,

...Considering the best stoves for combining the culture of the Pine and the Vine in Scotland have been constructed by Mr. Hay, of which fine examples occur at Lord Duncan's at Lundie House, near Dundee, and the Earl of Roseberry's at Dalmeny Park, near Edinburgh.<sup>69</sup>

Loudon goes on to describe in detail the construction of heating systems in general, 'the door of the fire chamber .... Not a great difference in the plans produced by Nicol, Hay, Stewart and others',<sup>70</sup> thus confirming that there were other gardeners all intent on the same problem. He describes what was named the 'Arbroath pavement', which was used in all Hay's designs for steam heating, as a 'light grey schistus 3-6 inches thick'. This smooth,

---

<sup>68</sup> Loudon, 'The different modes of cultivating the pine-apple', p. 176.

<sup>69</sup> *Ibid.*, p. 178.

<sup>70</sup> Loudon, *Encyclopaedia of Gardening*, Section 1649, 1824, p. 324.

sedimentary rock did not absorb moisture so it was ideal in the moist atmosphere in the glasshouse, being nearly always dry and not becoming slippery. Remnants of this material were found in the ruins of the majority of old glasshouses visited, indicating it was widely available and widely used.

### **Chapter 3. An account of Hay's early life and career.**

John Hay was born in 1758 in East Lothian, the eldest of eight children of Alexander and Margaret Hay. His baptism is recorded in the parish of Prestonkirk where, in the same churchyard, is an unusual cast iron memorial to his parents proclaiming that it was 'Erected by their son John, Planner and Seedsman, Edinburgh as a tribute of Affectionate remembrance 1813'. There is no indication of his father's employment or profession but this memorial records him as a 'feuar of Linton', indicating that he owned his own house and land.<sup>71</sup> It would appear that Hay's parents spent all their life in the village of Linton and presumably where he, John Hay, spent his early childhood.

To date there are no records of Hay's early life and it isn't until his marriage in 1791, and the subsequent birth of his first two children, that he can be recorded as living in the nearby town of Haddington. The baptismal records of his following four children (1794-1797) all state 'father, gardener at Prestonhall'.<sup>72</sup> For the next five children (1799-1804) their baptismal records states 'Collegehead' which was the name of the home farm at Archerfield.<sup>73</sup> The final two children (1810-1814) were born in Edinburgh where the baptismal records state that John Hay is 'seedsman on Nicholson Street'.<sup>74</sup>

---

<sup>71</sup> In Scotland a 'feuar' is the owner of land or property.

<sup>72</sup> [www.scotlandsppeople.gov.uk/Search/results.aspx](http://www.scotlandsppeople.gov.uk/Search/results.aspx) [accessed 18 June 2016].

<sup>73</sup> *Ibid.* [accessed 18 June 2016].

<sup>74</sup> *Ibid.* [accessed 18 June 2016].

From other records, including his own burial record, it is known that Hay lived in Catherine Street, part of the New Town, until his death in 1836 and subsequent burial in Calton New Graveyard, Edinburgh.<sup>75</sup>

In Patrick Neill's account of his trip in 1817, accompanied by Hay and James McDonald, Head Gardener to the Duke of Buccleuch, he makes reference to a visit to Mile End Nursery in London 'where John Hay had spent some time 35 years previously'.<sup>76</sup> If written in 1817 Hay would have been at Mile End Nursery around 1782 and aged about 24 years old. That would have been quite old as an apprentice gardener so one can assume Hay had already gained experience elsewhere. Previous authors have commented on the fact that many of the gardeners in England in the 18<sup>th</sup> century were Scottish, and that some stayed there and took up posts as head gardeners and others progressed to businesses as seedsman and nurserymen.<sup>77</sup> Even George Elliot commented 'that a gardener is Scotch as a French teacher is Parisian'.<sup>78</sup> James Gordon, the founder of Mile End Nursery, was one such man. At the time London was the centre of horticultural commercial enterprises and by 1691 Clements of Mile End is noted.<sup>79</sup> This small garden possibly was the nucleus for the great Mile End Nursery formed by James Gordon (1702-1780). He started out as gardener to Dr James Sherard (1666-1738) at Eltham and

---

<sup>75</sup> Death certificate.

<sup>76</sup> Robertson, *Patrick Neill*, p.83.

<sup>77</sup> Robertson, *Early Scottish Gardeners*, p13.

<sup>78</sup> Suki Urquhart *The Scottish Gardener: Being Observations made in a Journey through the Whole of Scotland from 1998 to 2004 chiefly relating to the Scottish Gardener Past & Present* (Edinburgh: Birlinn Ltd, 2005), p. 159.

<sup>79</sup> Robertson, *Early Scottish Gardeners*, p. 5.

when Sherard died Gordon became chief gardener to the young Lord Petre of Thorndon Hall in Essex. When Petre died tragically from smallpox in 1742 Gordon, with the expertise gained from working with these notable botanists, was able to set himself up at Mile End which existed as a nursery for 95 years. With the addition of a seed shop in Fenchurch Street Gordon was able to secure a large slice of the London trade.<sup>80</sup> John Abercrombie in his book *The Gardener's Daily Assistant*, dated 1786, lists all the known nursery gardeners and seedsmen in the London area 'and within eight or ten miles thereof'.<sup>81</sup> James Gordon & Co. is recorded at Mile-End, near Bow (1742-70) and James Gordon (a son), Dermer and Thompson, etc. in 1837.

Gordon was a highly respected horticulturalist and according to Peter Collinson (1694-1768), himself the owner of one of the most famous gardens at the time at Ridgeway Park, Mill Hill, 'I never knew or heard of any man that could raise the dusty seeds of the kalmias, rhododendrons, or azaleas' and 'his sagacity in raising all sorts of plants from cuttings, roots and layers surpasses all others...'.<sup>82</sup> Collinson was the recipient of plants and seeds being sent to London by John Bartram (1699-1777), an avid botanist and plant collector living on the east coast of North America near Philadelphia.<sup>83</sup> Many of the plants and seeds were passed on to the burgeoning nursery traders to propagate and Gordon appears to have been one of the most skilful.

---

<sup>80</sup> Robertson, *Early Scottish Gardeners*, p. 84.

<sup>81</sup> Toby Musgrave, *The Head Gardeners, Forgotten Heroes of Horticulture* (London: Aurum Press Ltd, 2009), Appendix X.

<sup>82</sup> *Ibid.* pp. 45-6.

<sup>83</sup> Penelope Hobhouse, *Plants in Garden History* (London: Pavilion Books Ltd, 1994) pp.264-266.

In 1760 Linnaeus, the great Swedish botanist, had sent one of his pupils to Gordon's nursery to source and report on the new American plants which were flooding into Britain.<sup>84</sup> When Gordon's son took over the nursery following his father's death in 1780, the horticultural tradition continued, and Hay would have had the opportunity to become familiar with all the leading gardeners of the day as well as visiting many of the great estates in the south of England. It is not known how long Hay worked at Mile End, but he must have gained considerable knowledge of the new plants coming into Britain as well as practical experience of their horticultural requirements. Hay appears to have continued living in the Lothians for approximately the next twenty years before his move into Edinburgh city. By this time he was best known for combining several roles. His skills are to be found catalogued in an advertisement appearing in the *Edinburgh Evening Courant* in 1812 and reveal a versatile and competent man of parts (Figure1).<sup>85</sup>

---

<sup>84</sup> Andrea Wulf, *The Brother Gardener* (London: Windmill Books Ltd, 2009), pp.132-135.

<sup>85</sup> Connie Byrom, 'The Pleasure Grounds of Edinburgh New Town', *Garden History*, Vol. 23, No. 1 (1995), p.77.

GARDEN DESIGNING,  
*Useful and ornamental.*  
SEED-SHOP, &c

JOHN HAY, Planner, and Seedsman, begs leave to return thanks to the Nobility, Gentry, and the Public and to inform them, that he continues to give designs of Gardens, plans all sorts of Hot-Houses, Greenhouses and Conservatories (some of which he has lately executed on a new and improved principle, such as that at Milburn Tower and Oxenford Castle); he undertakes and executes the work on moderate terms, and on the best principles, in which those errors are avoided that so often cause disappointment, and to correct which much time is lost and expense incurred; also designs Parks, and lays out Plantations, Shrubberies, Approaches, Ponds, Ice-houses, &c. &c.; and besides having had long experience as a practical gardener, both in England and Scotland, he has designed and executed plans of several of the principal places in both countries.

J. H. has also to intimate, that he has moved his shop from Bank Street to a more commodious one, No. 55 NICHOLSON STREET, opposite the Riding School where he keeps every article good in the Seed line, Garden Tool, Watering Engines, Garden Chairs, Bass Mats, and all articles necessary for gardens, and furnishing for hot-houses.

N.B—Noblemen and gentlemen supplied with experience Overseers and Gardeners. None but those of known abilities and character will be recommended.

Edinburgh Evening Courant, 22 August 1812.

Figure 1. Advertisement in *Edinburgh Evening Courant* 1812



## a) Prestonhall

The earliest written record of Hay places him at the Prestonhall estate in Midlothian, when he himself states that 'steam heating first occurred to me about the year 1794 when employed in erecting the hothouses at Prestonhall'.<sup>86</sup> Genealogical records of his children confirm him being at the Prestonhall estate around 1793-1798. This would accord with the time the estate was first acquired by the Callander family and when alterations were taking place, including the building of the walled garden. Prestonhall estate is located at the small village of Pathhead, some twelve miles south of Edinburgh.



Figure 2. Aerial view of Prestonhall House and walled garden

---

<sup>86</sup> *Memoirs of the Caledonian Horticultural Society*, Vol. IV, p.582.

The imposing Grade A listed stone mansion is thought to have been built around 1700 for Robert McKenzie, brother of the 1<sup>st</sup> Earl of Cromartie and the designed landscape was laid out at the same time in the formal style of the period (Figure 2).

In 1738 the house was purchased by the 2<sup>nd</sup> Duchess of Gordon and she commissioned William Adam (1689-1748), the prominent Edinburgh architect and father of John, James and Robert, to embellish the house. The predecessors of the present owners of Prestonhall, the Callander family, came to Prestonhall in 1789 and another Edinburgh architect, Robert Mitchell (1791-1800), was commissioned to reconstruct the house and its outbuildings as it is in its present form.

The landscape topography is a combination of mixed woodland, parkland, a series of ponds and attractive walks along the Tyne Water as indicated in the aerial photograph<sup>87</sup> (Figure 2).

To the east of the house there is a combination of wooded shelterbelts and extensive productive agricultural land. On the front lawn is a magnificent Lebanon Cedar which in 2012 was estimated to be about 24m high, one of the largest recorded in Scotland. It is thought to be the only tree remaining from the 100 different species planted by William Burn-Callandar around

---

<sup>87</sup> Historic Environment Scotland, Preston Hall policies, Walled Garden including Sheds, Gazebos, Glass Houses, Sundial and Gardeners House, LB777.

1830.<sup>88</sup> The extant walled garden is recognisable from a plan found in Charles McIntosh's *The Book of the Garden Vol 1 - Structural* which he includes 'as an example of Hay's style of laying out kitchen gardens'<sup>89</sup> (Figure 3).

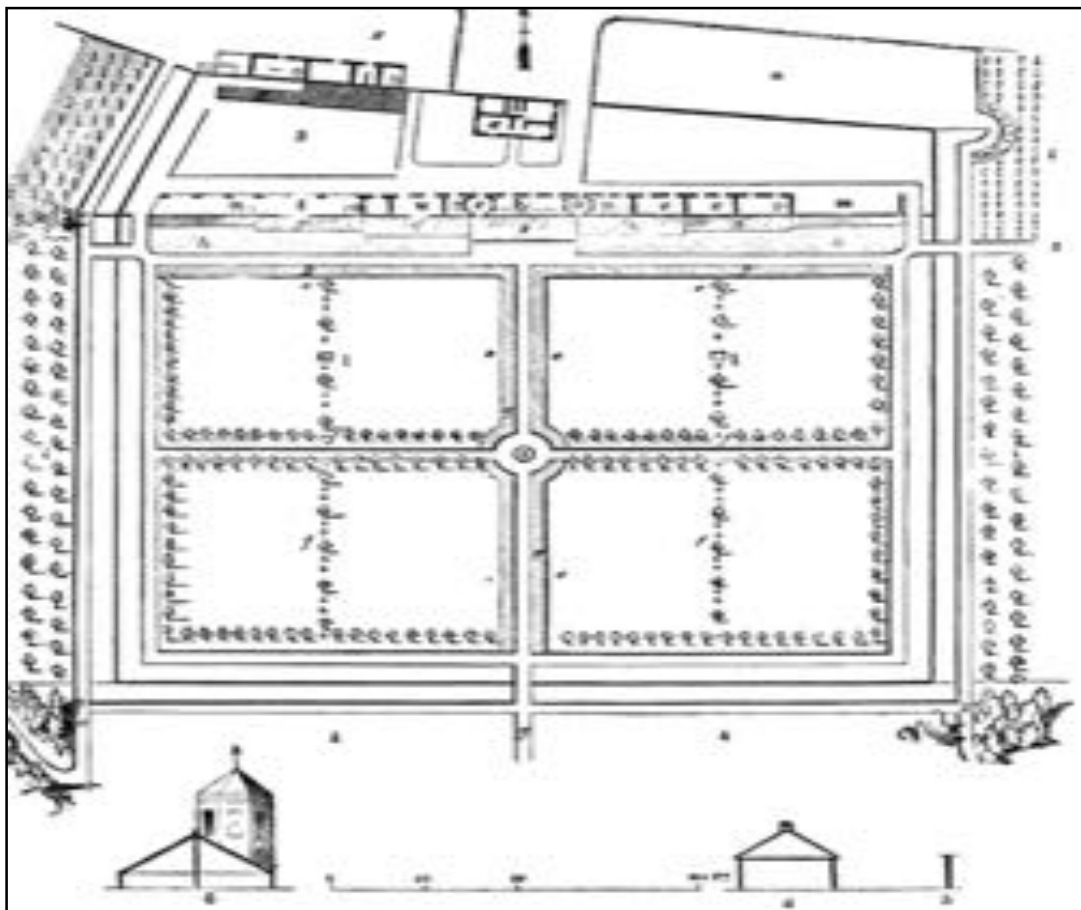


Figure 3. Plan of Prestonhall included in McIntosh's book.

It shows the larger middle area of the four acre walled garden divided into 4 equal quadrants.<sup>90</sup> Along the full length of the south-facing wall is a run of glasshouses with utility buildings and yard to the rear. There is a further area of walled garden adjoining the south side, which was the original rose

<sup>88</sup> Interview with Mrs June Callandar, current owner, June 2016.

<sup>89</sup> Charles McIntosh, *The Book of the Garden*, p. 50.

<sup>90</sup> National Records of Scotland, Box GDS247 153-155.

garden. It is open to the estate on one side and accessed by a decorative arched gateway. Unfortunately, but not unexpectedly, the glasshouses are all demolished with only the whitewashed walls and protruding nails to show where the fruit houses would have been present (Figure 4). McIntosh appears to commend the plan and, except for a few recommendations, states that 'it would be a perfect specimen of a garden for a country gentleman'.<sup>91</sup>



Figure 412. The extant north facing wall indicating where the glasshouses would have been.

What the plan does not highlight are the two attractive hexagonal gazebos built on top of the north wall and overlooking the walled garden (Figure 5). They are accessed from one of the rear buildings by a hanging stone stairway.

---

<sup>91</sup> McIntosh, *The Book of the Garden*, p. 51.

From the first gazebo is an open walkway, bounded by a balustraded wall surmounted by stone eagles, the emblem on the Callandar coat-of-arms, leading to the second gazebo. Both rooms have rooftop weather vanes which project down into the room and indicate wind direction without the need to venture outside – a practical nicety on this eastern coast of Scotland.



Figure 5. The twin Gazebos viewed from the back yard.

Even McIntosh was impressed by these gazebos, remarking that it was ‘a feature which differs from any one we have seen’.<sup>92</sup> And contemporary writers are still intrigued by these features: In his book on Scottish garden buildings, Tim Buxbaum describes them as ‘among the most pleasant garden gazebos in Scotland’.<sup>93</sup>

At the end of the 18<sup>th</sup> century these gazebos were very popular and considered ‘cutting edge’ although Loudon disagreed stating, The Modern Method of carrying summerhouses above hothouse as at Preston Hall has a very bad effect on scenery, besides their incongruity when considered as overlooking the kitchen garden which certainly, like the kitchen itself, is not an object of beauty itself.<sup>94</sup> Currently the view from the restored gazebos is very pleasant (Figure6)!

However, by 1842 Loudon appears to have revised his opinion and *The Gardeners Magazine* described Prestonhall as ‘an excellent and superiorly designed kitchen garden with over forty varieties of figs cultivated’.<sup>95</sup>

---

<sup>92</sup> McIntosh, *The Book of the Garden Vol. 1*, p. 51.

<sup>93</sup> Tom Buxbaum, *Scottish Garden Buildings: from Food to Folly*, (Edinburgh: Mainstream Publishing, 1989), p. 49.

<sup>94</sup> J.C. Loudon, *A Short Treatise on several improvements recently made in Hothouses*, (Edinburgh: John Turnbull, 1805), p. 198.

<sup>95</sup> Loudon *The Gardener's Magazine*, Vol. 18,(1842), p. 582.





Figure 6. View across the walled garden from the west gazebo.

Although the gazebos at Prestonhall are not thought to be designed by Hay similar garden rooms appear in other gardens where he was credited with the design, for example at Locknaw, Wigtownshire, with its corner gazebo on one of the walls overlooking the garden. It may not be as architecturally spectacular as the ones at Prestonhall, but it overlooks both the walled garden and dramatic loch scenery.

Examination of the various sheds and bothy in the northern outer walled area reveal the workings of the heating system. There are two old boilers still present, one is marked 'Ballantine and Sons, New Grange Foundry Bowness'. Further research has shown that this iron foundry was founded in 1876 so it

would not be the boiler with which Hay carried out his experiments on steam heating.<sup>96</sup> There is another boiler present, marked 'Boston Marine, Leeds, England' but to date research has been unsuccessful in determining its age (Figure 7). Both these boilers and the remaining pipework and controls would be worthy of study by an industrial archaeologist.



Figure 7. One of the remaining boilers at Prestonhall.

For an impression of what was grown in a Scottish walled garden in the early 20<sup>th</sup> century one of the most detailed accounts is in a little-known book by Margaret H. Waterfield (1863-1953) published in 1907. She describes the variations in flower planting in Irish, Scottish and English gardens and of the

---

<sup>96</sup> Grace's Guide, A. Ballantine and Sons, [www.gracesguide.co.uk/A\\_Ballantine\\_and\\_Sons](http://www.gracesguide.co.uk/A_Ballantine_and_Sons) [accessed 14 October 2016].



two Scottish gardens chosen one is Prestonhall and the other is Dalhousie, Midlothian, another of Hay's designs.<sup>97</sup> Although her visit must have been nearly a century after Hay's involvement her description is enthusiastic. Her delight in Prestonhall is described as 'an example of the amazing way in which herbaceous plants grow. I never saw a greater wealth of colour or healthier looking plants'.<sup>98</sup> High praise for the gardener!

Waterfield includes two watercolours of Prestonhall in her book, but it is her description of the plants and the way they are grown that reveals the high maintenance and skill required of the gardeners. Walking into the garden she is delighted at the delphiniums, 8-10ft high, lining the central walk. She comments on how the flowers are divided from the vegetables by a trellis and high posts and chains 'festooned with roses and clematis'. Her second watercolour is of the flower garden which adjoins the main walled garden along a 'fine red-brick buttressed wall...covered with creepers along its whole length'. The outer boundary of the flower garden is a semi-circular holly hedge, and beyond that 'a shelter belt of big trees', both the holly hedge and the tree belt still there today. There are numerous references to the excellence of Prestonhall in the years following Hay including this reference to a meeting of the Caledonian Horticultural Society in 1815. One of the papers read was 'a description of an improved Steam Hothouse, with plan and section, by Mr George Ogilvie, gardener to Lady Callandar at

---

<sup>97</sup> Margaret Waterfield, ed, *Flower Grouping in English, Scottish and Irish Gardens; Notes and 56 Sketches in Colour*, (London: J.M. Dent & Co., 1907), p.55.

<sup>98</sup> *Ibid.* p. 52.

Prestonhall'.<sup>99</sup> Although the article describes the workings of the hothouse it does not specify that it was the original as designed by Hay, but considering the date of the article, 1815, one can presume he is describing the same glasshouse. Prestonhall is still privately owned by the Callander family, who have restored the central glasshouse to its original design.

---

<sup>99</sup> Caledonian Horticultural Society Minute Book, Vol 1, March 1815.

## b) Archerfield(Collegehead)

With none of his personal papers surviving it is not known why Hay moved the twelve miles north to Archerfield in about 1799 (Figure 8).

This estate was the seat of the Nisbets, an extremely wealthy land owning family who had acquired the ruined Dirleton Castle in 1663 with over seven thousand acres of land stretching along the coast of the Firth of Forth and inland. They built a new mansion house, Archerfield, and incorporated the castle ruins into the designed landscape as a grand garden ornament. The park was laid out around 1775 by Robert Robertson, one of the main proponents of the English Landscape Movement at the time. The home farm at Archerfield was, and is still, known as Collegehead, which is where Hay children's baptismal records were recorded between 1799 and 1810.



Figure 8. Plan of Archerfield alongside aerial photograph.

When Hay was living there he undertook several commissions out with the estate so perhaps he was on different terms of employment or had sufficient

means to rent the farm. He states that he designed the new glasshouses at Archerfield and devised new methods of heating them. Certainly it was a time of general improvements at the estate: the estate records show several accounts associated with the walled garden around this time. Unfortunately, the estate records do not appear in any chronological order and many are incomplete. In December 1778 the mason costs 'as measured by David Blair and R. Robertson (including work to the hot houses)' amounted to £171.<sup>100</sup> There is a further amount paid to Thomas Buchanan for wood and glazing for the hot houses.<sup>101</sup> Later there is an account for 'stove and flues' paid to Samuel Heriot.<sup>102</sup> Maybe there was a dispute about the heating arrangements as another entry states that Samuel Heriot 'agrees to accept the sum of £16-4-0 for the whole of the flues that is executed in the new garden of Archerfield'.<sup>103</sup> These records pinpoint the building of the walled garden and buildings to about 1778-9. Further records show that in 1797-8 the gardeners are listed as John Waldie and John Blackie. A later gardener is named as David Thompson (1823-1909) who went as head gardener to Drumlanrig in Dumfriesshire where he remained for thirty years. This is the same Thompson who became editor of *The Scottish Gardener* magazine and a prolific author.<sup>104</sup>

---

<sup>100</sup>National Records of Scotland Box GD6/1625/1.

<sup>101</sup>Ibid. Box GD6/1625/8.

<sup>102</sup>Ibid. Box GD6/1625/6.

<sup>103</sup>Ibid. Box GD6/1625/5.

<sup>104</sup>Suki Urquhart and Ray Cox, *The Scottish Gardener*, p. 183.

Whatever Hay's employment status at Collegehead it seems that he was specifically engaged to design the new hothouses but also undertake commissions in other parts of the country. One of his earliest recorded works was a *Plan of Improvements, including a Survey of the Estate of Barns, lying in the Parish of manner and County of Peebles. The property of James Burnett, Esq.*<sup>105</sup> Dated 1805 it is more of an estate survey rather than a detailed garden plan. The aerial photograph shows a rather unremarkable walled garden with a curved south wall which evidently included a summer house. However, it is evidence that Hay was capable of surveying accurately and drawing to scale, and incorporating attractive features in an otherwise utilitarian kitchen garden (Figure 9).



Figure 9. OS six inch 1843-1882 map of Barns alongside aerial photograph.

---

<sup>105</sup> *Plan of Improvements, including a Survey of the Estate of Barns, lying in the Parish of Manner and County of Peebles. The property of James Burnett, Esq'. Surveyed, designed and drawn by John Hay.* <http://www.scotlandspplaces.gov.uk/record/nrs/RHP74/plan-improvements-including-survey-estate-barns-peeblesshire/nrs> [accessed 09 March 2016].

A much more detailed and sophisticated plan was drawn up for the kitchen garden at Dalhousie Castle. The estate sits on an attractive promontory above the River Esk as it flows through Midlothian. The castle itself was worked on by George Paterson (d. 1789) and later by William Burn (1789-1870), both well-known Edinburgh architects,<sup>106</sup> whilst the designed landscape is attributed to James Robertson (before 1750-1780).<sup>107</sup> The garden design is credited to Walter Nicol about 1807, but the walled garden appears to have been Hay's creation and is well described by Mr Joseph Archibald, the gardener for nineteen years, in *The Gardeners Magazine*.<sup>108</sup> The plan in Figure 10 shows the long sinuous site that provided a dramatic walkway above the river and even impressed Mr Archibald who stated,

The plan is very different and in fact surpasses the ordinary mode of enclosing gardens by straight walls in the form of squares or parallelograms. The wall here is fifteen feet high having been built in a curved and winding direction to suit the adjacent ground. The site has been much admired by every person of taste who has visited it: one particular beauty consists in the natural fence on the south side, being perpendicular, rugged rocks, to the depth of 30 to 40 feet to the bed of the river.<sup>109</sup>

---

<sup>106</sup> [www.scottisharchitects.org.uk/architect\\_full.php?id=20013](http://www.scottisharchitects.org.uk/architect_full.php?id=20013) [accessed 08 March 2016].

<sup>107</sup> Loudon, *Encyclopaedia of Gardening* (1822), p. 79.

<sup>108</sup> Loudon, *The Gardener's Magazine* (1826), p.251.

<sup>109</sup> *Ibid.*, p.251.



Figure 10. The unusually shaped walled garden at Dalhousie.

He continues with a description of the hothouses,

I now beg to give you a short description of the garden and hothouses, which were designed by Mr. John Hay, the garden architect of Edinburgh in 1806. The range of glasshouses is 205 feet long consisting of a greenhouse in the centre 56 feet, two vineries 77 feet and two peach houses 45 feet each. Above one of the glasshouses is an excellent room where are deposited some beautiful specimens of natural history and a few useful books on botany, agriculture, gardening, etc.<sup>110</sup>

---

<sup>110</sup> Loudon, *The Gardener's Magazine* (1826), p.251

This is a similar dimension to the range of glasshouses at Prestonhall and the inclusion of a room above one of the glasshouses is a feature seen in several of Hay's designs. Dalhousie's gardener, Mr Archibald, appears to have been a dedicated horticulturalist as there is further reference to him in the minutes of the Caledonian Horticultural Society of 1814 where it is recorded that he not only read a paper on 'protecting bloom by canvas screens' but 'had a model with him'.<sup>111</sup>

Waterfield chose to include one of her paintings of Dalhousie in her book. Although the book was published almost a hundred years after the garden was designed, Dalhousie was renowned for its magnificent flower gardens. She paints a literary picture of 'the great curving wall' with 'the winding pergola through which one can see to the deep rocky bed of the river' and states that 'the roses are very successful on a warm slope of the walled garden' and admires the 'rich carpets of violas and hedges of fuchsias'.<sup>112</sup>

Even Loudon, in his book *The Arboretum Britannicum*, commented that Dalhousie had 'an extensive range of trees and shrubs, more or less remarkable' but that the mid 18<sup>th</sup> century 'picturesque' landscape was altered during the mid 19<sup>th</sup> century and has now been lost.<sup>113</sup> And it has been lost further in the 21<sup>st</sup> century: Dalhousie Castle has become a hotel and the walled garden a derelict car dump. There is no trace of the glasshouses or the 'excellent room' above.

---

<sup>111</sup> Minutes of the Caledonian Horticultural Society, 18 March 1814.

<sup>112</sup> Waterfield, *Flower groupings*, Facing p.60.

<sup>113</sup> Loudon, *The Arboretum Britannicum*.



One of Hay's few references to his work is made in the *Memoirs of the Caledonian Horticultural Society* where he states,

In the year 1807 I had the honour to be consulted by his Grace the late Duke of Northumberland with a view to rebuilding the hothouses at Alwick Castle, which chiefly consisted of grape and pine houses, and was desired by his Grace to furnish him with plans for executing the work on the most approved principles. His Grace directed me to provide for the heating of one of the pine pits by steam, as he had seen an attempt of this kind in Scotland a number of years before.<sup>114</sup>

The Duke of Northumberland referred to is Hugh, the 2<sup>nd</sup> Duke (1742-1817) who was keen on promoting the cultivation of exotic fruits and could afford to do so, being one of the richest men in England at the time. It is not known where the Duke had seen a previous example of Hay's steam heating although his first wife was a daughter of Lord Bute, a Scottish nobleman and a keen botanist, which may have provided the connection. In his history of Alwick Castle the former archivist Shrimpton, states that 'the second Duke invested in new hothouses designed by John Hay of Edinburgh, including a fruiting pine stove for pineapples, a mushroom house and two vineries'.<sup>115</sup> He goes on to add 'A peach house of four compartments was also erected and a

---

<sup>114</sup> *Memoirs of the Caledonian Horticultural Society*, Vol. IV, p.582.

<sup>115</sup> Colin Shrimpton, *A History of Alwick Parks and Pleasure Grounds* (Derby: Northumberland Estates, 2006), p. 58.

garden seed room'.<sup>116</sup> This is more extensive than claimed in Hay's original statement and it seems likely that other designers were at work and Hay may only have been called in to design the 'new' steam heating system. Loudon reported in 1825 that the kitchen garden at Alnwick was 'lately much improved by a range of hot-houses erected from the designs of J. Hay, Edinburgh'.<sup>117</sup> In a later publication Loudon refers again to Hay's work at Alnwick,

In 1807, a pine-stove was designed and executed for the Duke of Northumberland, at Alnwick Castle, by Mr. Hay, in which a chamber below the bark-bed was filled by stones heated by steam; but as the pipes and supply of steam were too small for the mass of stones, the use of this mode of heating was in this instance not long continued.<sup>118</sup>

An archaeological survey is currently being carried out at Alnwick Castle in the old walled garden, in preparation for a new publication on the history of the gardens. Discussion with the consultants working on the project confirm that there are several structures dating from the early 19<sup>th</sup> century in the old walled garden.<sup>119</sup> However the garden structures have been reworked several times and understandably it is difficult to state categorically which structures can be attributed to Hay (Figure 11).

---

<sup>116</sup> Shrimpton, *A History of Alnwick Parks and Pleasure Grounds* p. 58.

<sup>117</sup> Loudon, *Encyclopaedia of Gardening*, 1825, p. 1080.

<sup>118</sup> Loudon, *Encyclopaedia of Gardening*, 1832, p.330.

<sup>119</sup> Jennifer Proctor, Pre-Construct Archaeology Ltd. Durham DH6 5PD.



Figure 11. Photographs of the recent excavation of the old walled garden at Alwick, showing the northern hothouse which may have been modified by Hay.

### c) Camperdown (Lundie House)

Around the same time that Hay was working on the glasshouses at Alwick he was also involved in the design of the walled garden at Lundie House, an estate owned by the Duncan family of Dundee. Adam Duncan (1731-1804) was an Admiral in the Navy and in 1797, he commanded and won the Battle of Camperdown against the Dutch who were threatening to invade Britain, for which he was created Viscount Duncan and Baron Lundie. His son Robert was created Earl of Camperdown in 1831 and it was he who commissioned William Burn, the Edinburgh architect, to design a 'Greek Revival' mansion, demolished the old Lundie House and named the new one Camperdown (Figure 12).<sup>120</sup>



Figure 12. Engraving of Camperdown House by a local engraver, G. Cummings.

<sup>120</sup> <https://canmore.org.uk/site/247718/dundee-camperdown-house-walled-garden?display=image> [accessed 19 July 2017].

Robert also designed the park, with the assistance of David Taylor, a forester. Between 1805 and 1859 David Taylor and his son planted most of the trees, including the weeping elm known as the 'Camperdown' elm.

Loudon in his *Encyclopaedia of Gardening* (1824) devotes a section to the problem of getting sufficient water into the garden, titled *The contrivance for watering or washing the foliage of the wall trees in Dalmeny gardens, laid out by the artist*.<sup>121</sup> He is referring to Hay who had designed the kitchen garden at Dalmeny, the mansion house of Lord Roseberry on the outskirts of Edinburgh.

Hay had incorporated a watering system by inserting a three-quarter inch metal pipe in a groove cut into the walls of the kitchen garden just below ground level. By a series of stopcocks every fifty feet, a leather hose could be attached. At Dalmeny the head of pressure from a reservoir situated on a raised area just outside the northern wall ensured that the appropriate beds could be 'watered with the greatest ease as required'.<sup>122</sup> Loudon states that a similar system had been used at Lundie and 'after the experience of several years has been greatly approved of and is thrown from the point of director with great force, and to a good distance'.<sup>123</sup> The walled gardens at Lundie were extensive, divided into several compartments and had walls approximately 15 feet high.<sup>124</sup>

---

<sup>121</sup> Loudon, *Encyclopaedia of Gardening*, 1824, p. 463.

<sup>122</sup> *Ibid.*, p. 463.

<sup>123</sup> *Ibid.*, p. 463.

<sup>124</sup> <http://portal.historicenvironment.scot/designation/GDL00082> [accessed 19 July 2017].

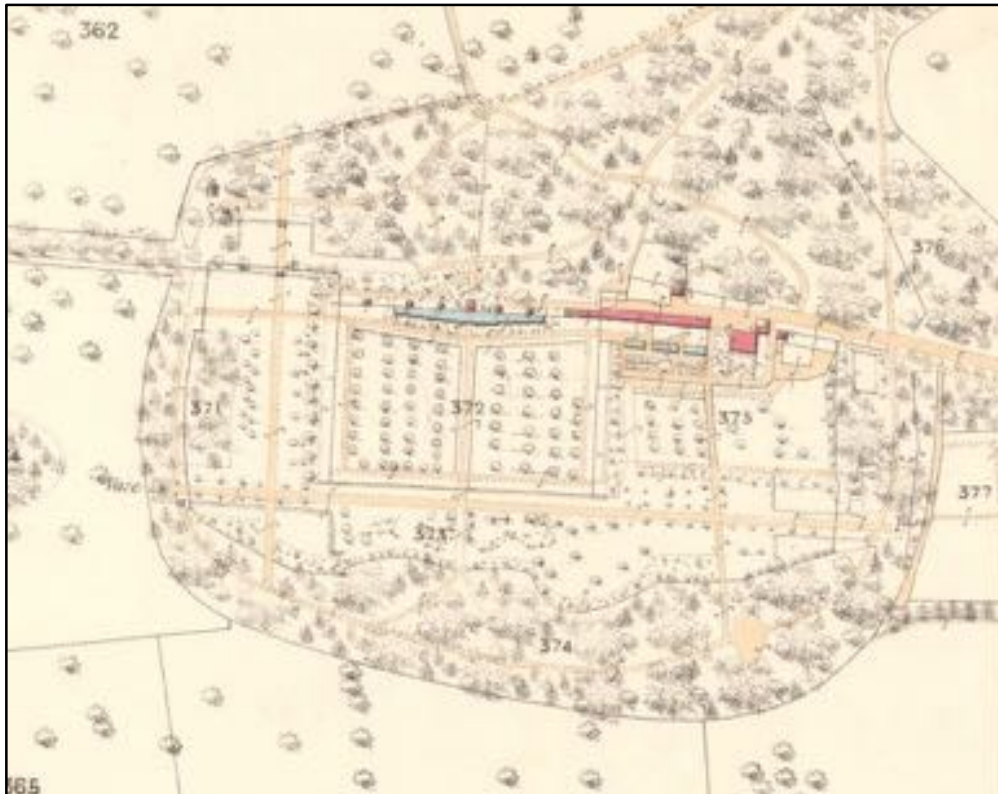


Figure 13. OS six inch 1843-1882 plan of Camperdown walled garden.

Nowadays the walled garden is the site of a zoo; the glasshouses replaced by a smaller suite of modern aluminium ones and visitor facilities have been built in the parkland (Figure 13). Most of the backhouses have been altered to accommodate a different use, but there was evidence of a boiler and old flue system inside them. There is an interesting small adjoining building, possibly an Orangery or rest room for the ladies, which would have given entrance to the walled garden. Either side of the entrance door is a niche, similar to that of Saltoun, although again its function unknown (Figure 14).





Figure14. Possibly a former orangery. View of one of the back buildings at Camperdown.

## **Chapter 4: John Hay and Edinburgh 1810 onward.**

Sometime between 1804 and 1810 the Hay family moved to Edinburgh.<sup>125</sup> It would appear to mark a change in the work undertaken by Hay: his range of projects expanded and recognition of his skills became more widely known. One of the catalysts for this was probably Hay's involvement with the Caledonian Horticultural Society and the people with whom he came into contact.

---

<sup>125</sup> Based on the genealogical records of the children. A daughter was born at Dirleton (Archerfield) in October 1804 and the next child was recorded as born in Edinburgh in April 1810.



## a) The formation of the Caledonian Horticultural Society

The formation of the Caledonian Horticultural Society was an important event not only for the gardening fraternity in Edinburgh and the surrounding area, but also as a rich depository of the history of horticulture in Scotland. Patrick Neill was a descendant of the founder of a quality printing firm; he was financially well off, well educated and well connected.<sup>126</sup> With such advantages he was involved in many of the intellectual and social societies that flourished in Edinburgh at the time, and came into contact with people across a wide variety of disciplines. But Neill's greatest commitment was to botany and to his garden at Cannonmills Cottage in Edinburgh. It contained over three thousand different species of plants, as well as a conservatory, a stove 20ft long (a heated glasshouse), a vinery, a warm pit and an orchid frame.<sup>127</sup>

On the 05 December 1809 in the Physicians Hall, in the New Town area of Edinburgh, seventeen gentlemen gathered, 'in consequence of a circular letter, dated 25 November, signed by Messers Walter Nicol, Thomas Dickson, Dr James Home, Mr Alexander Gibson Hunter, Dr Andrew Duncan senior, and Mr Patrick Neill', to agree to the proposal to the formation of the Caledonian Horticultural Society (Figure 15).<sup>128</sup>

---

<sup>126</sup> His uncle, also called Patrick Neill, went into partnership with two booksellers in 1759. They were considered the most respectable retail business in Edinburgh producing high quality printing including publication of the *Encyclopaedia Britannica*.

<sup>127</sup> J.C. Loudon, *The Gardener's Journal* (July 1836), p. 333.

<sup>128</sup> Original Minute Book of the Caledonian Horticultural Society.

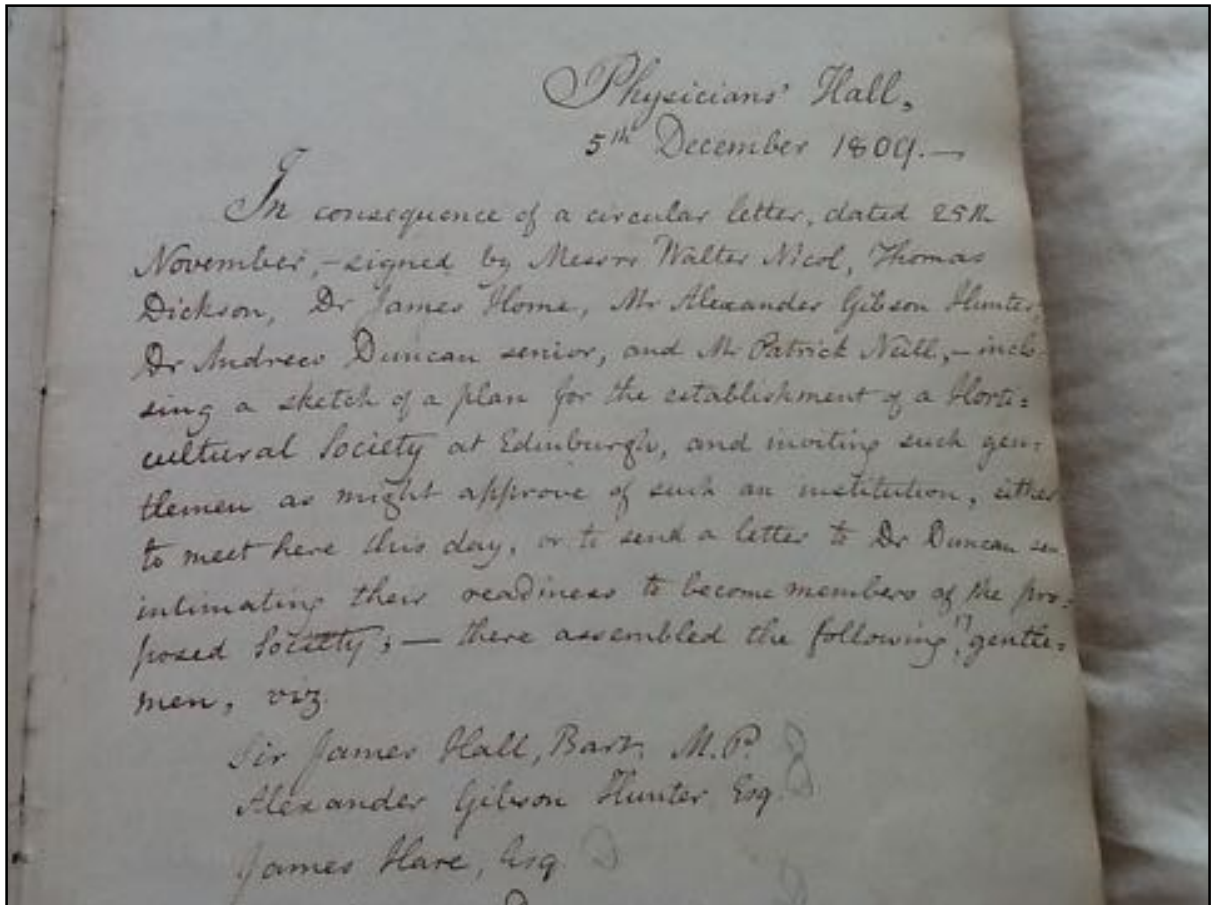


Figure 15. Letter of Invitation to form a horticultural society.

There was no doubting who was the instigator of this proposal, and for the next forty years Patrick Neill would be the Secretary. One of the 'gentlemen' attending the inaugural meeting was John Hay, who was elected as one of the 'professional' members of the Council (Figure16). Alongside him was Mr James McDonald, gardener to the Right Honourable, the Earl of Dalkeith, who was elected as president. They were all friends of Neill's but there is no doubt these men were respected amongst the horticultural milieu of Edinburgh and its environs. Their plans and decisions were to have consequences still relevant today.

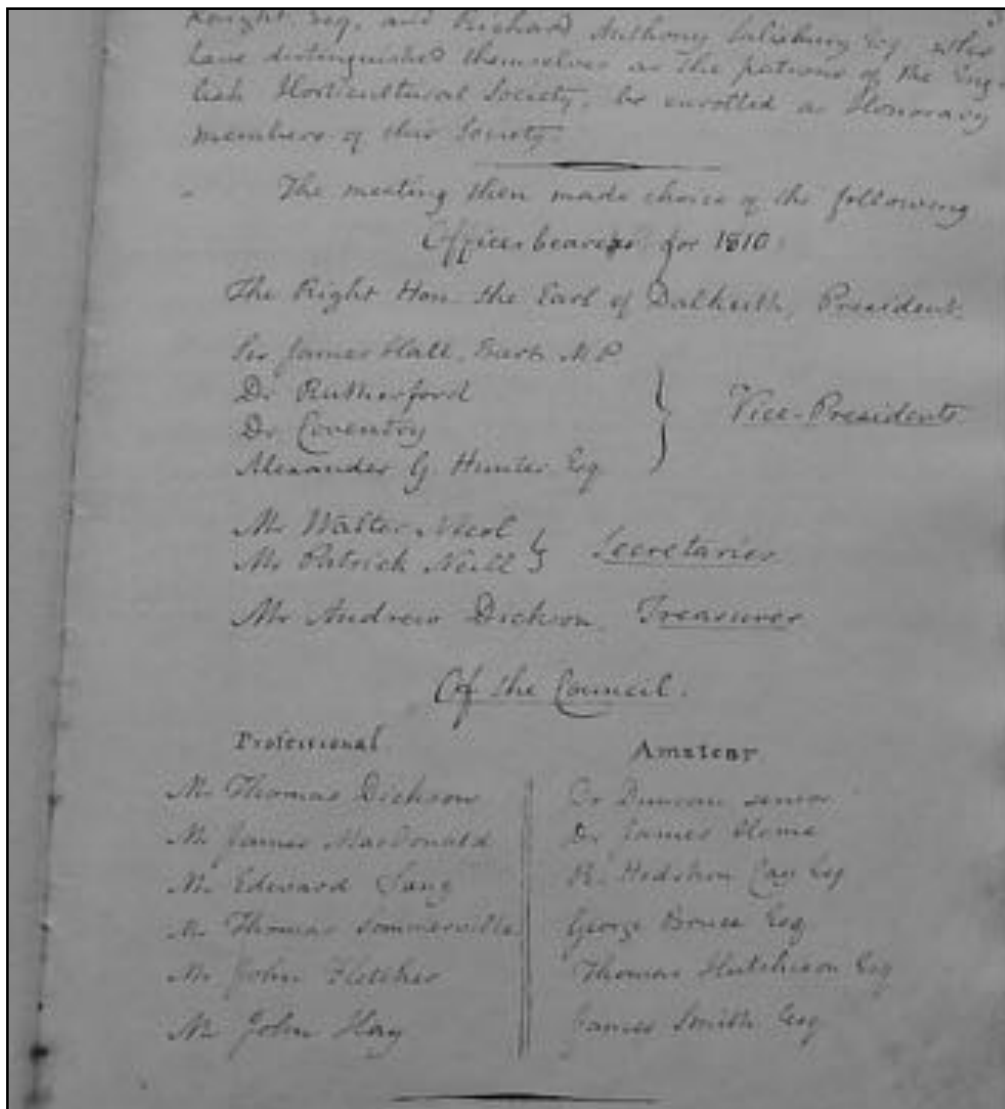


Figure 16. Minute Book of the Caledonian Horticultural Society showing John Hay as one of the founder members.

The focus of the new Society was the ‘encouragement and improvement of the best fruit, the most choice flowers and the most useful vegetables’<sup>129</sup>. The annual subscription for ordinary members was one guinea and within a couple of years the Society had a membership of over one thousand. Many of the well known members of Edinburgh society were members: the artist Henry Raeburn (1756-1823), the architect William Playfair (1790-1857) and

<sup>129</sup> Taken from the original letter of invitation.

the writer Walter Scott (1771-1832). But the backbone of members were the gardeners, seedsman, horticulturalists and estate owners of Edinburgh. The meetings were a mixture of theoretical and practical gardening matters, papers were read from members and exhibits of flowers, fruit and vegetables were brought to the meetings. Competitions were organised and the award of certificates and medals was important. Hay is mentioned frequently in the records, proof that he was an active member and one whose good judgement and expertise was valued. One such competition that he helped to adjudicate was the report on curl in potatoes and the gooseberry caterpillar (Figure17)!

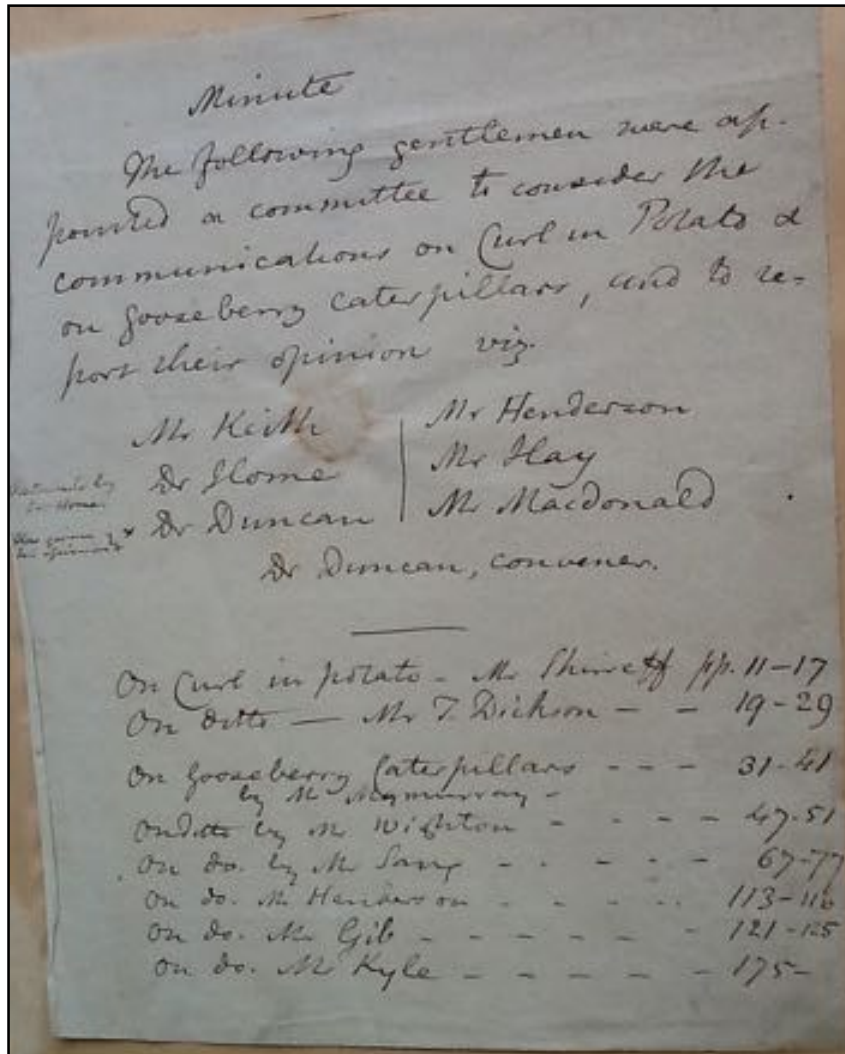


Figure 17. Note in Caledonian Horticultural Society Minute Book.

In March 1811 the minutes of the Society record Hay as the proposer of Mr Alexander Melville, gardener at Oxenfoord Castle, as a ‘corresponding member’, presumably a category of membership for those members unable to attend meetings in Edinburgh.<sup>130</sup>

In a newspaper advertisement in 1812 John Hay quotes Oxenfoord Castle as being one of his recent successes, that he ‘...continues to give designs of

<sup>130</sup> Caledonian Horticultural Society Minute Book, Vol. I, March 1811.

gardens, plans all sorts of Hot-Houses, Greenhouses and Conservatories,' some of which he has lately executed on a new and improved principle, such as that at Milburn Tower and Oxenfoord Castle.<sup>131</sup>

The walled garden at Oxenfoord Castle is still extant and currently used as part of an organic vegetable scheme, but sadly the glasshouses have all disappeared and only the immense white rendered wall indicates where they once stood (Figure 18). The back sheds are all present but no detailed examination was carried out for evidence of the heating system.



Figure 18. The high south facing wall at Oxenfoord Castle.

---

<sup>131</sup> *Edinburgh Evening Courant*, 22 August 1812.

An early ambition of the Society was the creation of an Experimental Garden, partly to give advice on the best horticultural practices and partly to test, under local growing conditions, the new plants that were coming into Britain (Figure 19).<sup>132</sup>

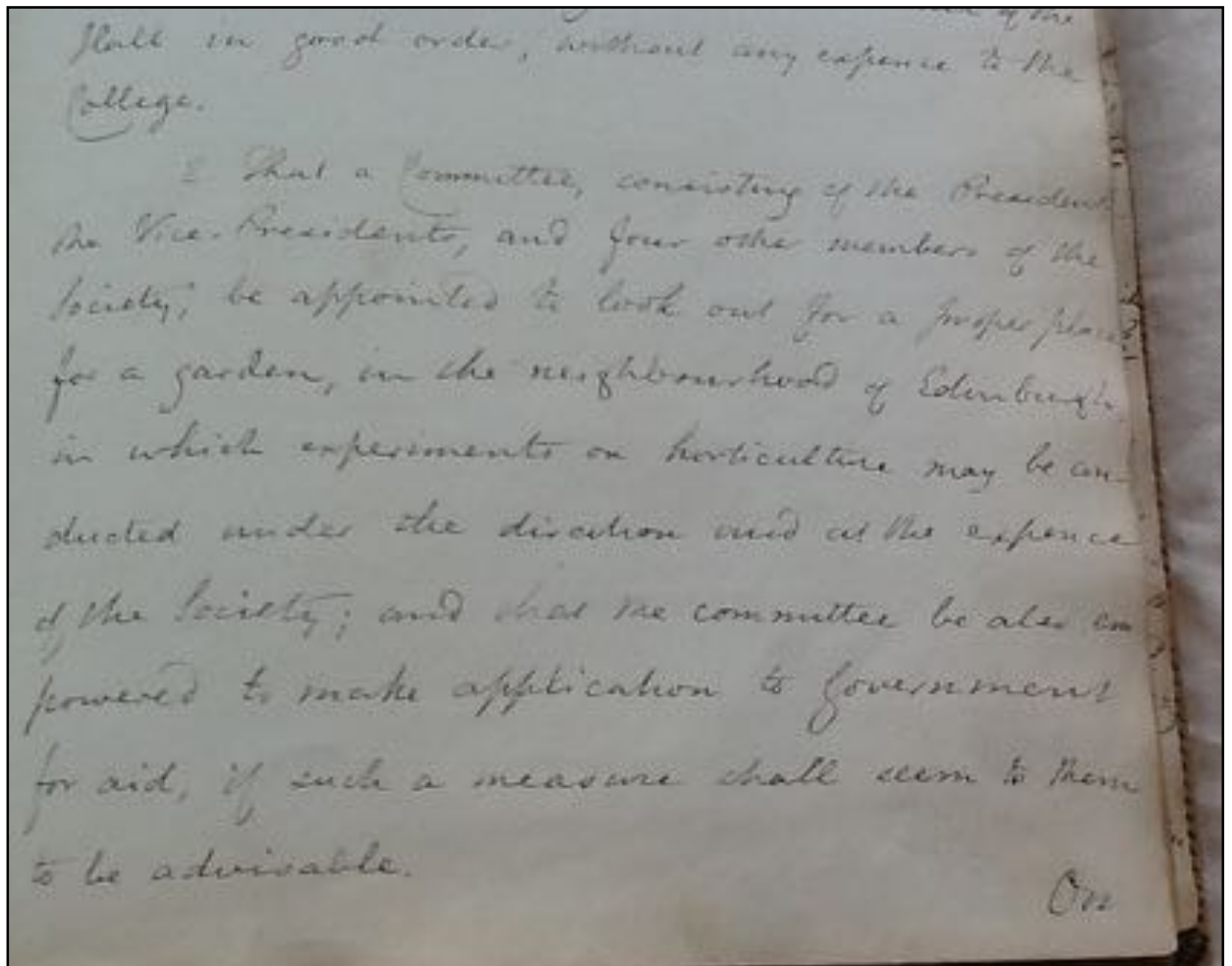


Figure 19. The proposal to set up an Experimental Garden.

To this end, at the Annual General Meeting in 1815, Sir John Sinclair proposed that two representatives from the Society should be commissioned to visit Europe to discover what advances had been made to agriculture.

<sup>132</sup> Caledonian Horticultural Society Minute Book.



Following the long period of unrest in the area and the Battle of Waterloo, visitors were once more able to travel. Patrick Neill and the gardener Walter Nicol (1769-1811) were chosen to go but unfortunately Nicol died unexpectedly. His replacements were Hay and James McDonald. The three men sailed from Leith on 01 August 1817 and spent over three months travelling in Northern Europe.

A report of the trip was given to the society in December 1817<sup>133</sup>. A melon had been brought to the meeting, raised from seeds 'brought by the delegation who had visited'.<sup>134</sup> In 1818 there was further reference to the trip when it was reported to the Society that grafts of pears and apples had been received and grafted at Messers Dicksons 'with perfect success', one of the results of the many contacts they had made with continental horticulturalists and fruit breeders.<sup>135</sup> In the preface to his journal detailing the trip, Neill summarises their opinions by stating '...our own style of gardening in Scotland is generally speaking, superior to what we witnessed on the Continent...'.<sup>136</sup>

Unfortunately, there is no writing of Hay regarding the continental leg of their trip; his appendix to Neill's journal is solely an account of the three days he spent touring gardens in the south east of England.

---

<sup>133</sup> *Caledonian Horticultural Society Minute Book*. Vol 1 10 December 1817.

<sup>134</sup> *Ibid.* June 1818.

<sup>135</sup> *Ibid.* June 1818.

<sup>136</sup> Robertson, *Patrick Neill*, p.103.



## b) George's Square Garden

Hay's move into Edinburgh at appears to have brought him into contact with a variety of people and projects.<sup>137</sup> There was still a tremendous amount of design and construction taking place in connection with the New Town and not just to the more widely recognised north side of the city. A portion of land on the south side of the Royal Mile had been bought by James Brown, a builder, who proceeded to build 'of suitable elegance....fine mansions' (Figure 20).<sup>138</sup>

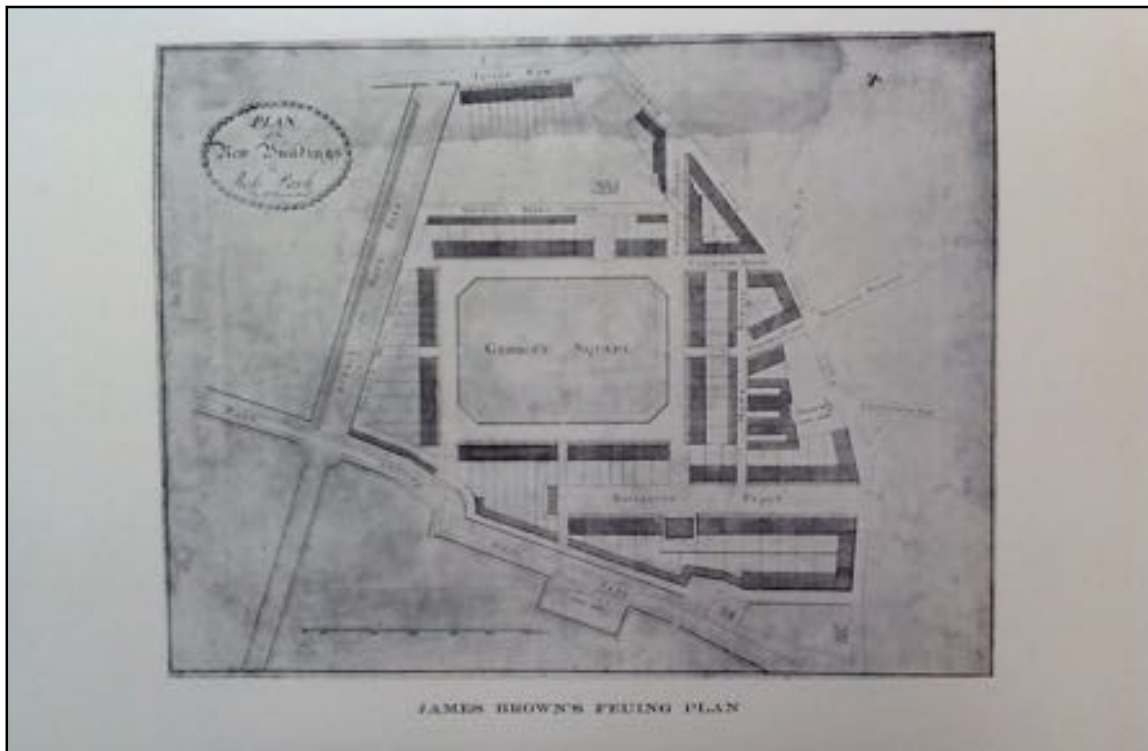


Figure 20. The feuing plan for George's Square.

<sup>137</sup> Assumption based on the baptism certificate of two of his children, Elizabeth in 1804 states Dirleton and William in 1810 states Edinburgh.

<sup>138</sup> Robert Chambers, *Traditions of Edinburgh* (Edinburgh:W &C Tait, 1825), p. 38.

Hay was called upon to design the pleasure ground at the centre of these residences, known as George's Square, regarded by Alexander Young as the first true modern square in Edinburgh.<sup>139</sup> The simple design of the square still survives, gravel paths crisscross the grass under the original, now mature, trees (Figure 21). Unfortunately, only one side of the square retains its Georgian grandeur, the other sides having been developed by new University buildings.



Figure 21. George's Square, named after the brother of the builder, not the monarch!

---

<sup>139</sup> Alexander J. Youngston, *The Making of Classical Edinburgh* (Edinburgh: Edinburgh University Press, 1966), p. 68.

### c) Balnagown Castle

One of the earliest commissions after the move to Edinburgh appears to be the 'Plan of Improvements on the New Garden at Balnagown Castle, drawn from Ideas suggested by General Wemyss, John Hay, 1814' (Figure 22). The plan for this estate, a few miles north of Inverness, has never been recorded as having any association with Hay. It unexpectedly came to light during the course of this research.<sup>140</sup> The plan for the walled garden at Balnagown Castle appeared at auction in Edinburgh in September 2015 and was bought by a London dealer who kindly allowed the examination of the original watercolour and ink manuscript plan. The proposed layout shows an orangery, grape houses, pine shed, mushroom house, gardener's lodge, melon ground, forcing pit, melon-pit, melon and cucumber frames, stock holes, hotwall to be covered with glass for peaches, hotwall for the finest French pears, sun-dial, etc.<sup>141</sup>

---

<sup>140</sup> Noted by Christopher Dingwall on an internet search.

<sup>141</sup> The author traced the seller of the plan who stated it had been found by his father many years previously in a house demolition in Fife.

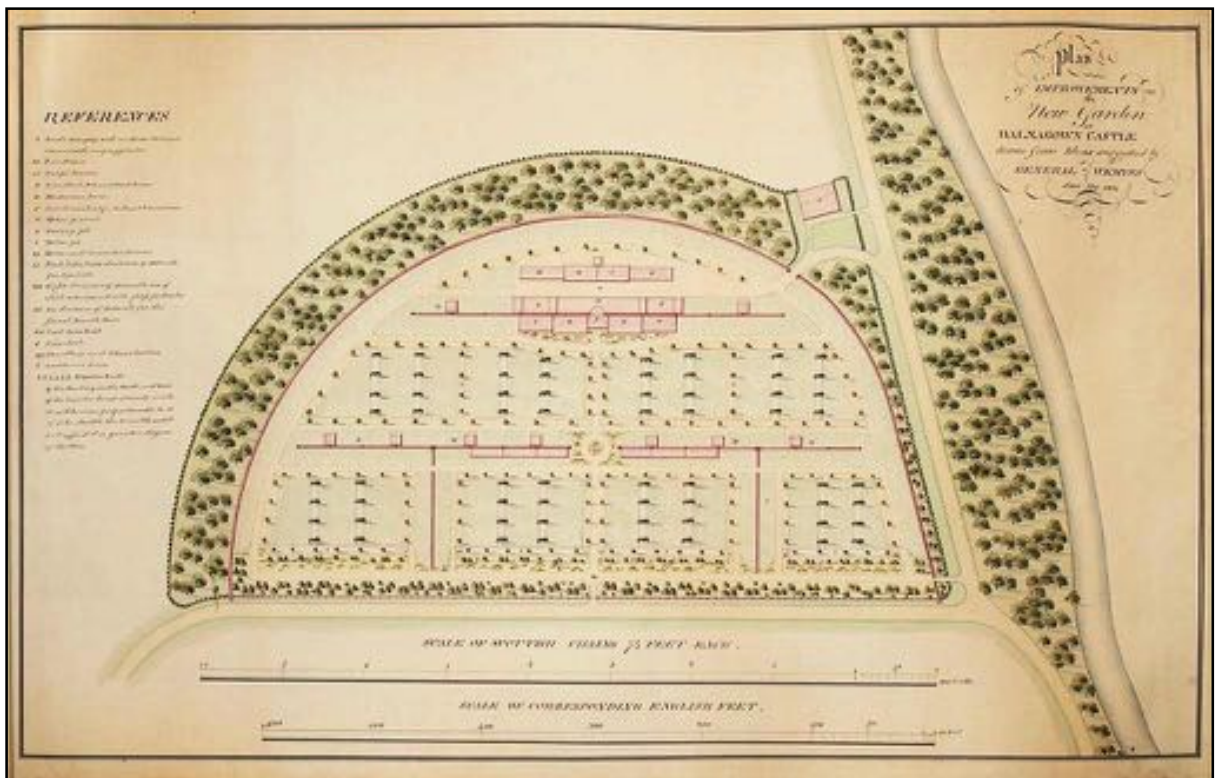


Figure 22. John Hay's plan of Balnagown, 1814.

A visit to the estate and examination of the 1808 Estate Survey map does not show any garden present but the pencil annotation 'New Garden' would indicate that the location of a new garden was being planned (Figure23).





Figure 23. Estate map of Balnagown surveyed by George Brown 1808 ('New Garden' annotated in upper right corner).

The OS map of 1843-1882 shows the walled garden as indicated on the Hay plan with its semi-circular outline suggesting Hay had an input to its initial build (Figure24). There is no evidence on the ground of any backhouses or the gardener's cottage ever having been built and the gardeners working there currently do not recall any demolition taking place in the area.



Figure 24. OS six inch 1843-1882 map of Balnagown showing semi-circular wall garden as on Hay plan.

Examination of the extant walled garden shows no evidence of glasshouses, although holes at the base of the wall may indicate that vines were planted in the outer area and brought through into a vinery. It may be that the walled garden has been 'restored' so thoroughly that no remnant remains of

redundant buildings. After visiting Balnagown an old postcard came to light showing a more modern glasshouse present (Figure 25).<sup>142</sup>

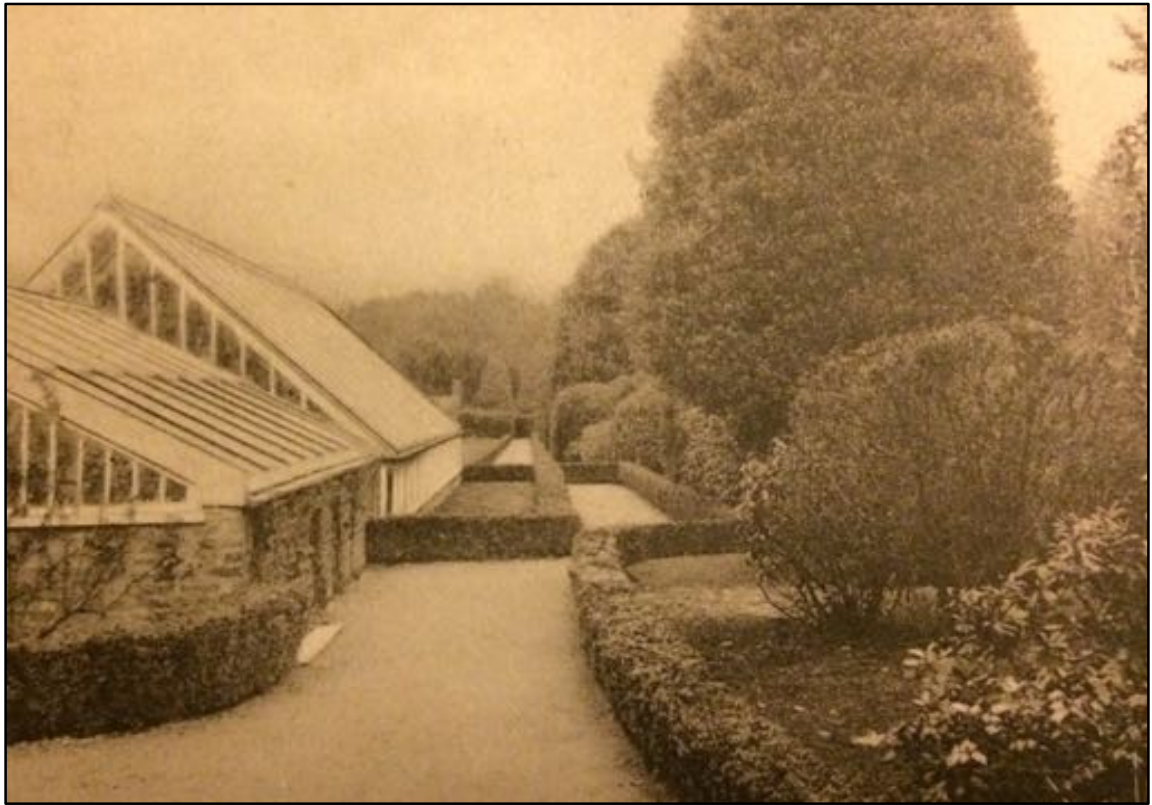


Figure 25. Postcard of Balnagown walled garden.

One of the reasons why the Hay plan was never fully executed may be the untimely death of the owner, Sir Charles Ross in 1814, leaving a widow and two young daughters. Again, the estate archive is incomplete, but inheritance issues appear to have forced a halt in the improvements to the estate and the only reference to be found in the archives around this time was in an

---

<sup>142</sup> Interest among the current gardeners at Balnagown resulted in the submission of this old postcard. As the author has not examined the postcard it is difficult to date it, but it does show glasshouses as being present, (although they appear to be a more modern style, possibly early 20<sup>th</sup> century).

inventory of furniture that included 'that of Alexander Pyper, gardener, £7 total'.<sup>143</sup>

Nowadays the estate is privately owned and has been handsomely restored although the well kept walled garden is mostly vacant with a small area given to soft fruits.

---

<sup>143</sup> National Records of Scotland, GD129/1/8/14



#### **d) Bargany and Kilkerran**

The following ten years were the busiest and most productive of Hay's career. Around 1814-15 he undertook designs for walled gardens and flower gardens at the adjoining estates of Kilkerran and Bargany in Ayrshire where the wives of the owners of the estates were sisters.<sup>144</sup> His involvement in these estates may have come about because of his work around 1807 at Camperdown, Dundee, for Viscount Admiral Duncan, the Earl of Camperdown whose daughter Jane married Sir Hew Dalrymple-Hamilton, the owner of Bargany, in 1800.<sup>145</sup> Jane's sister, Henrietta, in 1804 married Sir James Ferguson the owner of Kilkerran, where Hay had designed both the walled garden and flower garden in 1814.<sup>146</sup> There was little need to advertise when recommendations came from within the landed families.

The 1300 acre Bargany estate is situated approximately 20 miles south of Ayr in the rich agricultural valley of the River Girvan. The laying out of the estate was begun by the owner John Hamilton in the mid to late 18<sup>th</sup> century. He is reputed to have employed William Adam and later, around 1774, George Robertson prepared an improvement plan for the grounds. The only remaining part of this plan is the bowling green. Thomas White Junior (1764-1836) and William Sawrey Gilpin (1762-1843) also worked there.

---

<sup>144</sup> James Fergusson, *Lowland Lairds* (London: Faber & Faber, 1949), p. 105.

<sup>145</sup> <http://www.cracroftspeerage.co.uk/online/content/search> [accessed 8 July 2017].

<sup>146</sup> <http://www.thepeerage.com/p6747.htm#i67468> [accessed 08 July 2017].

Thomas White is thought to have constructed a small walled garden although no trace remains. The haphazard and fragmented character of the various 'improvements' were commented on by Loudon on a trip he made to south west Scotland in 1832, remarking that 'the last twenty five years has been the scene of extensive improvements in the way of road making, drainage and planting etc'.<sup>147</sup> He noted that the kitchen garden, 'laid out by Mr.Hay, has flued walls and hot houses' and 'the whole is most economically and judiciously managed by Mr. Dodd'.<sup>148</sup> Hay laid out the original 13 acres of kitchen garden, including a separate pineapple house, around 1818. He included a small ornamental garden at the east end and a semi-circular garden at the west end of the main walled garden (Figure 26). There was a pineapple house next to the west facing house, with the steam heating which Hay had perfected.



Figure 26. Plan of Bargany estate alongside aerial photograph.

<sup>147</sup> Loudon, *The Gardener's Magazine*, Vol. VIII, (1832), p. 330.

<sup>148</sup> *Ibid.*, p. 330. Mr James Dodds is listed as a member in *Minutes of Caledonian Horticultural Society*, 05 December 1809.

As early as 1711 the owners of Kilkerran, the Fergusons, were recognised as keen agricultural improvers. They commenced a programme of tree planting on the estate and surrounding hills, much of which remains today and gives the River Girvan valley such a pleasing view. Plans for the policies were drawn up in 1721, by William Boutchart, 'an exact plan of Kilkerran showing an elaborate formal design but reference to General Roy's map of 1750 would suggest that if implemented it had been changed by then.'<sup>149</sup>

It was Sir James Fergusson (1765-1838), who commenced extensive schemes of alterations to the house and grounds way beyond his means which resulted in the estate falling into debt. Fergusson was recognised as an agricultural improver and was the founder of the Ayrshire Agricultural Association.<sup>150</sup> In 1814 Hay was commissioned to design the new garden. His plans included the five acre curved walled garden which was formerly divided into six compartments with an orchard to the south. In the explanatory key of his plan Hay noted 'a small orangery with an alcove seat which will serve as a Retreat in walking from the house to the top of the Lady Glen' (Figure 27).<sup>151</sup>

---

<sup>149</sup> <http://portal.historicenvironment.scot/designation/GDL00238> [accessed 27 July 2016].

<sup>150</sup> Fergusson, *Lowland Lairds*, p.105

<sup>151</sup> Tait, *The Landscape Garden*, p. 146.



Figure 27. The bricked-up alcove of the walled garden, formerly a retreat for the ladies.

The west compartment is separated from the main garden by a wall and, from paintings in the house of c.1870, it was planted as an ornamental garden. There are specimen trees to the south and west of the walls and also some old rhododendrons, now overgrown. A path leads to the family burial ground on the south side of the garden. It is currently in use by the Camping and Caravanning Club.

### e) Saltoun Hall

Another Hay design which took account of the wider garden was in East Lothian. The estate was owned by the influential Fetcher family whom, at a time of great poverty in the area, had set up the first mill for producing pot barley in 1712.<sup>152</sup> They were an innovative family who went on to acquire the secret of weaving fine linen, and in order to promote the industry formed the British Linen Company in 1746. With other Scottish financiers it became the British Linen Bank and nowadays is subsumed within the Lloyds Banking Group.<sup>153</sup>

Hay was called upon to design the flower and walled garden around 1818, about the same time William Burn was designing the massive new Tudor-styled Saltoun Hall.<sup>154</sup> His confidence boosted by the success of his works for some of the most eminent Scottish landowners Hay now included a moss house and a wooden bridge as well as peach and apricot houses.<sup>155</sup>

---

<sup>152</sup> [www.johngraycentre.org/people/movers\\_shakers/saltoun](http://www.johngraycentre.org/people/movers_shakers/saltoun) [accessed 04 September 2016].

<sup>153</sup> [www.lloydsbankinggroup.com/Our-Group/our-heritage](http://www.lloydsbankinggroup.com/Our-Group/our-heritage) [accessed 14 October 2016].

<sup>154</sup> [www.parksandgardens](http://www.parksandgardens). [accessed 10 September 2016].

<sup>155</sup> Tait, *The Landscape Garden*, p. 146.

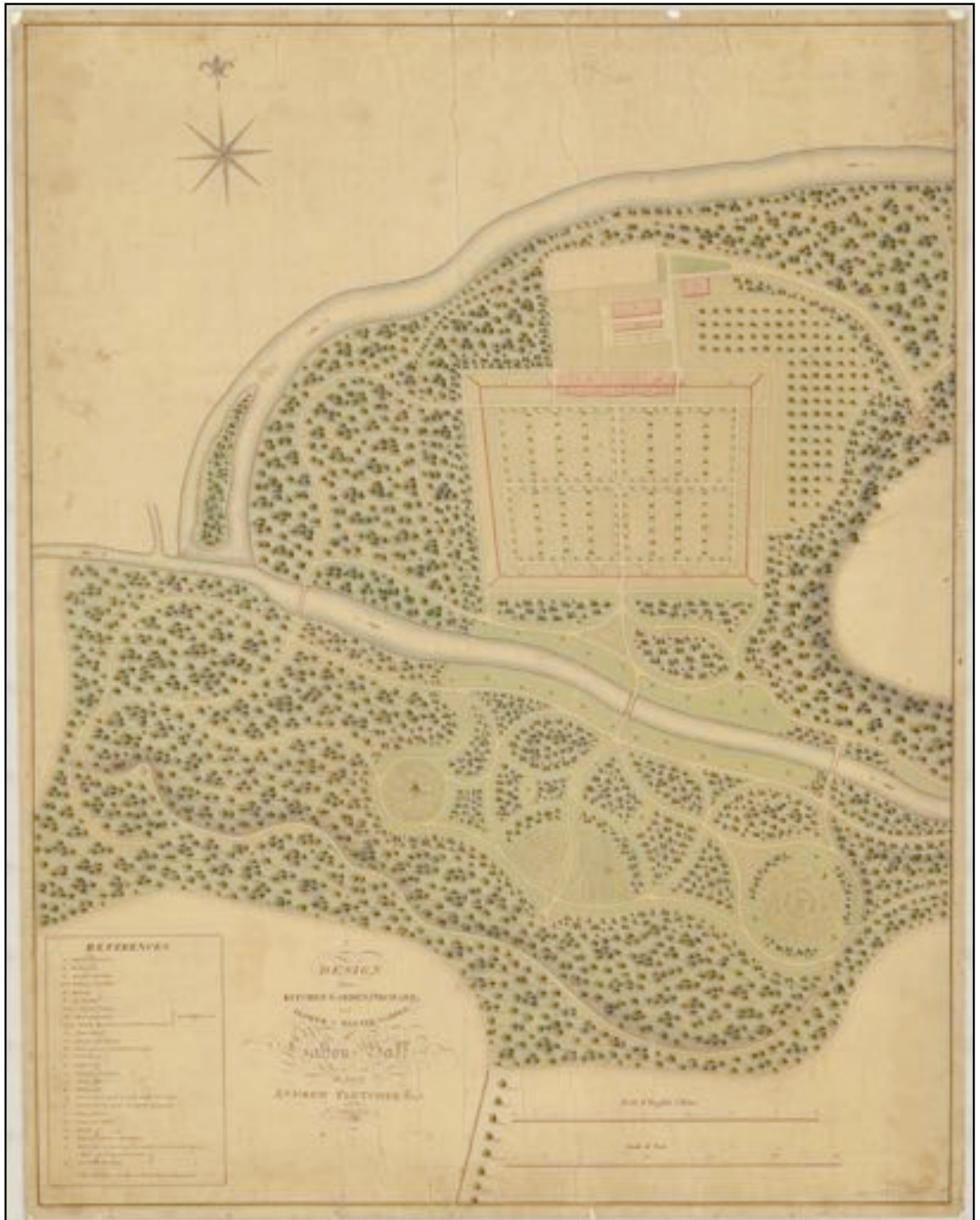


Figure 28. 'Design for a kitchen-garden, orchard, and flower & winter garden, at Saltoun Hall, the seat of Andrew Fletcher' John Hay 1818

Of the many walled gardens which Hay designed the one at Saltoun appears the most conventional: a rectangle with no embellishments (Figure 28).



The high brickwork walls are a particularly fine Flemish bond with plain single doorways, the one beside the back sheds having a small recess on the outside, similar to the one at Camperdown. Their purpose is unknown: it may have included a receptacle for a key or maybe a lamp (Figure 29).



Figure 29. One of the entrances into Saltoun walled garden showing a niche similar to that at Camperdown.

The walled garden at Salton is now empty, and deterioration of some of the brickwork has exposed the intricate flue system of the heated walls, (Figure 30).



Figure 30. The flued wall at Saltoun.

Around the same time as working on Saltoun Hay was involved in several other projects; at Castle Semple, Renfrewshire, for Col Harvey and plans for extensive flower gardens at Newhailes House, Edinburgh, for Miss Christian Dalrymple.

At Castle Semple, where the owner, Col Harvey, was himself a keen horticulturalist, Hay was involved for several years. He installed both a system of steam heating and a labour-saving watering scheme for the walled garden, similar to that at Camperdown.



## f) Newhailes

One of the more extensive flower gardens designed by Hay is Newhailes, now a Scottish National Trust property on the outskirts of Edinburgh. Once owned by the important influential and extensive family of Dalrymples, it was inherited by Christina (1765-1838), daughter of Lord Hailes, Lord of the Judiciary, in 1792.<sup>156</sup> It was unusual for a daughter to inherit property, but Christina devoted as much of her time, as previous generations had, to improving both the large mansion and the pleasure grounds. She commissioned Hay in 1818 to design a flower garden for the semi-circular walled garden already present, as can be seen in an estate plan of Robert Bauchop, dated 1798 (Figure 31).<sup>157</sup>

---

<sup>156</sup> National Trust for Scotland, *Newhailes*, (Edinburgh: Stewarts, reprint 2010), p. 12.

<sup>157</sup> *Ibid.*, p. 54.



Figure31. Bauchop plan of Newhailes 1798.

Recently the National Trust for Scotland has undertaken a series of archaeological surveys of the landscape including the remains of the flower garden. Details of various garden paths were identified, including part of the curving flower garden wall (Figure 32). An evaluation trench located at the rear of a ruined later 18<sup>th</sup> century glasshouse revealed the brick-lined 'oven pit' associated with its internally heated wall. This still contained a supply of coal, a stoke shovel and its cast-iron oven door.<sup>158</sup>

<sup>158</sup> <https://canmore.org.uk/event/797021> [accessed 16 September].

A blind facade was recorded during the survey, which later was used to hide a fruit store.<sup>159</sup> The slip garden was originally an L-shaped yard to the north-west of the D-shaped flower garden, and was used for propagation. Several bricked up uniform 'cupboard' features were discovered in the interior wall, which may be the remains of bee boles.<sup>160</sup>

Christina never married and Newhailes was inherited by her nephew, Sir Charles Dalrymple-Fergusson of Kilkerran, where Hay had previously worked on the walled garden and flower garden.



Figure32. Photograph of Newhailes taken c. 1880, showing Christina Dalrymple's flower garden on south side of house.

<sup>159</sup> [http://www.johngraycentre.org/collections/getrecord/ELHER\\_MEL9563/](http://www.johngraycentre.org/collections/getrecord/ELHER_MEL9563/) [accessed 16 September 2016].

<sup>160</sup> Ibid., [accessed 16 September 2016].



### **g) Edinburgh Experimental Garden**

During 1822 Hay was busy with the proposed new Experimental Garden for the Caledonian Horticultural Society. In 1823 a portion of land was bought by the Crown and leased to the Society for the garden. Whilst the official history of the Caledonian Horticultural Society states that in 1825 James McNab, the Curator of the Botanic Garden, drew up plans for the new garden, which may well be true, the minutes of the Society record that the plans were drawn by Hay (Figure 33).

At the Annual Election Meeting in December 1825 the Permanent Vice-President, Dr Andrew Duncan read in his speech,

It gives me peculiar satisfaction to be able to announce to you, in my official capacity, that your Council have, for the present year, awarded this annual testimony of esteem, on our Fellow Member, Mr John Hay, Garden-Architect, on account of the admirable Plans which he has presented to us, for the construction of Conservatories, Vineries, Pineries, and other Buildings, by means of which, aided by our coal giving heat, and our glass giving protection, we may enjoy the most delicate fruits which any portion of the earth can afford, at any season of the year.<sup>161</sup>

---

<sup>161</sup> Patrick Neill, ed, *Transactions of the Caledonian Horticultural Society* (Edinburgh: 1826), p.4.

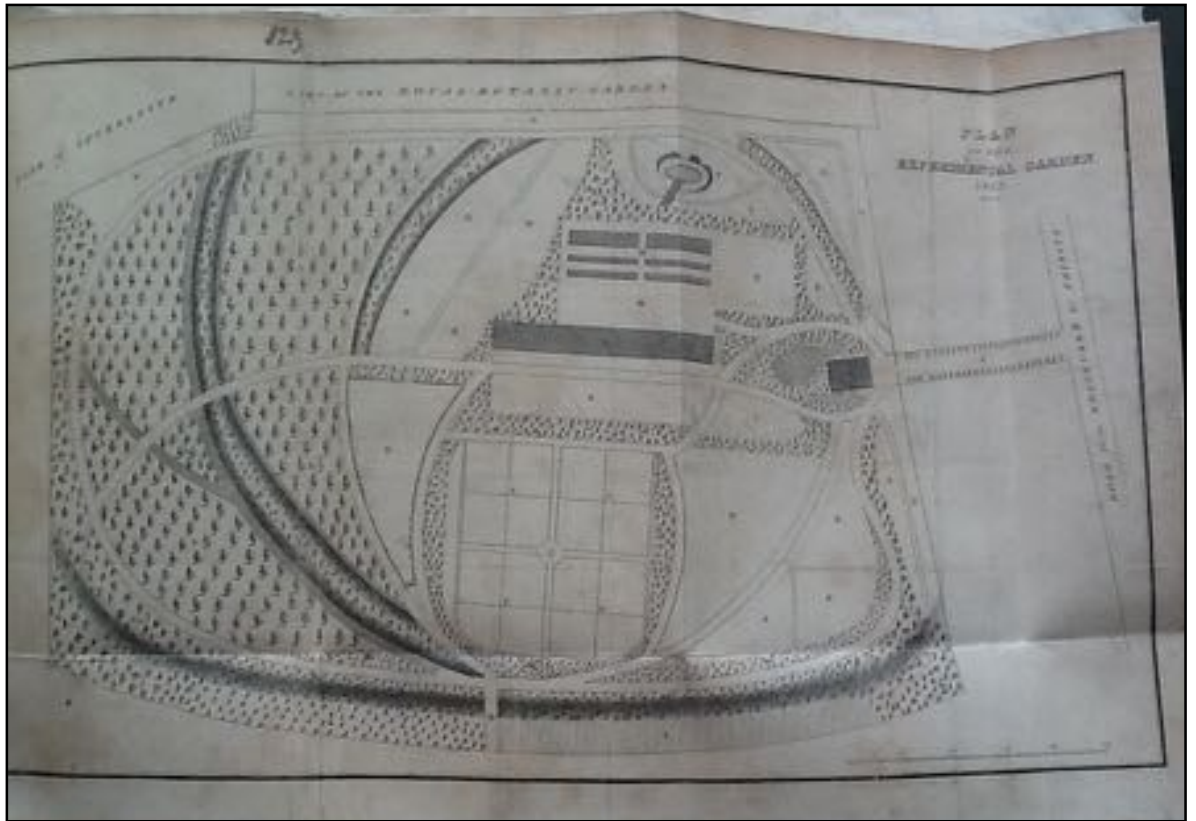


Figure 33. The plan is labelled 'Plan of Edinburgh Experimental Garden, 1825'.

Although a list of shareholders was opened, and money came from as far away as India, the following year, 1824, a further call went out for £2000 to 'fulfil Mr Hay's garden plan' (Figure 34).<sup>162</sup>

<sup>162</sup> Neill, *Transactions of the Caledonian Horticultural Society, Annexe of Shareholders* (John Linning's personal copy held in Royal Botanic Garden Edinburgh Library)

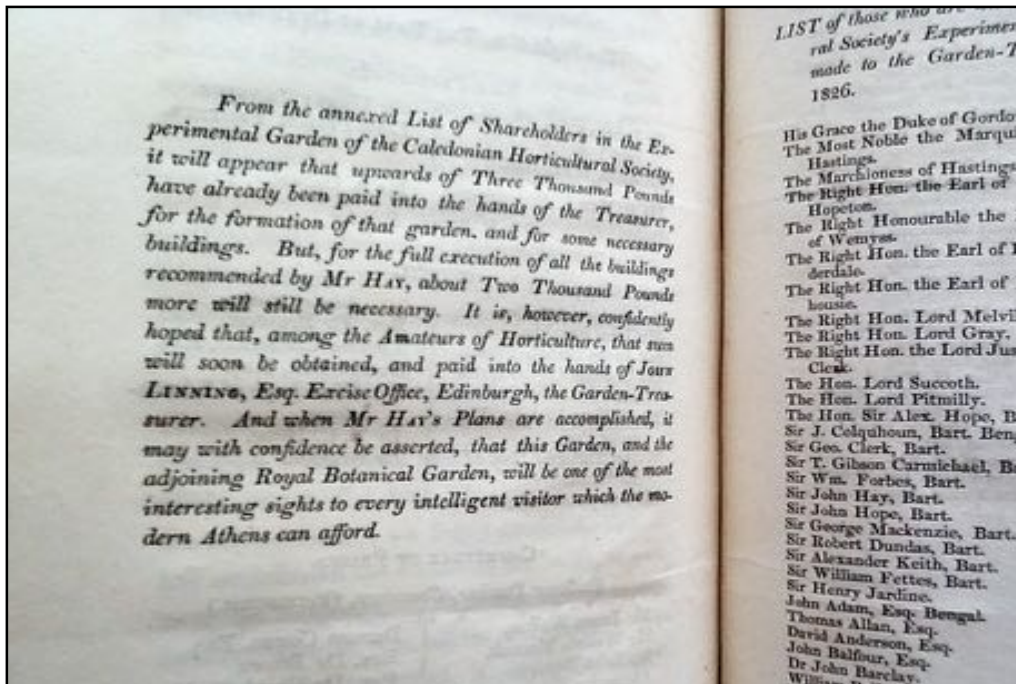


Figure 34. Report of funding for the Experimental Garden.

Eventually the final sum was raised, construction began and the first show was held in 1828. The garden was not without its problems, both financially and with its personnel, but it continues today, albeit much altered from the original plans, having been absorbed into the Edinburgh Botanic Garden.

Hay was now in his mid-sixties. Whatever the reason, maybe of age or health, there are no recorded garden plans after 1824. There may be other gardens with which he was involved but no records were found during the course of this dissertation. It will be for other researchers to uncover.

## Chapter 5: Evaluation and Conclusion

The research that has been undertaken for this dissertation gives a modern foundation for future studies of Scottish walled gardens and horticulture and the people who have created them since the 19<sup>th</sup> century. Although the dissertation focuses on the work of John Hay it considers the context within which he was working and some of the differences between contemporary Scottish and English horticulture. It also marks some of the significant events occurring in Scottish horticulture and suggests areas for further research.

Hay's system of steam heating, or an adaptation of it, was adopted by almost all the big estates in Scotland intent on having the pineapple and melon on their table. Steam heating became popular in other areas of industry and advances in steam technology, with the discovery of the siphon by Thomas Fowler, meant that vertical circulation, not just horizontal, was possible.<sup>163</sup> A.M. Perkins developed the high-pressure system which heated water above boiling point and allowed faster circulation. Gradually steam heating was taken over by commercial concerns for heating large buildings such as schools, hospitals and prisons and in horticulture hot water systems gradually took over from steam heating.<sup>164</sup>

---

<sup>163</sup> Kohlmaier & Sartory, *The Artificial Climate*, Kohlmaier and Sartory, reproduced from *The Artificial Climate*, Heritage Group Website for the Chartered Institution of Building Services Engineers [http://www.hevac-heritage.org/electronic\\_books/glasshouses/2-GLASSHOUSES-artificialclimate-1.pdf](http://www.hevac-heritage.org/electronic_books/glasshouses/2-GLASSHOUSES-artificialclimate-1.pdf) [accessed 12 and 13 November 2016].

<sup>164</sup> *Ibid.*, p. 54. [accessed 12 and 13 November 2016].



Undoubtedly Hay contributed much to the debate of heating glasshouses successfully and he was innovative in taking a new technology and adapting it for his profession. As Loudon stated in his review for the Caledonian Horticultural Society in 1829,

We participate in the satisfaction which Mr. Hay must enjoy, after a long life assiduously spent in horticultural pursuits, in being the author of such a useful invention. It appears that Mr. Hay applied steam to forcing houses at Preston in Midlothian in 1794, and he may now be considered as perfected in this mode of heating.<sup>165</sup>

But Hay should also be remembered for the walled gardens and other gardens that he designed and that are probably unrecorded. Having seen the great Scottish mansions designed and embellished by Adam, Robertson, Burn and other notable architects, Hay attempted to design a walled garden as a fitting accessory to the main building. His walled gardens are works of art often with unusually curved walls, beautifully finished copings, arched doorways and decorative bell towers (Figure 35). Many of his walled gardens have attached buildings such as small recessed orangeries, corner buildings or unusually shaped gazebos, but they are often overlooked in favour of the associated impressive mansion. Perhaps Hay worked in conjunction with the architect and is not credited with the recognition he deserves, but his signed garden plans demonstrate he had skills equal to the architect.

---

<sup>165</sup> Loudon, 'Review of Memoirs of Caledonian Horticultural Society' in *The Gardener's Magazine* Vol. IV, Part II (1829), p. 451.

One can understand that when Loudon saw these gardens on his extensive travels north he formed the opinion that set the parameters for this dissertation.



Figure 35. (clockwise from top left) The beautifully arched gateway at Oxenford walled garden, the Bell feature at Kilkerran walled garden, the original gates and key for the walled garden at Lochnaw, and view of accessory building that Hay often placed in the corners of his walled garden. They were used as shelters, tool store, fruit store etc.

In December 1825 the Caledonian Horticultural Society awarded Hay 'the annual premium for the most interesting communication received during the year'.<sup>166</sup> In 1829 he was awarded the Silver Medal by the Society. This was probably the pinnacle of Hay's career. No further records regarding his career have been uncovered during the research for this dissertation.<sup>167</sup> Hay's name

---

<sup>166</sup> *Memoirs of Caledonian Horticultural Society*

<sup>167</sup> A plan of the walled garden for Tillicoultry house in Fife was found by Christopher Dingwall in March 2017 amongst the archives of Balkaskie House Fife, signed 'John Hay'

does not appear in the list of members for the Caledonian Horticultural Society after 1829, so one can only surmise that he retired from horticultural activities.

His obituary was soberly noted in *The Gardener's Magazine*, 'Mr. Hay, an eminent garden architect, who has contributed much to the improvement of walled gardens and hothouses in Scotland'.<sup>168</sup>

His burial certificate records him as a 'garden planner' and that he died of the 'decay of nature' on 17 November 1836 and is 'buried in his own tomb' in New Calton Burying Grounds, Edinburgh (Figure 36).<sup>169</sup>

There is a rich amount of garden history surrounding Scottish kitchen gardens which deserves further study, not just on Hay, but on the other horticulturalists working at this time in Scotland. Until then John Hay must remain 'the most eminent horticultural architect Scotland has ever produced'.<sup>170</sup>

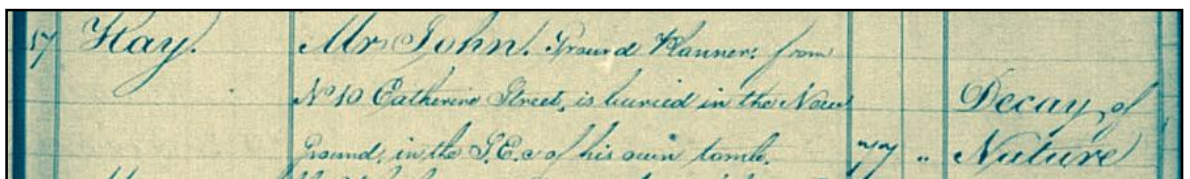


Figure36. Burial certificate for John Hay 17 December 1836.

---

but undated. The author has been unable to find any further records in the main repositories.

<sup>168</sup> Loudon, *The Gardener's Magazine*, Vol. 5 (December 1836), p.451.

<sup>169</sup> Copy of burial certificate.

<sup>170</sup> Loudon, *The Gardener's Magazine* (December 1837), p. 543.

## Bibliography

### Primary Sources

Hay, John, 'Account of a Mode of producing a steady and uniform Bottom Heat in Pine-apple or Melon Pits, or in Stoves for Exotic Plants, by means of Steam introduced into a close Chamber filled with Water-worn Stones,' *Memoirs of Caledonian Horticultural Society*, Article 72, (05 March 1829)

Loudon, J.C., *A Short Treatise on several improvements recently made in Hothouses*, (Edinburgh: John Turnbull, 1805)

Loudon, J.C., *Encyclopaedia of Gardening*, (London: Longman, Rees, Orme, Brown, Green, and Longman, 1822-1835)

Loudon, J.C., *The Arboretum Britannicum: or The trees and Shrubs of Britain*, (London: Harry G. Bohn, 1854)

Loudon, J.C., *The different modes of cultivating the pine-apple, from its first introduction into Europe to the late improvements of T.A. Knight, Esq. By a member of the Horticultural society*. (London: Longman, Hurst, Rees, Orme and Brown, 1822)

Loudon, J.C., *The Gardener's Magazine*, Vols. 1-18 (London: A. & R. Spottiswoode, 1826-1842)

Lord Buchan's diary, Glasgow University Library, Murray MS. 502/61

Major, Joshua, *The Theory and Practice of Landscape Gardening* (London: Longman, Brown, Green and Longmans, 1852)

McIntosh, Charles, *The Book of the Garden*, Vol. 1 (Edinburgh and London: William Blackwood and Sons, 1853)

McIntosh, Charles, *The New and Improved Practical Gardener, and Modern Horticulturalist* (London: Kelly, 1852)

*Memoirs of the Caledonian Horticultural Society*, Vols. IV and VIII (1829)

Neill, Patrick, *Journal of a Horticultural Tour in 1817 Through Some Parts of Flanders, Holland and the North of France in the Autumn of 1817 by a Deputation of the Caledonian Horticultural Society*, Appendix XI (Edinburgh: Bell & Bradfoote, 1823)

Neill, Patrick, *The Fruit, Flower and Vegetable Garden* (Edinburgh: A. and C. Black, 1845)

Neill, Patrick, ed, *Transactions of the Caledonian Horticultural Society* (Edinburgh: 1826).

Palladio, Andrea, translated by Tavener, Robert and Schofield, Richard, *The Four Books of Architecture*, (Massachusetts, MIT Press, paperback 2002)

## Secondary Sources

Bowe, Patrick and Keith Lamb, *A History of Gardening in Ireland* (Dublin: The Stationary Office for the National Botanic Gardens, 1995)

Brickwell, C., ed, *Encyclopaedia of Gardening*, (Dorking: Kindersley Ltd, 1992)

Brown, Jane, *The Pursuit of Paradise* (London: Harper Collins, 1999)

Brown, M., *Scotland's Lost Gardens, From the Garden of Eden to the Stewart Palaces* (Edinburgh: Royal Commission on the Ancient and Historical Monuments of Scotland, 2012)

Buchan, John, *Crowded with Genius: The Scottish Enlightenment: Edinburgh's Moment of the Mind* (New York: Harper Collins, 2003).

Buchan, Ursula, *The English Garden* (London: Frances Lincoln Publishers, 2006)

Buxbaum, Tom, *Scottish Garden Buildings: from Food to Folly* (Edinburgh: Mainstream Publishing, 1989)

Byrom, Connie, *The Edinburgh New Town Gardens: Blessings as Well as Beauties* (Edinburgh: Birlinn Ltd, 2005)

Byrom, Connie, 'The Pleasure Grounds of Edinburgh New Town', *Garden History*, Vol. 23, No. 1 (1995)

Campbell, Katie, *British Gardens in Time* (London: Frances Lincoln Publishers, 2014)

Campbell, Susan, *A History of Kitchen Gardening* (London: Unicorn Publishing Group, 2016)

Campbell, Susan, *Walled Kitchen Gardens* (Princes Risborough: Shire Publications, 2006)

Chambers, Robert, *Traditions of Edinburgh* (Edinburgh: W & C Tait, 1825)

Chitnis, Anand C., *The Scottish Enlightenment and Early Victorian English Society* (Guilford and Kings Lynn: Biddles Ltd, 1986)

Cox, E.H.M., *A History of Gardening in Scotland* (London: Chatto & Windus, 1935)

Dingwall, Christopher, 'In Search of Free Air and an Agreeable Prospect: the Flight from Edinburgh's Old Town', *Garden History*, No. 43, Supplement 1, (Spring 2015)

Eburne, Andrew and Taylor, Richard, *How to Read an English Garden* (London: Ebury Press, 2006)

Elliot, Brent, *Victorian Garden* (London: Batsford, 1990)

Ferguson, James, *Lowland Laird* (London: Faber & Faber, 1949)

Fleming, John, *Robert Adam and His Circle, in Edinburgh and Rome* (London: John Murray, 1962)

Haldane, Elizabeth, *Scots Gardens in Old Times 1200-1800* (London: Alexander Maclehose & Co., 1934)

Harvey, John, *Early Gardening Catalogues* (Chichester: Philimore & Co. Ltd, 1972)

Harvey, John, *Early Nurserymen*, (London: Philimore & Co. Ltd, 1974)

Herman, Arthur, *How the Scots invented the Modern World*, (New York: Three Rivers Press, 2001)

Hobhouse, Penelope, *Plants in Garden History* (London: Pavilion Books Ltd, 1994)

Hobhouse, Penelope, *The Story of Gardening* (Dorking: Kindersley Ltd, 2004)

Hunt, John Dixon, *The Picturesque Garden in Europe* (London: Thames & Hudson Ltd, 2004)



Huxley, Anthony, *An Illustrated History of Gardening* (London: Paddington Press, 1978)

Ikin, Caroline, *The Victorian Garden* (Oxford: Shire Publications, 2012)

Jarrett, David, *The English Landscape Garden* (London: Academy Editions, 1978)

Laird, Mark, *The Flowering of the English Landscape 1720-1800* (Philadelphia: University of Pennsylvania Press, 1999)

Laird, Mark, *A Natural History of English Gardening 1650-1800* (New Haven: Yale University Press, 2015)

Leith-Ross, Prudence, *The John Tradescants* (London: Peter Owen Publishers, 1984)

Lewis, Anthony, *The Builders of Edinburgh New Town 1767-1795* (London: Spire Books, 2014)

Little, Alan G., ed, *Scotland's Gardens* (Edinburgh: Spur Books, 1981)

Mackay, Sheila, *Early Scottish Gardens* (Edinburgh: Edinburgh University Press Ltd, 2001)

Masset, Claire, *Orchards* (Oxford: Shire Publications Ltd, 2012)

McKean, Charles, *Edinburgh: An Illustrated Architectural Guide* (Edinburgh: Royal Incorporation of Architects in Scotland Publications, 1982)

Minter, Sue, *The Apothecaries' Garden* (Stroud: The History Press, 2010)

Montgomery-Massingberd, Hugh and Sykes, Christopher, *The Great Houses of Scotland* (Leicester: Silverdale Books, 2005)

Morris, Derek, *Mile End Old Town 1740–1780: A Social History of an Early Modern London Suburb* (London: East London History Society, 2007).

Mowl, Timothy, *Gentlemen & Players, Gardeners of the English Landscape* (Stroud:Sutton Publishing Ltd, 2000)

Musgrave, Toby, *The Head Gardeners, Forgotten Heroes of Horticulture* (London: Aurum Press Ltd, 2009)

National Trust for Scotland, *Newhailes*, (Edinburgh: Stewarts, reprint 2010)

Robertson, Forbes W., *Early Scottish Gardeners and their Plants, 1650-1750* (East Linton: Tuckwell Press, 2000)

Robertson, Forbes W., *Patrick Neill, Doyen of Scottish Horticulture* (Dunbeath:Wittles

Publishing, 2011)

Scottish Natural Heritage, *An Inventory of Gardens and Designed Landscapes*  
(Edinburgh: Historic Scotland, 2006)

Shrimpton, Colin, *A History of Alnwick Parks and Pleasure Grounds* (Derby:  
Northumberland Estates, 2006)

Steel, T., *Scotland's Story* (London: HarperCollins, 1994)

Stroud, Dorothy, *Capability Brown* (London: Faber, 1975)

Symes, Michael, *A Glossary of Garden History* (Princes Risborough: Shire Publications  
Ltd, 2006)

Symes, Michael, *The Picturesque and the Later Georgian Garden* (Bristol:Redcliffe  
Press Ltd, 2012)

Tait, A. A., *The Landscape Garden in Scotland, 1735-1835* (Edinburgh:Edinburgh  
University Press, 1980)

Tait, Margaret and Gray, W., Forbes, *Annals of an Edinburgh locality, 1766-  
1926, from authentic records* (Edinburgh: T. and A. Constable Ltd for The Old  
Edinburgh Club, 1948)

Truscot, James, *Private Gardens of Scotland* (London:Weidenfield & Nicholson, 1988)

Turner, Lyn, ed, *A Clearer Light, Lord Hailes and Scottish Enlightenment* (Edinburgh: The National Trust for Scotland, 2013)

Uglow, Jenny, *A Little History of British Gardening* (London:Pimlico, 2005)

Urquhart, Suki and Cox, Ray, *The Scottish Gardener: Being Observations made in a Journey through the Whole of Scotland from 1998 to 2004 chiefly relating to the Scottish Gardener Past & Present* (Edinburgh: Birlinn Ltd, 2005)

Varga, Susan, *Edinburgh New Town* (Stroud: History Press, 2013)

Waterfield, Margaret, ed, *Some Flower Grouping in English, Scotch and Irish Gardens* (London: J.M. Dent & Co., 1907)

Williamson, Tom, *Polite Landscapes* (Stroud: Sutton Publishing, 1995)

Woods, May, and Warren, Arete Swartz, *Glass Houses: A History of Greenhouses, Orangeries and Conservatories* (London: Aurum Press, 1990)

Wulf, Andrea, *The Brother Gardeners* (London: Windmill Books, 2009)

Youngston, Alexander J., *The Making of Classical Edinburgh* (Edinburgh:  
Edinburgh University Press, 1966)

## Internet Sources

BBC, *The Rise of Edinburgh*,

[http://www.bbc.co.uk/history/british/civil\\_war\\_revolution/scotland\\_edinburgh](http://www.bbc.co.uk/history/british/civil_war_revolution/scotland_edinburgh)

[accessed 15 September 2016]

Birchall, John, P., *Nitre Beds, Petre Men & Gunpowder*

[http://www.themeister.co.uk/hindley/lowwood\\_saltpetre.htm](http://www.themeister.co.uk/hindley/lowwood_saltpetre.htm). [accessed 13

November 2016]

[www.britannica.com/topic/ScottishEnlightenment](http://www.britannica.com/topic/ScottishEnlightenment) [accessed 13 April 2016]

Canmore National Record of the Historic Environment, *Newhailes, Flower Garden*

(2016) <https://canmore.org.uk/site/171084/newhailes-flower-garden> [accessed

22 October 2016]

[www.crafftpeerage.co.uk](http://www.crafftpeerage.co.uk) [accessed 10 April 2016]

Cutler J. Cleveland and Christopher G. Morris, *Handbook of Energy: Chronologies,*

*Top Ten Lists, and Word Clouds*, Elsevier (2013)

[https://books.google.co.uk/books?id=ScL77rOCZn0C&pg=PA502&lpg=PA502&dq](https://books.google.co.uk/books?id=ScL77rOCZn0C&pg=PA502&lpg=PA502&dq=martin+triewald+in+newcastle+on+tyne)

[=martin+triewald+in+newcastle+on+tyne](https://books.google.co.uk/books?id=ScL77rOCZn0C&pg=PA502&lpg=PA502&dq=martin+triewald+in+newcastle+on+tyne). [accessed 12 November 2016]

Dalhousie Estates, *Dalhousie Estates* (2014) <http://www.dalhousieestates.co.uk>

[accessed 14 March 2016]

*Edinburgh's Scottish Enlightenment: Scotland in the Eighteenth Century, History Timeline History of Scotland* <http://www.scotland.org.uk/history/enlightenment> [accessed 15 March 2016]

Edinburgh World Heritage, *Edinburgh World Heritage - Tweeddale Court* <http://www.ewht.org.uk/visit/iconic-buildings/Tweeddale-Court> [accessed 15 September 2016]

European Route of Industrial Heritage, [www.erih.net/how-it-started/stories-about-people-biographies/.../site/.../triewald](http://www.erih.net/how-it-started/stories-about-people-biographies/.../site/.../triewald) [accessed 11 November 2016]

Fife Family History Society, *Parochial Directory for Fife & Kinross - 1861 Excerpt* <http://www.fifefhs.org/images/resources/records/parochial-directory/PARISH-OF-MONIMAIL.pdf> [accessed 10 October 2016]

<http://www.genguide.co.uk/source/apprenticeship-agreements-trade-occupations/102/> [accessed 4 March 2016]

Goold, David, *The Hays of Liverpool*, in *Dictionary of Scottish Architects - DSA Architect Biography Report*, Codex Geodata (2014) [http://www.scottisharchitects.org.uk/architect\\_full.php?id=200314](http://www.scottisharchitects.org.uk/architect_full.php?id=200314) [accessed 13 March 2016]

Grace's Guide, *A. Ballantine and Sons*, [www.gracesguide.co.uk/A\\_Ballantine\\_and\\_Sons](http://www.gracesguide.co.uk/A_Ballantine_and_Sons) [accessed 14 October 2016]

Grace's Guide, *Carron Co Ironworks at Falkirk* (2016)

[http://www.gracesguide.co.uk/Carron\\_Co](http://www.gracesguide.co.uk/Carron_Co) [accessed 29 September 2016]

Grace's Guide, *Cottam and Hallen* (2016)

[http://www.gracesguide.co.uk/Cottam\\_and\\_Hallen](http://www.gracesguide.co.uk/Cottam_and_Hallen) [accessed 29 September 2016]

Historic England, *West Ham Park*, Historic England, list entry number 1001685,

(2016) <https://historicengland.org.uk/listing/the-list/list-entry/1001685>

[accessed 15 June 2016]

Historic Environment Scotland, *Millburn Tower*, record reference GDL00286

(2016) <http://portal.historicenvironment.scot/designation/GDL00286> [accessed

22 August 2016]

Historic Environment Scotland, *Oxenfoord Policies, Walled Garden and*

*Gardener's House*, record reference LB49105 (2016)

<http://portal.historicenvironment.scot/designation/LB49105> [accessed 15

September 2016]

History of Rhododendron Discovery & Culture, First 50 Years of Hybridizing and



the Hybridizers <http://rhodyman.net/rhodyhis2.html#anchorTHOMPSON>

[accessed 15 June 2016]

HistoryShelf.org: the Free Gardeners, *The Fraternity of Gardeners of East Lothian*,

<http://www.historyshelf.org/shelf/free/12.php> [accessed 19 September 2016]

Internet Archive, *Full text of 'Memoirs of the Caledonian Horticultural Society. Volume Fourth'*,

[https://archive.org/stream/memoirsofcaledv400cale/memoirsofcaledv400cale\\_djvu.txt](https://archive.org/stream/memoirsofcaledv400cale/memoirsofcaledv400cale_djvu.txt) [accessed 18 October 2016]

Jackson, Benjamin Daydon, *Neill, Patrick (1776-1851)* in *Dictionary of National Biography 1885-1900*, vol 40 (1901)

[https://en.m.wikisource.org/wiki/Neill,\\_Patrick\\_\(1776-1851\)\\_\(DNB00\)](https://en.m.wikisource.org/wiki/Neill,_Patrick_(1776-1851)_(DNB00)) [accessed 23 March 2016]

Jameson, Robert, *Glasshouses: History and Conservation of Victorian and Edwardian Greenhouses and Cold Frames* (2011)

<http://www.buildingconservation.com/articles/glasshouse-conservation/glasshouse-conservation.htm> [accessed 15 June 2016]

John Grey Centre, [www.johngraycentre.org/people/movers\\_shakers/saltoun](http://www.johngraycentre.org/people/movers_shakers/saltoun)

[accessed 04 September 2016]

John Grey Centre,

[http://www.johngraycentre.org/collections/getrecord/ELHER\\_MEL9563/](http://www.johngraycentre.org/collections/getrecord/ELHER_MEL9563/)

[accessed 4 September 2016]

Justice, Clive, L., *The Victorian rhododendron Story*, in *Journal American Rhododendron Society*, Vol. 53, Number 3 (1999), Virginia Tech University Digital Library and Archives <http://scholar.lib.vt.edu/ejournals/JARS/v53n3/v53n3-justice.htm> [accessed 15 June 2016]

Kohlmaier and Sartory, reproduced from *The Artificial Climate*, Heritage Group Website for the Chartered Institution of Building Services Engineers [http://www.hevac-heritage.org/electronic\\_books/glasshouses/2-GLASSHOUSES-artificialclimate-1.pdf](http://www.hevac-heritage.org/electronic_books/glasshouses/2-GLASSHOUSES-artificialclimate-1.pdf) [accessed 12 and 13 November 2016]

[www.lloydsbankinggroup.com/Our-Group/our-heritage](http://www.lloydsbankinggroup.com/Our-Group/our-heritage) [accessed 14 October 2016]

London Gardens Online, London Parks & Gardens Trust, Footmark Media (2012) <http://www.londongardensonline.org.uk/gardens-online-record.asp?ID=NEW036> [accessed 15 June 2016]

Masónico, Diario, *Order of Free Gardeners*, Diario Masónico (2015) <http://www.diariomasonico.com/english/order-of-free-gardeners> [accessed 21 October 2016]

Maxwell, Herbert Eustace, *Scottish Gardens; Being a Representative Selection of Different Types, Old and New* (1911)

<https://www.archive.org/stream/scottishgardensb00maxwrch?ref=ol#page/n5/mode/2up> [accessed 09 January 2017]

Mills, Colin, *Malus spectabilis (Ait.) Borkh*, in *Hortus Camdenensis: An illustrated catalogue of plants grown by Sir William MacArthur at Camden Park, NSW, Australia between c.1820 and 1861* (2010)

<http://hortuscampden.com/plants/print/malus-spectabilis-ait.-borkh> [accessed 15 June 2016]

Moore, Lisa, L., *What Gardens Mean - Chapter 5 - The Picturesque*,

<http://www.en.utexas.edu/Classes/Moore/sources/gardens-chapter5.pdf>

[accessed 24 March 2016]

Nesbitt Nisbet Society (British Isles), *Nesbits Of Archerfield, Dirleton*,

<http://www.nesbittnisbet.org.uk/archerfield.pdf> [accessed 14 March 2016]

New Forest Explorers Guide

<http://www.newforestexplorersguide.co.uk/heritage/lyndhurst/cuffnells-early-years.html> [accessed 16 September 2016]

Newhamstory.com <http://www.newhamstory.com> [accessed 15 June 2016]

Old Scottish Genealogy and Family History, *Lasswade Parish Records*

<http://www.oldscottish.com/lasswade.html> [accessed 22 September 2016]

*Order of Free Gardeners*, Wikipedia

[https://en.m.wikipedia.org/wiki/Order\\_of\\_Free\\_Gardeners](https://en.m.wikipedia.org/wiki/Order_of_Free_Gardeners) [accessed 19 September 2016]

[www.parksandgardens.gov.uk](http://www.parksandgardens.gov.uk). [accessed 14 March 2016]

Rock, Dr. Joe, *Newhailes House Timeline, Part Four: 1793 - present*, Research page 2 (1960) <https://sites.google.com/site/researchpages2/home/newhailes-house-timeline/newhailes-house-timeline-part-four-1793---present> [accessed 16 June 2016]

Royal Caledonian Horticultural Society, *History of the Society*

<http://www.rchs.co.uk/about-us/history> [accessed 15 March 2016]

Sale, Charles, *Details of grave number 256331 at New Calton Lothian, Scotland for John Hay*, Gravestone Photographic Resource (1998)

<http://www.gravestonephotos.com/requestee/deceasedextrainfo.php?grave=256331&deceased=551704&requestee=52791&scrwidth=800> [accessed 16 June 2016]

ScotlandsPlaces, *Millburn Tower*, Historic Environment Scotland, Canmore ID 50679 <http://www.scotlandsplaces.gov.uk/record/rcahms/50679/millburn-tower/rcahms?item=687449> [accessed 22 November 2016]

ScotlandsPlaces, *Plan of Improvements, including a Survey of the Estate of Barns, lying in the Parish of Manner and County of Peebles. The property of James Burnett, Esq'. Surveyed, designed and drawn by John Hay.*  
<http://www.scotlandsplaces.gov.uk/record/nrs/RHP74/plan-improvements-including-survey-estate-barns-peebleshire/nrs> (accessed 09 March 2016)

Scottish Architects, <http://www.scottisharchitects.org.uk> [accessed 08 March 2016]

*Scottish Enlightenment*

<http://www.sath.org.uk/edscot/www.educationscotland.gov.uk/scottishenlightenment/index.html> [accessed 14 March 2016]

Scott, Patrick, *The Culture of Camellias*, University of South Carolina Libraries - Rare Books and Special Collections  
<http://library.sc.edu/spcoll/nathist/camellia/camellia3.html> [accessed 16 September 2016]

Spongberg, Stephen A. "Some Old and New Inter specific Magnolia Hybrids."  
*Arnoldia*, vol. 36, no. 4, 1976, pp. 129–145. *JSTOR*, JSTOR,  
[www.jstor.org/stable/42954103](http://www.jstor.org/stable/42954103). [accessed 16 September 2016]

Sutherland, Stewart, *Scottish Enlightenment: British History*, Encyclopædia  
Britannica <https://www.britannica.com/topic/Scottish-Enlightenment> [accessed  
13 January 2017]

The Peerage.com <http://www.thepeerage.com/p6747.htm#i67468> [accessed 16  
June 2016]

Thick, Malcolm, *Garden seeds in England before the late eighteenth century, the  
trade in seeds to 1760*  
<http://www.bahs.org.uk/AGHR/ARTICLES/38n2a1.pdf><http://www.bahs.org.uk/AGHR/ARTICLES/38n2a1.pdf> [accessed 16 September 2016]

*Wanstead Park*, Wikipedia [https://en.m.wikipedia.org/wiki/Wanstead\\_Park](https://en.m.wikipedia.org/wiki/Wanstead_Park)  
[accessed 05 October 2016]

*William Cadell*, Wikipedia [https://en.m.wikipedia.org/wiki/William\\_Cadell](https://en.m.wikipedia.org/wiki/William_Cadell)  
[accessed 29 September 2016]